

The Work of “Feeding the World:”
from India’s Green Revolution to the Paradox of Plenty

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Dedication

For Armas.

Abstract

The food situation in India today defies conventional development wisdom: while the government struggles to dispose of massive food surpluses, the population is among the most malnourished and food-insecure in the world. This dissertation traces the conceptual lineages of the policies that have produced this “paradox of plenty” back to the Green Revolution of the 1960s through to today. In this exploration, my research finds that the situation is not a “paradox,” but unfortunately, is a predictable, even banal, result of the very policy prescriptions offered as the means of ending hunger and the path to development. Navigating policy details, readings of development and modernization theory, and the uniquely important role of food and agricultural aid and hunger in India-US relations, I draw on extensive archival research and insights yielded through “expert” interviews to unravel the logic underlying development and the policy prescriptions to elucidate how the logic of the Green Revolution’s “development” path has produced today’s conditions of hunger amidst plenty.

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List of Acronyms	
ABSP II	Agricultural Biotechnology Support Project II
AKI	Agricultural Knowledge Initiative
BRAI	Biotechnology Regulatory Authority of India (Bill)
Bt	<i>bacillus thuringiensis</i>
CDP	Community Development Programme
FCI	Food Corporation of India
FF	Ford Foundation
FS	<i>Food security</i>
FSB	Fruit and Shoot Borer (i.e. the pest Bt Brinjal was modified to be resistant to)
GEAC	Genetic Engineering Approval Committee, Genetic Engineering <i>Appisal</i> Committee
GM, GE	Genetically Modified, Genetically Engineered/Genetic Engineering
GMR	Gene Revolution, Second Green Revolution
GoI	Government of India
GR	Green Revolution
HYVs	High Yielding Varieties
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
IADP IAAP	Intensive Agricultural District Programme Intensive Agricultural Areas Programme
ICAR	Indian Council of Agricultural Research
IMF	International Monetary Fund
IPM	Integrated Pest Management
IPR	Intellectual Property Rights
MoA	Ministry of Agriculture
MoEF	Ministry of Environment and Forests
NFSM	National Food Security Mission
NS	New Strategy
PC	Planning Commission
PDS TPDS	Public Distribution System Targeted Public Distribution System
PL 480	Public Law 480 “Food for Peace” (US Food Aid)
PPP	Public private partnership
RF RF, IAP	Rockefeller Foundation Rockefeller Foundation, Indian Agricultural Program
USAID	United States Agency for International Development
USDA USDA FAS	United States Department of Agriculture United States Department of Agriculture, Foreign Agricultural Service
USG	United States Government
WB	World Bank

Preface

The Work of Hunger in “*Feeding the World*”

1 | Hunger Amidst Abundance: The Global Food Crisis

In early 2008 a “global food crisis” erupted, seemingly out of nowhere. The prices of basic staple food commodities—such as wheat, rice, maize, sugar, and cooking oil—rose between 60% and 200% in a few months.¹ Rising prices pushed hundreds of millions of people over the thin threshold—from just affording basic foods to deprivation, and hunger.² Malnutrition and food-insecurity rates soared. “Food riots” broke out in almost 100 countries across the world.³ At the same time, global foodgrain harvests in both 2007 and 2008 were among the highest ever recorded; surpluses of staple foods were abundant.

The food crisis was the starkest manifestation of a “paradoxical” situation—of increasing hunger amidst increasing surplus food—which has become more and more familiar, even banal, over the last two decades.

Pundits declared that the global food crisis of 2008 was markedly different than food crises of the past. The decade of the mid-1960s through the mid-1970s was punctuated by repeated declarations of impending food crises; these crises were seen as a result of food shortages, specifically in the “Third World.”⁴ They were cast as crises of “overpopulation” and underproduction due to natural disasters and lack “modern” farming techniques. As such, the overriding (politically viable⁵) concern was the need to increase global food production.⁶ The production-centric rhetoric and mindset from that earlier era continue to define our responses to hunger today—even when the reasons for hunger are entirely unrelated to the quantity of food produced, as was the case with the 2008 food crisis.⁷

The 2008 crisis was a food *price* crisis, a result of speculation. It was a crisis of food *as a commodity*, which happened to occur during a year of record surplus production. Over the following months and years, the ongoing global financial crisis unfolded. The food crisis was financial crisis’ predecessor—finance capital was on the move, en masse. Fleeing the impending collapse of the US housing market, hedge funds and investment banks regarded staple food commodities as a more stable and secure investment choice⁸—for, people will always need to eat, presumably above all else.

The current global food situation of shortage and deprivation for one billion people amidst vast food surpluses exists because this ongoing food crisis is also a commodity crisis. But, the

food crisis is *not merely* a commodity crisis, for food is not quite like any other commodity. Food is singularly necessary. It is this aspect—food’s singularity—that has made food a commodity uniquely “valuable” to speculators.⁹ This use of food is not new—food’s dual nature (as *the* necessary commodity) has made food “valuable” in a vast array of settings and purposes throughout history—but, the current manifestation is distinct.

1.1 | Situating the Crisis

In the two decades preceding the onset of the 2008 food crisis, global harvests consistently increased. During this period marked by rising harvests, record food surpluses, and booming economic growth rates, record numbers of people were also excluded from these gains. Over the past decade, the number of people in hunger worldwide increased twenty-five percent. The hunger and deprivation of those excluded from these gains is not a matter of lack of resources, or scarcity, but a matter of political and societal *choice*. This thoroughly institutionalized series of choices manifest in a biopolitical state. While these social choices are seemingly invisible, their effects—the economic and biopolitical exclusion they produce—are viscerally evident in the increasing numbers of food-insecure and malnourished people. If there was any remaining question, the first decade of this millennium (should have) made it clear even to adamant (neo)Malthusians that in today’s world, hunger and inadequate access to food are a result of exclusion—a lack of access to basic necessities and financial resources, coupled political structures unaccountable to the poor. This form of exclusion is not correlated with the abundance, or lack, of food in the market.¹⁰

Situated in this context of exclusion-producing policies, the price spikes of the global food crisis almost doubled the number of people considered “food insecure” worldwide. Millions more were condemned to hunger. The stark effects brought the specter of hunger to the fore in the mainstream media briefly in the 2008, but the discussion of the crisis elided the driving factors behind the price increase. Even in self-declared “policy” and “economic” forums, instead of attending to the effects of increased global financial integration in a policy architecture of spatially uneven deregulations, or even the effects of policy deregulations which allowed finance capital’s crisis to spill over into global food markets, instead the pundits pushed the same old answers as the self-evident fix: increase production and further entrench the unevenness of regulations, subsidies, and protections, in the name of economic “liberalization.”

1.2 | Responses to the crisis

During the food crises of the 1960s and 70s, Western leaders located the cause as “Third World” “overpopulation,”¹¹ and promoted “modernization” to rapidly increase the food supply, coupled with improved family planning methods. In 2008, however, global power brokers presented a somewhat different diagnosis and solution. Diagnosing the problem as largely caused by a financial crisis, the decreed solution was two-fold. First, an increase in the use of agricultural technology to further “modernize” agricultural production in developing countries.¹² Second, the expansion of economic and policy deregulation of developing countries’ food and agricultural sectors—namely, the elimination of any (remaining) trade protection “barriers” in the “Third World” (where people were most affected by the price spikes).¹³ These approaches, the experts repeated—seemingly oblivious to the fact that they could have been reciting a list of the causes of the crisis—are the only viable solutions to the deprivation, hunger, and food insecurity that one billion people face.¹⁴

1.2.1 | *The response of Productionism*

The spike in hunger and exclusion from basic necessities instigated by the food crisis of 2008 was also seized upon by agribusiness’ PR departments which played up the crisis’ apparent “shortages” as clear evidence of the inherently humanitarian nature of agribusiness as a “life sciences” industry, and as evidence for the need to expedite genetically engineered, or genetically modified (GM), crops across the “Third World.”¹⁵ As the major players in agribusiness made record profits from 40% to 1200% higher than the preceding year, their ads at the peak of the crisis proclaimed “We Feed the World.”¹⁶

Agribusiness’ cries of “feeding the world” explicitly summon a vision of the “humanitarian” work of agricultural technology in decades past—namely the Green Revolution.¹⁷ We are assured that their updated agricultural technologies—most prominently GM crops—are just as necessary today to “feed the world” and address the renewed prevalence of hunger. Their claims invoke a relationship between hunger and food that is ostensibly “natural” and self-evident, a cause and effect which needs no further explanation: insufficient food = hunger.

1.2.2 | *The response of deregulation and financialization*

On another side of the issue, the international institutions and sanctioned “experts” recognized the issue as one of (a lack of) access to financial resources and explained the crisis as

a result of the increasing financialization of food. For instance, the World Food Program's (WFP) Executive Director, Josette Sheeran explicitly recognized the threat—explaining “the bottom billion will become the bottom two billion.”¹⁸ The WFP maintained that because the causes of this crisis are different than past crises, the solution must also be different. Explaining: “there was a time when we didn't know how to produce enough food in the world ... Now we do,”¹⁹ Sheeran insisted that this crisis with its “high food prices and increased demand present[s] a *huge historic opportunity*” for poor farmers.²⁰ In the WFP's rendition, the issue is not the simple production increases which agribusiness proposes, but rather the issue is conquering poverty. As reporter Fredrick Kaufman explains: “since money had become the key to the hunger problem, the key to the hunger solution could be summed up in one word: markets.”²¹ The international institutions and sanctioned “experts” recommended deepening and extending the reach of financial markets to encompass “the poor as players” not merely relegated to the sidelines of the global market (Ch. 1 unpacks the lineages of this diagnosis). As any student of development, agrarian change, or political economy knows, and as Kaufman duly explains: “[m]any had tried to bring markets to the impoverished before, but no one had had the support of Bill Gates. And under Sheeran's direction, the WFP would guarantee a market where none now existed.”²² The WFP's collaboration aimed to eradicate hunger by incorporating poor farmers as “players” in burgeoning food-commodity futures markets.

This focus can be read in multiple ways—a “fix” of market expansion, and/or a response to critiques of the exclusion of the poor from development policy. The WFP's project offers a response that brings the two together—claiming to redress exclusion and simultaneously expanding market reach—into a development package made to sell. Thus, while this focus is implicitly pointing to the need to make the poor (i.e. those who have been excluded) the subject of development policy—rather than recipients of some benefits of a larger process they are otherwise excluded from—what Kaufmann and others examining these financialization projects point to is that the methods and structure proposed by such efforts are just as incapable of producing the desired outcome as past projects which sidelined the poor. But, such technicalities are seemingly outside of the point, for, this program was made to sell; it was not just the global power brokers and the financial prowess of Bill Gates and Warren Buffet behind the effort to eradicate hunger, an old well-worn tactic also was revived to bolster this approach. Just as hunger had played an essential role in selling the solution of the 1960s (the Green Revolution²³) and that of the 1970s (the conceptual framework of “food security”²⁴), hunger was once again enrolled as the lynchpin propelling and justifying this new economic vision of expanding financial markets.

The food crisis' spike in hunger offered a "policy window"²⁵ in which agriculture and hunger could again become a geopolitical "security" concern.

Speaking to this context, US Senators Richard Lugar and Robert Casey co-sponsored a bill that explicitly summoned the laudable goals of conquering poverty and ending hunger, and reinforced these with the moral obligation of American exceptionalism. They explained that: "[t]he global food crisis is a zone where U.S. strengths and *moral commitments can generate major returns.*"²⁶ Restoring the position of the subject of development as the elite, not the poor, the Bill (US H.R. 3077 "Lugar-Casey Global Food Security Act") summons action—not just any action, but the vigilant enforcement of expanded economic liberalization in the name of American conscience, the moral call of ending hunger, and ultimately the threat of imminent geopolitical instability.

The [food] crisis is historic and a *call to conscience*... [one which] poses *three fundamental threats.*

A moral and humanitarian threat, which is pushing an additional 100 million people into poverty and deepening global hunger and chronic malnutrition ...

A developmental threat, which is erasing the economic gains of the past decades, while putting at risk the recent historic investments... [and a]

A strategic threat, which is endangering the stability of developing countries ...

Thirty countries have experienced food-related riots and unrest in 2008.²⁷

They argue for²⁸ a renewed "[f]ocus [in] U.S. trade policy ... that promotes investment and trade *in developing country agriculture* and reduces long-standing subsidy and tariff barriers."²⁹

Reflecting the diagnosis of the mainstream pundits,³⁰ in the text of the US's Global Food Security Act, it is only "developing" countries' agricultural sectors that US trade policy needs to target for further liberalization. For, in "developed" countries—which had not been required (by earlier international agreements) to cut supports to farmers or to citizens, and had not been mandated (by the same international policy reforms) to liberalize their own agricultural sectors—the food crisis was barely felt. The contradiction shines. In the places where state support for agriculture and food security had been most severely eroded by neoliberal reforms over the last two decades, the food crisis posed the largest—moral, developmental, and strategic—threat.³¹ Yet, the "solution" offered was not for these places to be encouraged, or even allowed, to implement the types of support offered in "developed" countries. Instead, the "solution" was to further the policies which had produced their vulnerability.³²

The mainstream focus on the crisis quickly faded from media and political attention. Attention shifted to the banks and the financial crisis, but not for the banks' role as drivers of the food crisis, or the effects of their trading schemes in condemning another one billion people to

deprivation of basic food necessities. Rather, the focus was on the threat that the banks might “fail”—as if they had not already done so. The threat of widespread financial collapse eclipsed the food crisis, but did not make it go away. As the Director General of the UN Food and Agriculture Organization (FAO), Jacques Diouf, explained the food situation, “when the [economic] recovery picks up, we will be back to square one.”³³

1.3 | The work of (responses to) the crisis

That the “moral call” of the global food crisis “present[s] a huge historic opportunity,”³⁴ in which the answers offered by institutionalized forces rest upon the very conditions which produced the crisis, should elicit pause.

That it does not, elicits the question: What is the work of this food crisis? For whom does the expansion of futures trading and selectively targeted liberalization offer “a huge historic opportunity”? Will the further consolidation of these forces offer much “opportunity” to those who are already suffering from the expansion of these processes?

1.4 | My focus: the production of “common sense”

I will demonstrate that the issue here is the way that the otherwise self-evident nature of the causes of, and solutions to, a situation of increasing hunger amidst surplus food are continuously inverted, overturned, and harnessed to a project enacting “economic” self-interest by deploying the moral righteousness of “life” itself. To understand this process and the roles that food and hunger play in geopolitical and economic spheres (as summoned, for example, in claims of “Feeding the World”), we must unpack the coupling of liberal *responsibility* with the logic of advancing “economic” self-interest. This naturalized coupling allows, for instance, the earnest assertion of economic liberalization policies as a means to address the “moral” threat of hunger. How exactly the hungry are to benefit need not be asked.

The mainstream understanding of the food problem, the metrics of assessing the possible solutions, and the implicit subject of action, are based on largely unexamined re-interpretations of past agricultural development projects, both failed and successful. While the proposed solutions may seem to be uniquely “neoliberal” responses, today’s debates and mainstream “solutions” to questions of hunger, food, and agriculture are locked in a pattern that is decades—and in some cases centuries—old. My concern is *how* these have come to be the “naturalized” responses. As such, I attend to both how this “common sense” understanding has been produced as well as to what is *left out* of this reductive and simplifying equation. To do so, I suggest that a lens attentive

to policy and texts must have a theory of reading. Further, this lens can offer insights distinct from those of ethnography and is particularly useful for investigating the conceptual formation and policy work of agricultural development across time and space.

My concern is to interrogate (1) how dominant narratives come to be written, transformed from contingent and/or controversial policy approaches into naturalized responses imbued with the structure of necessity. (2) How these narratives and understandings travel across topical policy realms and international policy space. And, (3) the work that these narratives, as naturalized understandings, perform. I follow these dominant narratives into policy to (4) excavate and trace how defining policy understandings and approaches have come to be, and in so doing, to unravel their self-evident biographies; and to (5) address how these processes and policies efface the legacy of contestation and alternative paths.

1.4.1 | *Approaching the Questions: Reading Agricultural Development Policy histories*

My approach is genealogical, and I engage in a symptomatic reading to advance this genealogy. I structure my account not as a linear temporal narrative, but rather, I start with contemporary debates and assumptions—around hunger, agricultural “modernization” and the roles of technology therein (e.g. GM crops)—and I seek to unsettle the tenets on which their claims rest. In this excavation, I trace the contemporary situation and its problematic back to the Green Revolution and its antecedents to demonstrate some of the ways that the presuppositions which we take for granted have come to be established.

2 | The work “feeding the world”

The decoupling of *food production* from *access to food* underwrites the idea of “development.” This decoupling—or separation of “the feeder” from “the fed”—is a precondition for development and a requirement for industrial agriculture. The ways in which projects of “feeding the world” are imagined and articulated depend upon the naturalization of these two distinct subject positions, the feeders and the fed, which in times of “crisis” become the saviors and the saved. The assumption of this separation underlies the logic of modern industrialized agriculture—it underwrites the way that food, and the food system, operates globally. *Hunger (amidst plenty) is not incidental but integral to how modern agriculture—globally disseminated with the Green Revolution—functions.* Hunger continues to exist not *despite* agriculture’s obvious successes in some areas, but rather, because of processes integral to, and constituted in, the

successes of “industrializing” agriculture. As such, it is necessary to understand the nature of this disjuncture and who is the subject of this model of agriculture.

2.1 | The logic of productionism and the work of “feeding the world”

This deteriorating situation poses *a dilemma for* the wealthy, food-surfeited citizen of the developed world. He must decide whether he has a *moral obligation to feed* those who are starving even if the food shortage in the poorest countries could have been prevented by population control. Morals aside, out of sheer self-interest he must ponder whether the hungry half-billion will allow him to live peacefully, enjoying his wealth. He must realize that there is the chance that the impoverished might resort to war to take his wealth and food. ... Finally, *Western man* must decide whether his own sense of human dignity—which is the basis for democratic institutions—can survive as he witnesses so many people starving around the globe. —Time Magazine, 1974³⁵

The crux of the problem of the last food crisis, as *Time Magazine*’s editorial staff opined (with somewhat less subtlety than commentaries on the contemporary food crisis) offers us insights into the project of “feeding the world.” The subject of anxious concern in an increasingly dire food situation, where millions risk starvation, is not those who are threatened with or facing starvation; rather, it is surfeited “Western man.” The driving question—of how does “Western Man” assuage “his troubled conscience?”—is revealing: he does so by relying on two primary narratives. The first, a discourse of liberal “responsibility for,” hitched to the second, the logic of “economics” as the guiding metric for how to enact this responsibility, or moral obligation. These two narratives operate as alibi in the geopolitics around food policy and in the production of food. The primary form this project has taken is the expansion of food production and commoditization in the name of combating hunger and feeding the world. These projects hold such tremendous power because they are also moral projects, and wield a moral authority to their ends.

The “most dangerous” threat the “food problem” posed pivoted on the West’s sustaining obsession with population. The obsession of the American elite with this threat is hard to overstate—as John D. Rockefeller III explained in a 1961 lecture: “To my mind, *population growth is second only to the control of atomic weapons, as the paramount problem of our day.*”³⁶ Just nine years later, the terror that Rockefeller had expressed at the “cold inevitability, a certainty that is mathematical ...[of] the problems posed by too-rapid population growth”³⁷ was echoed, but now in a *celebratory* way, with a massive sigh of relief from the “affluent industrialized societies.” Noting that, “[t]he world has been oscillating between fears of two catastrophes—the population explosion and the atom bomb. Both pose a mortal threat,”³⁸ in 1970

the Nobel Peace Prize Committee announced the “surfeited citizens” could finally stop holding their “panic-stricken” breath as they watched “the race between the world's population explosion and the world's available food,” transfixed in horror.³⁹ For: “In this intolerable situation, with the menace of doomsday hanging over us, Dr. Borlaug comes onto the stage and cuts the Gordian knot. He has given us a well-founded hope, an alternative of peace and of life—*the green revolution*.”⁴⁰ As the Nobel Prize Committee indicates, the project of “feeding the world” manifests *most famously, most successfully, and most starkly* in an international development project in the late 1960s—now called “the Green Revolution.” Norman Borlaug himself came to be colloquially titled “the man who fed the world.”⁴¹

The Green Revolution’s ongoing global imaginary is writ large across agricultural development, aid, geopolitics, environmental issues, the agrarian question and their intersecting narratives. In the Green Revolution (GR) these two strands—the logic of a liberal responsibility-for distant others and the then emerging logic of the “economy” in “development” (as the means through which the responsible subjects must enact the massive responsibility they have given themselves)—come to articulate the logic of “feeding the world.”

This refrain of “feeding the world” mobilizes the subject of “modern” agriculture as the *moral subject*, responding to the imperative of its own slogan. The moral imperative is to “solve” the real and pressing problem of persistent hunger (while disregarding questions of how hunger comes to be produced and how it is underwritten—such questions are deemed more complicated than their solution requires and as such are not to be the concern). The task is straightforward: produce more food to eradicate hunger. This separation over time comes to be changed, modernized, updated, and transformed, with the GR. The fundamental premise of this project comes to be articulated in the forging of development as an “education project.” This education’s mission is fundamentally technocratic—to form an India committed to American modernization and “market” values.

This coupling of a naïve utilitarian ethics and simplistic empirical science has been named the “productionist paradigm.”⁴² This approach functions through its simplifying renderings to define the problem as shortage and the only answer as increased production. The moral imperative it produces is not an accessory; rather, it is integral to its power and unquestioned necessity. The specter this imperative wields is so well known that its Malthusian vision need not even be spelled out. But, this paradigm also reveals insights into the nature of production-oriented technocratic solutions: while agricultural science is an empiricist field-science, the success story of the GR’s “fields” is arguably more dependent on having a dominant narrative than on the

quantifiable amounts produced (see Ch. 4). Moreover, agricultural science is not only a “practical” or “applied” science, it is also a moral science. And *agricultural development*—where agriculture meets the “dismal science” of economics—is a science with a *moral imperative*. This moral imperative is sustained by and harnessed to the specter of hunger, which provides the ostensible reason for “progress.”

I suggest that this project be understood as an ideological project because (i) it is fundamentally about subject production, (ii) it is a knowledge project, and (iii) despite repeated declarations of “success,” by its own quantifiable metrics it does not “work” (i.e. it does not accomplish its claims—of producing more food than other methods). By reading modern industrialized agriculture of the Green and Gene Revolutions as an ongoing ideological project we can understand its “work” as something far broader than its justification of producing increased yields.

2.2 | Hunger Amidst Abundance: India

The current food crisis brought “hunger amidst plenty” into the international spotlight for a few months in early 2008. This could be read as a brief global appearance of a series of ongoing processes, problems, and promised solutions that have been developing and deepening in various countries around the world over the last two decades—most notably in India. Today, India has not just an abundance of food, but vast and troublesome surpluses to dispose of. In 2013 the Government of India’s grain stocks in storage were worth about USD\$30 billion and could feed 500 million people for one year. The Government allocates millions of US dollars annually to dispose of millions of tons of foodgrain that rots while lying in “surplus.” At the same time, malnutrition rates in India are higher than they have been at any time since before Independence. The “paradox of plenty,” as it is widely dubbed, is deemed paradoxical not only because of hunger amidst surplus, but also because India is a democracy with a state committed to development. According to our conventional theories of development, people are not supposed to go hungry under democratic states that possess sufficient food surpluses.

India’s social welfare and food distribution policies have been “rolled-back” over the past two decades. Attendant with neoliberal policy restructuring, food supports were limited—to “target” only the very poorest—eligibility for food aid was slashed by 60%, and foodgrain consumption declined by 70%. As a result, the Government of India (GoI) spends far more on the *storage* and disposal of foodgrain stocks *than it had spent on subsidies and food distribution* prior to economic liberalization.⁴³ These “targeted”⁴⁴ policies are generally considered to have produced

today's ostensibly "paradoxical" conditions of plummeting average caloric consumption and skyrocketing malnutrition rates alongside mounting grain surpluses.⁴⁵

Extensive schools of work have meticulously documented the effects that these cuts in distribution policies have had on hunger and malnutrition rates.⁴⁶ The object of my inquiry is not the significant changes in distribution policies, but rather (and perhaps at first counter-intuitively) the logic of production policies. More precisely, it is the top-down productionist *logic* of the late 1960s' Green Revolution (GR) as a "development" project. The productionist logic embodied in the GR not only dominates food and agricultural policy in India to this day; it also possesses a power and relevance that extends far beyond its borders. India's GR continues to be one of the most frequently cited projects as a model to emulate around the world, particularly in Africa.

As hunger has increased over the last two decades, the majority of India's population has come to be considered "food insecure." There is a situation of (bio)political exclusion, implicitly justified under the alibi of an "economic" problem. During a decade of a booming economic growth rates, the presumed direct relationship between economic growth and access to food has been severed, and in some places even reversed.⁴⁷ This severing is a result of top-down production policies coupled with the "targeted" distribution policies. Together these have manifest in this specifically neo-liberal spike in hunger, amidst plenty.

In this context it is evident that it is *not* a "deviation" when such a "paradox of hunger amidst plenty" occurs, but a logical outcome of how society has come to be (re)structured by modern agricultural relations. When increased hunger is *not* the result—and it most certainly does *not* have to be—social policies have intervened to ameliorate the effects of the exclusion produced by this approach; as, for example, was the case during the Green Revolution era in India.

2.2.1 | *Reading policy assumptions*

A method of reading can draw out contingencies and conjunctures now long naturalized and reveal the Green Revolution (GR) as a conjunctural moment, a turning point in international approaches to agricultural and economic development. Sold as an agricultural production method, the GR also marked a process that began to "open" or liberalize India's economic policy regulations, introducing policy shifts that manifest more clearly decades later. With significance far beyond the intricacies of policy, these two shifts initiated by the GR recast *the subject of development*. The agrarian majority—the small and marginal farmers—were not to *drive*

development. Instead, development was at best, to “trickle down” to them from the elite, and the government was to (re)include them via redistributive policies.

I argue that the policies selected are *social choices*; the ways that they are imagined and enacted have very real impacts on shaping the structures of possibility of people’s lives.

2.3 | The Green Revolution: creating subjects and exclusions

To understand the policy logic underlying the realities of widespread food insecurity in India today, it is necessary to look beyond distribution policies, and specifically to excavate how the Green Revolution reworked access to food. And hence, how—via its reworking of social relations and food as a commodity within these social structures—the Green Revolution reworked the nature of food, and (re)defined the development subject. To unpack the logics underwriting contemporary food (in)security and hunger, it is necessary to attend to how this subject was produced and who was effaced in these processes.

The GR was not simply a project of modernizing agriculture. It was a selective modernization model, defined not only by the use of “modern” inputs or new seeds, but also by *the subject* that it selected as able to use these new inputs. The GR was planned to be applied to less than 10% of India’s arable land (it reached close to 8%). The eligibility criteria for participation required: “progressive farmers” who were already producing for a market, who had guaranteed access to water and “immunity from natural hazards.”⁴⁸ This, in effect, meant that only the already wealthy, already surplus-producing farmers were eligible for the assistance.⁴⁹ The approach “strategically” cut out the rest of the agrarian sector in the name of “scarcity:” the scarcity of resources to support them (e.g. foreign exchange to procure the inputs, and capital outlay for price support prices); the scarcity of food for the nation (a scarcity which mandated this drastic solution); and the scarcity of “nature” (as manifest in the drought which preceded the GR and in the criteria that farmers have guaranteed access to water). But, the project of spreading agricultural modernization also depended on the creation of another subject position, beyond the GR’s subject, dubbed the “progressive farmer:” it also depended on the invocation of the hungry masses and poor who could not feed themselves. The modern GR “progressive farmer” was to wield modern technology, creating “miracles” to produce enough food for the nation. The GR was indispensably about *the new subjects* it introduced and produced, and the forms of governing it created.

What the GR policies entailed was the decoupling of food production and food distribution goals. Small famers were excluded from the benefits of these policies, but they were not to be

cut-off from entitlement to state support. As the Rockefeller Foundation scientists reflected in an internal memo: the “new strategy” (i.e. the GR) was one that explicitly

...singled out small farmers as one group which may suffer relatively to other economic groups. In a country which is dedicated to developing a Socialistic Pattern of Society ... the implications of inter-personal distribution cannot be ignored.⁵⁰

As such, they reasoned that despite the fact that

...some groups of people and areas of the country have not participated as fully as others from these technological gains... [r]ather than indict a program for failure to do what it was not intended to do,⁵¹ new policies should [instead] be designed to accomplish these new objectives. In other words, the production *and welfare targets* of [the] agricultural program should be explicitly recognized and instruments best suited for these two purposes *should be advocated on their own merits*.⁵²

They insisted that production and redistribution policies not be conflated; the two must be recognized as entirely separate projects. The “industrialization” of agriculture is premised upon this decoupling, or separation of food production and access, which in turn underwrites the concept and project of “feeding the world.”

The RF acknowledged that the small farmers were *by design* excluded from the approach of the GR, but this was to be a temporary “stage”—in a progress narrative where the GR was the “base” upon which programs of social inclusion could be built to re-include the poor into the development imaginary, with time. Rendering the poorer segments of society outside of the subject position of development agents, and instead to be included after (i.e. to be towed along, with the “rising tide”) has clear and lasting ramifications. That there should be, on the one hand, production goals and policies, and on the other, an entirely different set of policies for the welfare and re-inclusion of those dispossessed by the first set of policies, creates a two-fold exclusion. First, the policies legitimize exclusion as a means to development in the name of delayed stages of progress and modernization; second, they (later) couple with a lack of welfare or re-inclusion policies (i.e. distribution-side). Together these policies do not “fix,” or even address, the crux of the situation: the poor and hungry are disproportionately the agrarian laborers and marginal producers, who are still excluded from the production-for-development policies. Thus, inadequate (re)distribution policies are certainly a problem, but they are not the *root cause* of poverty or hunger⁵³—rather, tracing these lineages, it becomes evident that the policies regulating production generate the conditions wherein the vast majority of farmers are effectively excluded

from the benefits of “development.” That is, the production policies are themselves *exclusion-producing*.

This approach was not simply accepted, it faced significant challenges and was controversial. Many people at the time, and since, advocated that agricultural policy should shift and attend to the vast majority—the 80% of farmers who till without irrigation. However, these policies have remained largely stuck in the top-down productionist model, with the vast majority of producers effectively invisible. In this manner the GR’s policy shifts authorized production and support structures in which the subject of development came to be *defined against* the agrarian majority. Since the majority were not to be the productive agents of the process of agricultural development, its benefits were to reach them—initially—through redistribution programs (such as subsidized food). Eventually, the economy was envisioned to expand enough to re-include them. However, while their exclusion was sanctioned, the timeline and mechanisms of their re-inclusion were not planned, but relegated to the promise of development and economic growth. Thus, when the “initial” (re)distribution programs were slashed under neo-liberal restructuring in the 1990s, hunger skyrocketed. The exclusion of the majority continues—evidenced in the decoupling of food security and economic growth today—as a lasting legacy of the GR into the Second GR.

2.4 | Understanding the continuities: “A Long Green Revolution”

Scholarship on the Green Revolution has established that the Green Revolution (GR) was an important step in subsuming agriculture to control of the state and the market. Food and agricultural aid and agricultural technologies played a pivotal role in restructuring the relationship between “the state” and “the market” in regulating the agricultural sector. The development goal of reaching, and accelerating beyond, “take-off” was pursued through the injection of exchange value into crops via the purchase and use of new agricultural inputs. As these technologies became increasingly controversial, they came to be imbued with the status of an awaited savior.⁵⁴

I understand the GR of the 1960s and the second GR (or “Gene Revolution”) today as an ongoing process, a “long Green Revolution,”⁵⁵ held together by the expansionary logic “the market” as the catalyst through which (changing understandings of) “food security” could best be attained. The concept of a *long* Green Revolution ties the changes in agriculture to larger economic structures (including the regulatory regime that has facilitated specific forms of accumulation in the name of global market integration). Initially, trade was to bind nations to a particular path of development and its visions of “freedom” and “democracy.” Later, the

“security” was no longer an explicitly Cold War battle; food security was to be pursued via international trade. In both GRs, this logic is funneled through specific bilateral and geopolitical projects; these are not discrete events, but constitute critical nodes in the “long Green Revolution.”⁵⁶ This view of the GR events as part of longer processes of accumulation enables the recognition that these projects were not simply major agricultural strategies, but were designed to accelerate market control in the name of development, technological modernization, and feeding the nation. Drawing out these continuities is important because the relationship between the GRs in popular imagination and much of the literature is marked by a sharp disjuncture—characterizing the “original” GR of the 1960s as largely “good” and the current “second” GR as markedly worse. But such characterizations do not offer insight into the drivers behind the respective projects or the governing logics. Rather, reading the dynamics of the two eras as within a shared logic constituting a “long Green Revolution,” allows me “to trace a trajectory of accumulation, legitimation and development from the first Green Revolution to the present.”⁵⁷ This longer term perspective incorporates a more nuanced understanding of how and why the projects were created and sustained, and hence a more nuanced understanding of how they can be changed. The projects of legitimation and accumulation are intertwined and operate together to produce their logic.

2.4.1 | *The Green Revolution’s enduring shifts*

The (first) GR was an early moment which established the possibility for ongoing shifts. I emphasize three main aspects. First, the GR project was, and is still, viewed as foremost a project of ensuring sufficient food for the nation and its population. While the language of “food security” was not used at the time (the terms of discussion were “food self-sufficiency” and “food enough” for the nation) in hindsight the GR is widely seen to embody the concept of “food security.” Further, the GR introduced a new model of production from which the concept of “food security” was to emerge.

Second, the GR began the first (aborted) process of liberalization in the country (~1966). The economic, regulatory, and market liberalization moves that were requirements of US food-aid were not immediately built upon, or even continued, but did begin to pry open markets and set the (agricultural and economic) policy trajectories, returned to decades later. Of lasting significance is the ways in which these approaches lay the conceptual groundwork for how to diagnose and address these issues.⁵⁸ The moment of the 1960s food crisis and the “New Strategy” to address it

(which became the GR) provided a window through which powerful actors within the elite policy circles in India could push a nascent liberalization agenda.⁵⁹

Third, the GR offered a technical solution to a political problem of distribution of land, resources, and development attention. This approach was pushed enthusiastically because it offered a means of addressing these problems without having to deal with social questions; difficult and entrenched social and political relations would not need to be directly confronted: technology would do the work.⁶⁰ Beyond setting in place a policy trajectory, or path dependency, this approach built material relations and structures around this approach and instituted the reproduction of this approach as “knowledge.” This aspect—the knowledge project—has become arguably the most sedimented aspect—institutionalized in policy, multiple government agencies, education institutions, curriculum, etc. This choice of a technical solution has established the mindset that has been the most significant in establishing the continued dominance of the GR approach. The GR’s hegemonic understanding of how to address agricultural development, food shortages, and even the specter of hunger—and whom these policies should focus on—continues to this day.

Thus, the Director of the World Food Program (WFP), Josette Sheeran’s characterization of skyrocketing food prices in the wake of the financial crisis’ spillover into food commodities as “a huge historic opportunity”—on the premise that high food prices will help poor producers—is based on ignoring the actual results of policies implemented in the name of this logic in favor of the politically convenient theoretical results, which are supposed to be beneficial. However, international development and food organizations’ own studies of *the actual results* of the policies have found that:

Paradoxically *rising food prices do not provide sufficient commercial stimuli for small farmers*, despite FAO suggestions that rural households producing food staples traded internationally could benefit from rising food prices.

Rather, the World Bank reports that, because farmers tend not to seek such market rewards because of fertiliser and fuel inflation, in addition to previous commitments to sell harvests at fixed rates, and/or that, because farmers in poor regions self-consume more of their own output, their gains from price increases are marginal.⁶¹

When examining the results and the devastating effects of their policies, the development institutions pushing the idea of individual food security through the global market and food security through trade conclude that it is not their theories that are inadequate or lacking. Rather, it is the behavior of the small farmers: that they are not seeking the inevitable benefits of the

market, and that is why they are not “competitive.” Thus, with this framing, their solution is to not just to incorporate, but to subsume, these small farmers into the global market in the name of their own food security.

The premise behind this critique and my argument is this: policies need to attend to vulnerability and poverty, and meet food-security goals through a focus on securing the livelihoods of marginal and landless producers, as they are the bulk of the country’s acutely malnourished. While this may seem like the self-evident approach, food security policies continue to operate within the framework of the GR, and as such are locked into a legacy of subsidizing larger farmers and (re)distributing to marginal farmers. As the food distribution system has been drastically rolled back, this has created a double exclusion of the agrarian poor which has increased the urgency of redirecting production policies to resolve the “paradox of plenty.” Their exclusion continues.

The concern of the following chapters is to excavate the production of this dominant logic where exclusion comes to be integral to development. I do not address this vast population, nor the many movements for change; I do not claim to know, or represent, their realities—my aim is to take on the logic of “development” projects that have been, and continue to be, enacted in the name of poor farmers and the hungry. These projects too often further consolidate approaches to agricultural production and development that are premised upon exclusion. As there has been a sustained effort to write the majority of farmers—those who till small and marginal plots—outside of the subject position of “modern agriculture,” one must be very wary of recent promises to “re-include” marginalized farmers via production of specialty export crops and/or futures trading.

3 | Research: research questions and methodological approach

My examination of how the construction of the “self-evident” common sense of productionism as the answer to hunger, couples with liberal responsibility and “economic” logic as manifest in India’s two Green Revolutions offers: (i) *a means of examining the narratives of development and agricultural “modernization” in order to reveal the work of this approach as a knowledge project* and (ii) offers a way of viewing *how the re-structuring of agricultural and welfare policies (under the Long Green Revolution) have redefined development and re-worked how the state articulates its responsibilities*. Addressing these shifting logics of governance is necessary to understand the persistence of hunger amidst plenty.⁶²

I used archival documents, published texts, and multiple in-depth “expert” interviews,⁶³ to examine the ways in which the terms of agricultural development and approaches to development (both achieving growth or/ & eliminating its deprivations, e.g. hunger) have become inscribed in, and circulate through, policy networks (from bilateral negotiations to local level regulations). As I set about this project, the initial research questions I sought to answer were:

1. How have imperatives to ensure “food for the nation,” to manage the specter of hunger, and abide by geopolitical demands for a “free-market” manifest in agricultural development policies?
 - a. What role has agro-technology played in negotiating these imperatives?
 - b. How has the broad shift from public to private ownership of these technologies affected their roles?
2. What roles have food, aid, hunger, agricultural development, and “food security” played in Indo-US bilateral relations and policies?
 - a. How have agriculture, food, and agricultural technology been deployed in negotiating other political-economic, security, and ideological concerns?
 - b. How has the specter of hunger been harnessed in these policies: for what ends, with what concerns, and what discourses have been mobilized?
3. In what ways have the shifting frameworks of agricultural development and food security/food distribution support policies articulated with, or diverged from, the frameworks of dominant economic development policies?
 - a. How has the relation between “food security” and “national security” emerged and changed over the course of shifting development frameworks? How has the understanding of what constitutes “food security,” and of how it is to be pursued, changed?
 - b. In what ways do neo-liberal modes of government and agro-technological “solutions” to hunger converge?—with what effects on access to food?

The fieldwork (archival work and interviews) was conducted in the US and in India. There were two main components: (i) archival and policy research (at the National Archives of India, Nehru Memorial Library, Yale Archives, Rockefeller Foundation Archives, and the National Archives of the United States); and (ii) semi-structured in-depth interviews also in both India and the US, primarily with policy makers, scientists and development professionals (who were largely Foundation and/or NGO based).

3.1 | Research methodology and justification

In pursuing information and historical material, my aims were three fold. First, through archival work, I sought to trace evolving understandings of hunger, food security, and agricultural technology, how they have manifest in agricultural development policies, and the relationship of these policies with economic policies. Second, through in-depth “expert” interviews, to examine how institutional actors perceive the policy process: specifically, the role of technology in agricultural policy, and how they account for policy shifts and understand policies’ effects. Third, through a genealogy and symptomatic reading, to excavate how these perspectives and discourses have set the context for the ways in which social “problems” and needs have been understood and policy responses framed, and what roles agro-technology has played in resolving competing demands on the state.

Recognizing that texts produce the stability and iterability of organizations and institutions, my approach of a “symptomatic reading” and genealogy is distinct from conventional textual and ethnographic methods. Together these allow me to both “step back” for a larger context and to “zoom-in” to investigate the ways “inscriptions” (i.e. understandings made legible and usable) come to be formed and how they circulate in producing the practices of “simplification” and “legibility”⁶⁴ that are necessary for the functioning of policy and state apparatuses across scales.⁶⁵ In analyzing the material I collected, the methodological pairing of a genealogy and symptomatic reading⁶⁶ of archival documents and in-depth interview transcripts allowed me to trace (i) the ways inscriptions come to be formed and how they circulate through documents, policy, and discourse; and (ii) to then investigate these understandings further in my interviews. Tracing these processes enables understanding how the many policy convergences over the period I examined have come to be and have functioned.⁶⁷

3.2 | Method of Inquiry: Symptomatic Reading and Genealogy

Questions of how narratives of our taken for granted knowledge about agricultural development (including conquering hunger, feeding the world, and feeding the nation) came to be written and what they reveal and conceal can be effectively approached through the methodological coupling of a *symptomatic reading* and a *genealogy*. What the concept-term “symptomatic reading” offers is an approach that is, tactically and methodologically, a double reading; a reading of the text not simply for what *is* said, but that also emphasizes what is *not* said.⁶⁸ As such, “the symptomatic reading, *analyzes* the textual mechanism which produces the

sightings and oversights rather than merely recording it.”⁶⁹ The purpose of such a reading is not simply to create a “record” of what is and is not said (although that is a part of the first aspect of the reading, in an empiricist mode); more significantly, attending not only to what the text literally says and/or omits, this double reading attends to what work this does.⁷⁰

To proceed, a symptomatic reading identifies a “problematic.” A “problematic” is the background, or ideological framework, on which the narrative rests and was produced; that is, a “problematic” is the anchoring on which “common sense” pivots. Identifying the “problematic” allows drawing-out the underlying assumptions which structure the text’s thought and enable its approach but are not made explicit or spelled-out. Attending closely to the textuality of narrative, this method of reading locates contradictions and assumptions of the text, reading them as “symptoms” of the necessary but unarticulated framework that underpins the text’s approach (i.e. of the problematic). Thus, a problematic’s anchoring can be understood as the social force which operates by investing certain questions and concepts with the self-evidence of “common sense;” it is a legitimating and de-legitimizing force.

In exploring the work of narratives of development and modernity in agriculture, “texts” and “history” together consolidate the narrative. Thus, while a symptomatic reading is essential, to excavate this history I complement a symptomatic reading with a genealogical inquiry as an attempt to draw apart how these particular “common sense” understandings have come to be naturalized. The concept-method of “genealogy”—as a “history of the present”—offers an overlapping and complementary cut into how to read historical and social phenomena, tying methods of reading to a specifically historical focus.

A “genealogy” asks which of our present and ostensibly “necessary” artifacts are actually mere contingencies—that is, historical legacies impinging the confines of our sense of the possible (e.g. how we think about things and what we can do about them).⁷¹ The attempt to excavate the guardrails of everyday assumptions as contingencies means that we operate on a field where ideas do not retain their logic and words do not retain their meaning. To navigate this field and conduct a genealogy is to attempt to “record the singularity of events outside of any monotonous finality.”⁷² This search (for events and their singularity), Foucault maintains, must take place outside of the places of standard “historical merit.” As such, a genealogy necessarily operates in a field of entangled and confused texts: it is in places “without history”—sentiments, instincts, conscience—that a genealogical investigation dwells.⁷³ But, as subaltern studies and postcolonial scholars have documented, this “standard” story is also the archive that we have; we must read these materials for gaps and silences in the narrative (not try to ascertain the

consciousness of undocumented historical figures). A theory and method of reading are indispensable. The reading I offer here is rooted not only in the official reports (though such reports provide opening questions), but in a myriad of texts, speeches, symposium, writings, letters, notes, and other less “official” texts from the 1950s and 1960s (era of PL 480 food aid), leading up to the Green Revolution and after it, and also contemporary texts relating to projects associated with the emergent “second Green Revolution” (i.e. Gene Revolution). The symptomatic reading enables this method to operate, whether on theoretical texts or archival/historical materials.

Methodologically, there is similarity and compatibility between these two approaches.⁷⁴ A symptomatic reading unsettles; and building on that unsettling, a genealogy excavates beyond the text and its problematic (or enabling assumptions) to help reveal how these understandings have come to be naturalized as such. As a genealogy helps to excavate how specific terms, concepts, and processes have become naturalized, or taken for granted, it can also excavate how the “anchoring,” which underpins a symptomatic reading’s “problematic,” has come to be naturalized. As such, a symptomatic reading could be said to provide a method within a method—reading the GR (narrative) as text, it can help to enact a genealogy that beyond excavating the enabling assumptions also *denaturalizes* these narratives, revealing how they came to be and how they produced these particular understandings as natural or self-evident. Thus, further building on the unsettling, a genealogy enables action beyond that of a symptomatic reading.

4 | Laying out the Research: Literature review and context

Pursuing the question of the production of “common sense,” the method I laid out above excavates contingencies and their naturalization, it also seeks to expose how these logics come to be dominant. Scholarship in critical Geography attends to the processes through which particular “hegemonic geographies” have become dominant and how they rewrite and silence other worlds. Such “world-making processes”—as Matthew Sparke’s conceptual definition of “geo-graphy” offers—can be uncovered to reveal their workings. The task of excavating long naturalized knowledge projects is also one that postcolonial and subaltern studies lead us through—in a different, complementary way—pushing boundaries by calling our taken-for-granted categories into question.

The methodological approach I laid out above is informed and supplemented by the conceptual grounding of my research questions and the theoretical framework within the subfield of critical development geography. Comfortably interdisciplinary in its concerns, critical development geography draws together scholarship including political economy, postcolonial, feminist, and poststructural theory to forge a framework for understanding “development” projects and processes.⁷⁵ Development geography brings together an analysis of political-economic and cultural factors to understand the contemporary and historical geo-political project of development; critical development geography engages in this empirical task, but pushes the bounds of the analytic and methodological frameworks. As such, critical development geography offers a model and framework for excavating and attending to how power relations are inflected through, and given meaning by, discursive formations. Its amalgamated insights can be translated into tactics for tracing these formations through processes and projects of knowledge production, subject production, relations of exclusion, the work of ideology, and how hegemony (i.e. as naturalized understandings) is produced, and what is effaced in these processes; it offers a framework that attends to these questions from the geopolitical scale to the local.

4.1 | Question

Positioned within this approach, I attend to the empirical context of food, hunger, and agricultural development in “geopolitics,” specifically India-US relations, explored through the Green Revolution in India and the debates around a second Green Revolution in India today. My approach is genealogical, entering from the present, I ask how today’s “paradoxical” realities have come to be and I trace the conditions of possibility back through conceptual and policy lineages. This involves attending to three distinct but encompassing questions: (1) practices of “governing” and the logic of exclusion, and (2) the logic of productionism in agriculture, and (3) processes and projects of the global dissemination of these logics.

4.2 | Governing and exclusion

Postcolonial and subaltern studies scholars writing on India have laid out the paradoxes of exclusion and governing today in ways that help reveal and further interrogate the logic of these practices (an issue I explore more in Ch. 1). Setting the context, Partha Chatterjee⁷⁶ maps evolving understandings of the changing political relations in India, invoking Sudipta Kaviraj’s⁷⁷ earlier conception of a “passive revolution,” a concept-term able to explain the unique dynamics

of the “process of class domination in postcolonial India,”⁷⁸—a form “marked by its difference from classical [i.e. European] bourgeois democracy”⁷⁹ and citizenship.

The governing structure in earlier (post-Independence) eras was marked by heavy involvement of the state and was referred to as a “transitional system” (e.g. as if India were “yet” to catch up on its path to European political modernity). Since the 1990s’ restructuring of state-capital relations (broadly neoliberal reforms—e.g. the dismantling of ISIs, the decline of the “license raj,” rise of a corporate political class, etc.), what has emerged is not the convergence of the Indian political system with “classical” models of capitalist democracy. Instead of a polity that resembles these “classical” models, Chatterjee suggests that the critical distinction in the political and governing formations in India today is marked by a split that can be seen as increasingly manifest in the ways that two groups relate to and interact with their government. He names this a split between “civil society” and “political society.”

The former, “civil society,” encompasses those who are (full) “citizens” with recognized, or “legitimate,” claims on the state (e.g. the urban middle classes). The latter, “political society,” refers to those members of the “population” whose claims are not recognized as legitimate, and whose demands on the state are met in a manner that is contingent, temporary, and granted as an exception—such that “[t]heir entitlements, even when recognized, never quite become rights.”⁸⁰ Those relegated to political society constitute the majority of the people in India. Yet, they are outside of the moral and political leadership of the capitalist class—the interests represented by the political parties. These political parties’ mantra is “rapid economic growth”⁸¹ as the answer to all of India’s problems; this is the new hegemonic consensus, this is the passive revolution in action. But, at the same time, Chatterjee notes that there is also an implicit recognition that *even with* successful “rapid economic growth,”⁸² the type of development this anticipated growth will bring will not be able to include most of political society, and, as such, has no existing model. The European model of development is not possible; India cannot export its masses as did Europe, and, the industrial and technological revolutions of today will not absorb all of those displaced from agrarian labor into low-wage factory labor. Yet, in a democracy, it is necessary to appease those excluded by these processes. For,

...most of these victims of primitive accumulation are unlikely to be absorbed into the new growth sectors of the economy. They will remain marginalized and rendered useless as far as the sectors dominated by corporate capital are concerned. But, the passive revolution under conditions of electoral democracy makes it unacceptable and illegitimate for the government to leave these marginalized populations without the means of labor to fend for themselves. That carries the risk of turning them into the “dangerous classes.” Hence a whole

series of government policies are being, and will be, devised to reverse the effects of primitive accumulation.⁸³

The new nature of the ongoing passive revolution (under neoliberalism) requires that something be done to appease “political society”—for, ensuring political stability requires efforts at “reversing the effects of the primitive accumulation of capital.”⁸⁴ In the context of the paradox of plenty and widespread hunger, the 2013 National Food Security Act, NFSA (among other bills such as NREGA, the National Rural Employment Guarantee Act) can be read as policy efforts meant to *contain* the problem. Such policies are meant to ameliorate the egregious levels of deprivation, not to address the fundamental problem; that role and responsibility is allocated to “rapid economic growth.” Chatterjee’s analytic lens tells us why governments create programs like the NFSA or NREGA, but it does not explain the dynamics of exclusion or the processes of policy foreclosures; rather it takes their exclusion almost as a given.

My concern in the following chapters is how the logics of exclusion have been produced and have played out as a knowledge project in the realm of food and agriculture. For my purposes here, the insights and approach of this literature are helpful to understanding the naturalized acceptance of the logics, assumptions, and practices constitutive of exclusion, however, it is also necessary to interrogate the *work* of this exclusion.

Extending this understanding of poverty and exclusion—not assuming it as a necessary part of the political order, but rather seeking to answer how its life depriving effects are so accepted, even banal—Akhil Gupta⁸⁵ pushes the concept of the poor as “exception” in how the state governs them. Gupta draws on, but pushes and fundamentally reworks, Agamben’s ideas on the production of bare life and the state of exception; Gupta suggests that we see the extremely poor as *homo sacer*. While an integral part of democratic politics, the extremely poor are excluded from basic rights—simply because they are so poor. Their status as legally included but at the same time excluded by the logic of “the economy” demands a reconceptualization the nature and logics of biopolitical exclusion. Returning to the fundamental paradox—that Chatterjee’s explanation also pivoted on—the poor in India are legally full citizens of the state; but as Gupta emphasizes, we must also attend to how it they are “let die” by state policy and/or the lack thereof.

To interrogate the policy narratives legitimating their exclusion, it is necessary to address the dominant logic of our time, the dominant global denomination of power: “the economy,” both in its theoretical presumptions and in its operation. For this task, I draw on literature in political economy as an indispensable backbone of such an examination. In the context of these policies

and their promises, literature on the political economy of development extends the conceptual framework. The power of development's policy narratives is not simply economic. Such narratives are marked by an enduring faith in economic growth, not necessarily growth in and of itself, but certainly for what it promises—modernity, technology, a consumption society, etc. To interrogate the power of these narratives, critical development geography draws on insights from postcolonial and poststructural theory; for instance, geographer Victoria Lawson emphasizes the dually *descriptive and productive* work of discourse in imaginaries of development and in producing development realities.⁸⁶ To consider the *work* of exclusion, the perspective and response of economic growth needs to be pushed a bit further; beyond the work of economic growth as alibi, it is necessary to address the nature of *responsibility* being enacted here. The project of “development”—and, specifically the economic growth it is to bring—is the dominant geopolitical denomination of responsibility. Underwriting narratives about hunger in particular, the logic of “the economy” as ready answer couples with the naturalized logic of liberal responsibility. The solution offered in the neoliberal era is economic growth and productionism. Although arguments for productionism have been thoroughly dismantled in extensive bodies of literature, they retain a disarming salience. What needs to be unpacked is the power of these arguments themselves—*not what causes hunger, or what to do to address it*. That is well established. The real question is how the approaches that we know work are consistently foreclosed and replaced with productionist narratives and policies.

4.3 | Unpacking the logic of productionism and the work of “Feeding the World”

To unpack these logics, I build upon three distinct literatures within the broad political economic tradition: (i) addressing hunger, (ii) the global agro-food system and agricultural technology, (iii) development studies and the political economy of knowledge. I bring these together with work in postcolonial studies that addresses the nature of exclusion, subject production, and knowledge to interrogate the formation and workings of power relations beyond the realm of the “economic.” Together the analytic tools and topical insights of these bodies of work enable me to interrogate the *forms of knowledge and “reason”* that define these development regimes and that collaborate with capital in authorizing and consolidating processes of marginalization and exclusion.

There is a vibrant and growing trans-disciplinary body of work that aims to bridge the gap between political economy and postcolonial scholarship, but work in agro-food studies remains largely within the confines of political economy and does not engage with postcolonial studies,

and vice versa. The power and appeal of “development” exceed the realm of the “economic.” The enduring and evocative power of “the conquest of hunger,”⁸⁷ the role of food in imaginaries of “the nation,” and the many ways that these appeals have been harnessed to specific agricultural projects and development policies, while topically about food, is also situated conceptually at the crux of post-colonialism’s articulation with questions of representation, modernity, the subject, political economy, and, geopolitics.

4.4 | Development

“Development,” as the dominant denomination of responsibility (and its affiliate, economic growth, as the dominant governing logic of today) is a project of trying to grow, or “bring up,” economies. As such it also has a sequential or stagist rendering—both in its progress (through stages) and in its lack thereof (not yet).

Development, as geographer Gillian Hart aptly points out, is a geo/political project as well as a process. Naming these “Big D” Development and “Little d” development, she explains:

“Big D” Development I define as the multiply scaled projects of intervention in the “Third World” that emerged in the context of decolonization struggles and the Cold War. “Little d” development refers to the development of capitalism as geographically uneven but spatially interconnected processes of creation and destruction, dialectically interconnected with discourses and practices of Development.⁸⁸

I attend to the interconnections⁸⁹ of these two senses of D/development. Furthermore, what Hart calls “Big D” Development is not simply a global project, but the defining terrain of North-South relations for the last sixty years; as such, the study of development necessarily has *historical* and *spatial* aspects to it. Geographers have offered an analytic framework and means to understand the ways in which these processes are territorialized and the complicated geopolitical historical connections of these processes—forged in relations across space and between places, such that particular places come to take on particular political and governmental configurations. One way of tying together these histories, narratives, and their continuing power is by approaching development as a project operating at “the convergence of economic and cultural approaches to understanding imperialism,”⁹⁰ as geographer Mona Domosh offers. Literature in this vein draws together historical geographies of development as an integral component of the expansion of American influence⁹¹ to map the emergence, consolidation, and operation of “American Empire.”⁹² In the context of food and agriculture, the historical geographies of development and

American empire overlap significantly with literature in history (and particularly with diplomatic history) that details the operations and expansion of development projects during the Cold War.⁹³

4.4.1 | *Producing a “solution:” Productionism as Development*

The evocative power of the project of development deeply permeates how we understand and “manage” agriculture and food. I unpack the complex ways in which economic development policies articulate with a productionist logic in agriculture. To do so, I attend to how imaginaries of development shape ideas of production regimes and how these, in turn, translate into development policies and projects on the ground. I trace three key themes in the ways that imaginations of development and production regimes interact. First, how naturalized hegemonic understandings of (economic) development operate in agricultural development, particularly the coupling of a teleology of progress with technology; and the ways this operates to write social and political questions into “technicalities,” which, in turn, creates a naturalized history of modernity and progress. Second, how food and agriculture have been used as tools of leverage for creating compliance with particular development regimes. Third, how the specter of hunger has been mobilized to authorize these policies. In particular, how the urgency of its moral force and political threat have been deployed to naturalize existing power relations and obscure the complex causes of hunger, thus propelling a technical approach as the most “efficient” and effective.

These questions and themes are thoroughly documented in the vibrant and growing body of agro-food literature (a sub-field spanning across traditional disciplinary boundaries). But, the ways these salient themes of the post-war development era articulate with governing practices and policy foreclosures underwriting today’s exclusionary “paradox” have not been drawn out. Attending to these dynamics at the local and geopolitical scales offers a conceptual framework for approaching how knowledge is produced and naturalized within the realm of agriculture, agricultural development, and addressing hunger.

4.4.2 | *Political economy of agro-food*

Extending this to the contemporary era, the knowledge project coming out of imperial relations ties to modern “geo-economic”⁹⁴ relations—particularly in food and agriculture. First, seminal works in liberal political economy have repeatedly demonstrated that hunger is an issue of distribution and entitlements, not scarcity.⁹⁵ As such, the relevant questions are of policy:

political, economic, and societal choices. It is necessary to attend to the policies regulating food distribution and production as well as to the ideologies and imaginaries underlying these policy landscapes. In the realm of production and agricultural “development” or “modernization,” the issue of concern with agricultural technologies is how they rework power relations within the agro-food system, how this system is produced and regulated, in whose interest, and what work this management performs.

Mapping out these relations is one of the driving questions behind the second body of political economy literature I draw on—the diverse scholarship on the agro-food system. Probing the geopolitics and biopolitics of hunger and food distribution, I take insights from the ways in which control over food production and supplies have been used as mechanisms of leverage in domestic and international politics—a case made clearly evident in both political economy approaches to uneven development and in political science and diplomatic history literatures.⁹⁶

The roles of agricultural development, food distribution, and hunger prevention policies in domestic politics in India are well documented.⁹⁷ However, despite the fact that geopolitical considerations have informed development planning since India’s Independence, and have been significant in how policies are formed, there remains a surprising paucity of literature investigating the relationship between geopolitics, development aid and agricultural development policies in India.⁹⁸

Work on the political economy of food regimes—or global histories of how food and governance operate together—is helpful for building an analytic framework to approach these issues. The diverse scholarship on the agro-food system and “food regimes” addresses how control over the food system (whether via the market or the state) has been used to secure political-economic power across scales and particular regimes of governance, and documents “the strategic role of food and agriculture in the construction of the world capitalist economy.”⁹⁹ This substantial literature has also begun to consider the ways in which the shifts in these structures and in global governance with neoliberal policies (which enabled the Gene Revolution) are intertwined with the retrenchment and reformulation of “food security” policies.¹⁰⁰

I leverage insights from the agro-foods literature to confront the logic of these policies and conjunctures; the logic that “development” disseminates, not just power nor simply measurable political ends, but systems of knowing, understanding and diagnosing and fixing problems in the world around us. These are projects of “government.”

4.4.3 | *Aid*

This naturalized understanding of productionism as development comes into being most often through international aid projects, both state/public and private/foundation aid. The work of aid—as a denomination of responsibility, as a conditional (even coercive) project, and as a political and knowledge project that articulates, extends, and enforces the dominant logic of power, has been addressed in scholarship in political economy, development studies and geopolitics/political geography. We can read geographer Jamey Essex's¹⁰¹ recent account of geopolitics and geoeconomics of development as bringing these concerns and literatures together. He explains the term “geoeconomics” as referring to the geopolitical context in which “national economic position in a brutally efficient world economy would trump military strength as the primary ordering mechanism for the state system.”¹⁰² This synopsis offers a take on how the dominant regime of power/knowledge—“the economy” (and in developing nations, “rapid economic growth”)—plays out at the international scale. Further, it suggests why abiding its logic still seems non-negotiable to states, even if they realize that to do so is to operate under the banner of the same exclusionary logic of dispossession that they are trying to address domestically.

As indispensable as the “economic” logic propelling these processes may be, it does not act alone. This “economic” logic is itself a knowledge project, and the result of historical power relations, propelled by sustaining narratives and belief structures.

4.4.4 | *the work of narrative and the production of the subject*

Taking on the work of these narratives, postcolonial and subaltern studies accounts have persuasively demonstrated the formative roles that imaginations of modernity, “science,” and the nation have had in sustaining and justifying policy trajectories.¹⁰³ As the discourses of an array of Government officials, Ministers, and the Prime Minister exhibit, the specter of hunger continues to be marshaled in the name of “science” and “technology.” While a common response is to dismiss such claims, this is inadequate; the discourse cannot be dismissed as either *mere* ideology or political convenience, nor simply justification for corporate profit. The claims perform significant work—a “*responsibility for*” is being produced—and it must be examined. Yet, much of the scholarship on development has ignored the *power of narratives* around conquering hunger, ensuring national food self-sufficiency, and the legacy of the Green Revolution¹⁰⁴ as key for understanding development projects today.

Postcolonial studies takes on the questions that have informed recent iterations of development geography in a concerted way, interrogating their underlying concepts and placing

concerns of poverty, exclusion and subjectivity, or subject production, center stage. It is necessary to attend not only to the imperatives this project mobilizes, but also to the nature of the exclusions being produced. The agricultural projects culminating in the Green Revolution sought to create a new modernity through instilling a “rational” modern mindset—agricultural development was a *project of subject creation*. This was a project in which most were not included; small farmers were excluded and effaced from the GR policies. Hence, today projects which claim the mantle of being a “second GR” promise to extend the GR to small and marginal farmers—via new (bio)technology.

4.4.5 | *Technology and technopolitics*

One of the primary ways in which projects of development have operated has been to disseminate technology. Technology in these projects is not simply about objects, but is as much about technological knowledge to be transferred; more specifically, it is about disseminating a way of knowing, assessing, engaging with, and addressing the world. As historians such as Gabrielle Hecht¹⁰⁵ have documented, development is a “techno-political” project. The Green Revolution was a project of subject-creation through technology.

4.5 | Wrapping up: “critical geographic responsibility”

The projects that I excavate in the following pages seek to map “the ways in which the geographies of their worlds are subsumed by hegemonic geographies of power.”¹⁰⁶ In this, I take up what Matthew Sparke refers to as “critical geographic responsibility,”¹⁰⁷ mapping these processes in what Neil Smith titled “American Empire.”¹⁰⁸ I map this through attending to both the said and the unsaid in texts, to excavate the naturalization of these processes. When the projects and processes are seen more clearly, they may be challenged, and forms of engagement more responsible to those excluded may no longer be foreclosed but instead, may emerge as alternatives that compel consideration.

5 | Chapter Outline

In the first chapter, the Introduction, I pose a question to the “paradox of plenty” and lay out the theoretical framework for approaching this problem. In so doing I both provide background (historical and topical) and examine the logic and the work of policies enacted in the name of “food security” and development, tracing their conceptual and policy effects. While studies of

hunger and food insecurity generally examine the distribution side of the issue (conceptually or empirically), I attend more to the logic guiding production side questions. I conclude that to understand the integral nature of exclusion in production regimes we see manifest today we must go back to the Green Revolution's interventionist policies.

In the second chapter I examine the debates around Bt brinjal, a genetically engineered eggplant, in India. I follow these discussions as a lens into competing imaginaries of society's development futures. I suggest that what came to be the most significant issue of debate was the question of authority. This specifically technocratic authority came to be debated in two main realms (1) food security and development and (2) the terrain of scientific expertise. Both of these lineages stem from the Green Revolution, which continues to set the defining framework for discussions of agriculture and development in India today. I suggest that this is a techno-political framework and that because of the way the discussion on Bt brinjal was structured, the authority of the techno-political approach itself started to come into question. These debates, perhaps unexpectedly, began to open the contradictions of development up for a wider discussion, questioning, and re-imagination. I ask: to what extent did this process reframe development and its GR legacy?

In the third chapter I offer a reading of early agricultural development policy as a pre-history of the Green Revolution through the texts of U.S. Foundations in India. Reading the reports and notes around rural development policy, I excavate some of the significant aspects of these (forgotten) discussions and trace how their approach eventually came to manifest in what we know today as the "New Strategy" of the Green Revolution. Tracing through the discussions, I read the dominant narratives and themes that emerge—initially an obsession with changing the "mindset" of the peasant (via instilling "want"), which later merges into a more technocratic approach, marked by an abiding faith in technology as able to bring about the deep transformations in rural society that policy had long sought—but failed—to instigate. I indicate that this change (the policy evolution leading to the GR) was not simply a change to make agricultural development more effective. Rather what began as a project of *rural* development and the upliftment of millions of peasant agriculturalists morphed into a set of policies focused on the question of their production of food for others. As the question of development became increasingly confined, the question of the rural and the peasants themselves fell out; this broader concern was, in effect, largely abandoned by the American Foundations working in rural India. The rural poor were left along the wayside as development policy deemed—in the name of seeking progress and advancement—that it could not afford to be weighed down by a project of

uplifting such a tremendously large burden of the rural masses all at once. I trace the processes through which this played out: (i) the making of the “modern” subject, and (ii) the prioritization of increasing agriculture’s yields above all else within rural development projects.

The fourth chapter addresses the mainstream Green Revolution narrative—a narrative that through a technological intervention of HYV seeds, the GR allowed India to produce so much more food that India became food self-sufficient. The commonly accepted case is that the GR was a quantitative leap in production. I suggest that this narrative both *reveals and conceals* the work of the GR. My aim is not to tell a “truer” story, but to excavate the work that this one does. I demonstrate that this narrative was created to transform society. These transformations were a revolution in “how” (rather than how much)—it was a social revolution (a top down and trickle down revolution), not simply a quantitative yield revolution. *That said, the focus on numbers and on yield was key—for it was the new technology that enabled this revolution to be written as “natural” and as simply following the path of “modernity.”* This narrative does very important work, in both the US and India; it allowed the core of modernizing elites in the GOI to “own” the GR as their own. And it allowed the US to argue for opening markets and economic liberalization (their view was not interested in owning the GR, but rather in securing the dissemination of its ideology). These two schools of narrative share an underlying assumption; this was a *project in subject making*, and the subject was to be made through agriculture (per US modernization theory, not through the Indian approach to development up to that point). Importantly, it is also a narrative that allows for a convergence of interests; both sides needed a “success story,” but this story plays out/is told differently by each. Again, I do not suggest that one particular narrative is more “true” than another, but rather I examine the work they do and their continuing power: what is key is the creation of the subject of development and a singular path of development through this approach.

The fifth chapter takes up the theme of aid, and specifically, the logic and the leveraging power (i.e. terms) of aid as a development tool in India-US relations. The Green and Gene Revolutions operate under the rubric of aiding and improving hunger, food production, and development in India through implementing “modern” agricultural techniques and expanding markets. Examining this discourse and the project behind it, this chapter asks: what was the work of US agricultural development aid on shaping the path of agricultural development in India and the contours of today’s seemingly “paradoxical” realities? Through the lens of aid I explore how our contemporary approach to agricultural development and hunger came to be. By focusing on particular programs, specifically food aid and then agricultural development aid, I excavate how

the “problems” were cast, “solutions” were naturalized, and the ways that these particular understandings and their material structures continue to define our approaches.

In the sixth, and concluding, chapter, I suggest that the chapters taken together provide an account that is useful for diagnosing the naturalized history behind the situation we inhabit today. In today’s context the question at hand is not *how* to “feed the world,” rather the question is one of policy foreclosure. I suggest that attending to how the possibilities and alternative approaches that we already know can allow for all to be fed have been consistently *foreclosed* in the course of portraying the dominant approach as a success and as self-evident is important in order to reopen the discussion and possibilities around agricultural development and food for all. The question is not how to feed the world but how to enable more political possibilities and autonomy.

Chapter One

The Paradox of Plenty

India will be *unable to consume* or export enough wheat and rice to rein in a record stockpile after another bumper harvest, a failure that means *crops risk rotting in fields instead of being sold on world markets to cash in on higher prices.* -NDTV, 2013¹⁰⁹

A senior official at the Finance Ministry, for instance, assured me that “people do not have the capacity to absorb more food.” -Jean Dreze, 2001¹¹⁰

The problem of malnutrition is a matter of national shame. Despite impressive growth in our GDP, the level of under-nutrition in the country is unacceptably high. -Prime Minister Manmohan Singh, 2012¹¹¹

1| Introduction

In 2001 the Indian Government dumped millions of tons of surplus food-grain into the ocean. Before dumping the surplus—which had rotted in excess—the Government had tried several means of disposing of it. First, they had sold the food to Iran as animal feed; however, Iranian authorities deemed the food stocks unfit even for animal consumption, and returned the grain stocks to India. Then, with massive quantities of rotting surplus grain again on its hands, the Government offered some of this rotting surplus food stock to India’s poor in food-for-work schemes. The excess was dumped in the sea.¹¹²

In 2012 the Government again faced a disturbingly similar situation: vast surpluses of rotting grain, far in excess of the “demand” for it.¹¹³

The unconsumed food stocks are held to “ensure [the] food security of [the] nation.”¹¹⁴ And, by the numbers—with one-quarter of the global stocks of rice and of wheat to feed one-sixth of the world’s population, and with surplus state food stocks overflowing capacity at three to four times the recommended levels—it does not seem out of place to conclude that the nation’s “food security” has been ensured. Given the apparent challenges of surplus disposal, it is clear that India’s major problem is not a lack of food.

The *Tenth Five Year Plan* explained the situation:

The problem facing the country today is not one of a shortage of foodgrains but of managing the surplus. Ironically, even as the godowns of the FCI¹¹⁵ are

overflowing, stray cases of starvation deaths are still being reported. A civilized society in the 21st century cannot allow this to happen.¹¹⁶

This “problem” which the Planners articulated a decade ago continues to be a defining hallmark of India’s food situation. Moreover, their framing of “the problem [as]... one... of managing the surplus” is itself significant—it defines and explicitly depoliticizes the larger context in which “the problem” is understood. As the Government references, the year 2001 was plagued not only by rotting surplus food, but also by starvation. In fact, the year 2001 marked the first time in over forty years that “starvation” was registered as an official cause of death in India.^{117, 118} India has had persistent problems with under-consumption and malnutrition, but clinical starvation had not been a registered cause of death in almost half a century.¹¹⁹ Something had changed.

At the same time as millions of tons of food rot hunger rates in India today are higher than they have been at any time since Independence.¹²⁰ Per-capita food consumption is the lowest in 60 years, and the majority of the population (50% to 90%) is chronically food insecure and/or malnourished.¹²¹ India’s hunger and malnutrition levels are among the highest in the world.

This “paradox of plenty”—as the widespread chronic hunger amidst massive food surpluses is politely dubbed—makes it evident that the nature of this “management problem” is the crux of the issue. The problem of “management” is itself a foundational question of “government”—i.e. of how to best *manage* the relation between things and people, in this case, between food and the population. While this task of government is an old one, the mechanisms of this management (mechanisms which in this case are clearly failing much of the population) have over recent decades been increasingly inserted and subsumed into the reigning logic of “economic growth” for handling.

As scholars and activists have widely documented, the terrain of food access in India was radically redefined in the 1990s.¹²² Today’s situation is the result of the Indian government’s (neoliberal) policy reorientation of recent decades. These policy shifts have manifest most starkly on the most recent bodies, those of the youngest people. The rate of childhood malnutrition is regarded as a particularly revealing metric—for children’s nutritional reality is entirely unpadding by previous eras’ “food security” policies—India’s youngest children viscerally reflect the dire reality of today’s food policies. At nearly 50% of children under-three and under-five malnourished,¹²³ India’s hunger and malnutrition rates¹²⁴ are the world’s highest, twice that of Sub-Saharan Africa and almost five times the rate in neighboring China; only Pakistan and Bangladesh are comparable.¹²⁵ The fact that India is offered as a development model—a showcase of success and booming economic growth rates—makes interrogating this “paradox”

all the more necessary.

That hunger and malnutrition rates have, over the last two decades, shown a direct relationship with economic growth—not the prescribed and expected inverse relation—confounds traditional explanations.¹²⁶ It also begs the question: is this “paradox” of hunger amidst plenty really an “*irony*” as the government claims? Or, is it a predictable, even banal, outcome of the ways that our global food system is produced and regulated? I contend that it is the latter. But, that poses a further question: in this context how are we to make sense of the persistent cries for a “second green revolution” to increase and modernize India’s food production?

In this context marked by pervasive chronic hunger amidst record levels of “surplus” food, we are faced with a seemingly simple question: *what is food security?* What is it exactly that the nation’s food stocks are supposed to “secure”? As it is strikingly *not* the security of the population at large, nor their access to food, what work does food security for “the nation” perform in the abstract?

1.1| Accounting for the paradox: explaining the situation away

The Government, for its part, dismisses the question and explains the situation away, anecdotally terming it as an “irony,” and an unexpected problem—yet one that “a civilized society in the 21st century cannot allow.”¹²⁷ The implication is that to be “civilized” in the 21st century is to be able to better “*manage* the surplus”—to not allow there to be hunger in a society which has such excess. That is, the *management* is again the key issue—not the management of the surplus food itself, but the management of the population *in relation to* the (surplus) food, to make sure they do not behave anachronistically by dying of hunger in the 21st century.

The Government’s presumption is clearly enabled by and reliant upon conventional narratives of development and food security, which assume that with sufficient food supplies hunger and malnutrition will be alleviated.¹²⁸ Our conventional *development theories* tell us that when the state expands the economic base, more people will have better nutrition and hunger will be ameliorated, or at least addressed. Our conventional *political theories* tell us that people are least likely to go hungry in a democracy where the government is stocked with sufficient food supplies. And our conventional *economic theories* tell us that with healthy economic growth, more and more people will have access to an expanding basket of higher quality goods. This is particularly supposed to be the case in a democratic “free-market” environment.

The problem is that this is not what has happened.

Our conventional development, political, and economic theories fall flat when confronted with the facts and trend lines they purport to explain. The fact that the most recent reports

document not simply stagnation, and not simply a raw numerical increase in hunger and malnutrition, but an *inverse correlation* between food security and economic growth (over the last decade of booming growth rates and record food surpluses) makes interrogating the work of these theories and their assumptions all the more pressing.¹²⁹ For, while it is clear that the relationship between development, economic growth, nutrition and food security is not following the presumed trajectory, the presumption of economists and government agencies—in these claims and in broader global discussions of the issue—is that something *within India* is “deviant” and thus producing this unexpected outcome. This is to miss the question entirely, letting the problem remain unexamined. Instead, we should read what is happening in India in the larger context of global development policy, as the lessons are relevant everywhere.¹³⁰

1.2 | Must examine the logic of economics

In order to address the discrepancy between the assumed and the actual relationship between development, adequate food stocks, and food security, it is necessary to address the work that the *prevailing powerful assumptions perform*. It is not simply that our narratives have been incorrect, but that even when “erroneous,” these assumptions have served particular functions, and enabled specific development paths. The policy work which these narratives serve needs to be investigated. The progress narrative of economic development theory—which promises rising outcomes uplifting all—does the “heavy lifting” to justify this theory. The fact that this narrative is so naturalized that it is largely invisible makes it all the more powerful. The “work” of this narrative is to take a situation that in almost any context would be appalling, and to transform it into the rational, moral, and necessary response to deprivation and exclusion. To understand this structural violence we need to back up and interrogate the “economic logic” that is at work, and more specifically, the relation between this logic and exclusion.

It is necessary to examine the logic of “economics” and exclusion because the “paradox of hunger amidst plenty” is deeper than its visceral manifestation in the (estimated) ten-thousand-plus daily hunger deaths that occur alongside the rotting grain surpluses.¹³¹ For, as inexcusable as the fact that almost nothing is being done to redress the situation, is the fact that that what little is being done is largely governed by the same logic that produced this situation. The glaring inadequacy of this approach is clear: over the very time period when hunger should (in “theory”) be rapidly diminishing, it has been increasing, in acuteness and spread. “Development” as we know it is *not only* failing at its most basic task: to uplift the poor and vulnerable. Even more significantly (within its sequentialist metaphor), it is operating to “reverse” the life possibilities of the very people who are offered little other than its promise.

1.3 | The Problematic

The government acknowledges that food worth nearly Rs. 60,000 crore^[132] is destroyed every year due to poor and insufficient storage facilities. This lost food is keeping millions of Indians hungry. To add insult to injury, the government spends about Rs. 2.6 crore of the tax payers' money to get rid of food grain that has rotted during storage. ...

Mountains of grain, collected over years, are stored in the open in Punjab, Haryana and Uttar Pradesh, covered by plastic sheets. They get wet in the rain and rot. In Punjab, the rotting grain is enough to feed three lakh^[133] people. When States appeal to the Centre to release the food stocks so that the poor have food, the government's economists stop this, saying it would be bad economics. So the grain is allowed to rot, the people get hungrier, the youth in the hungry heartland get enraged and their anger gets seduced by the gun. India's innards are exploding to the sound of grenades as the economists discuss inflationary pressures and the agriculture minister complains about poor storage facilities, as though it was someone else's problem to fix. - Suman Sahai, 2010.¹³⁴

India's "food problem" is far more pervasive than the "stray cases of starvation" which the Five Year Plan references;¹³⁵ average food *consumption* levels are among the lowest in the world, only half of what they are in neighboring China. But, as Sahai¹³⁶ points out, while the nature of this problem of hunger amidst surplus food might appear obvious or simple to an outside observer (i.e. see to it that the surplus food reaches the hungry), in actual practice the controversy around reaching a "solution" is confounding.

The basic task of "managing the surplus"¹³⁷—properly aligning surplus hunger and surplus food—seems to be slipping farther and farther away from the task of "governing." As Sahai indicates, the main components in this effort to "manage the surplus" are Government agencies and the mandates of "economics."

The functioning of Government agencies has been thoroughly addressed from many angles in insightful and expansive ways, by academics, journalists, NGOs, and the government itself.¹³⁸ My aim is to bring the insights this scholarship offers on distribution policies and economic restructuring to bear to interrogate the latter aspect of this management equation: productionism and the *logic of economics* that operates behind, and has done the significant work of producing and sustaining, this apparent "paradox of plenty." For, while it is clear that the current food situation in India calls into question the coherence of the accepted narratives of development and food security, and it is also the case that the reasons behind India's "paradox of plenty" have been extensively documented and debated by economists and social scientists over the past decade,¹³⁹ much of this work has focused on *distribution* policies, particularly the significant restructuring of

India's public food distribution system (PDS). However, there are also important questions and disjunctures in other aspects of the food system which escape this view, in particular the production side. Rather than dismissing the situation as simply an "irony," it is critical to look deeper to understand the ways in which these contradictions manifest the constitutive logic of development.

1.4 | Exclusion

My larger argument maintains that at the core of the paradox of plenty is the disjuncture (of the feeders and the fed) that underwrites modern agriculture and its project of "feeding the world," coupled with practices of *exclusion*. To understand the paradox of plenty it is necessary to attend to production policies. Further, to understand the transformations in production policies, it is necessary to return to the GR. For, the GR policies decoupled food production and distribution goals, and laid the groundwork for a new logic of production.

To unpack the paradox of plenty, in this chapter I show that the biopolitical forms of deprivation (i.e. let die) that we associate with "*homo sacer*," are in today's world rooted in "political economy." I indicate that to understand the horrific violence inflicted on a majority of the world's population today, we must understand the normalized *production of exclusion*. We must interrogate the logic underlying the accepted deprivations of billions from the most basic rights and entitlements. This is not simply in the juridical mode that Agamben offers (although that understanding of the nature of exclusion offers helpful insights). Today there is a different dominant logic, a logic as powerful as, or even more powerful than, legal status: the logic of the "economy," of "economic growth," or "development." The human lifecycle becomes the metonym for the nation as the unit of "economic" functioning and assessment. This territorialization of "the economy" is fundamentally biopolitical in powerful and commanding ways. This understanding mandates that we interrogate the relationship between "government" and the level of access to resources/deprivation (that is normally associated with "economic" status).

I begin with the logic of "the economy"—a logic so thoroughly naturalized and taken for granted that it can seem odd to point it out. I supplement an understanding of the logic of the economy with insights on how exclusion operates. An entry point is Chatterjee's conception of "population;" this is not a legal status, or lack of a legal status like *homo sacer* is. Rather, it is a concept used to understand the contradictions of simultaneous inclusion and exclusion; contradictions that manifest in a way that liberal political theory cannot account for. It is a

category for those who are fully “included” in the nation and “democracy,” but whose ability to call upon their government for even the most basic needs is essentially nonexistent. Akhil Gupta pushes this conceptualization further, suggesting that those relegated to this category of population—“the poor”—are essentially “let die” (in biopolitical terms). They are “killed off” without objection. But, theirs is not an anomalous state; theirs is a category that *the majority* in India, and the world, inhabit. Gupta examines this “paradox” of popular sovereignty and inclusion in terms of the role of the state and bureaucracy. While the state is absolutely fundamental, my concern is the *governing logic* by which the *state’s policy mandate* operates. This is the logic of economic growth, a developmental neoliberalism. I insist that we must interrogate that logic to understand to the realities of exclusion and deprivation of the majority of the world, amidst plenty.

In section two of this chapter, I attend to how the reigning “economic” logic functions to produce this exclusion and I review how questions of the exclusions of poverty have been addressed by some scholars. In section three, I briefly review the trajectory of food security policies internationally and in India. These policies have operated to produce fundamentally biopolitical forms of exclusion–deprivation of basic life necessities as if this deprivation were simply a “natural” phenomenon. In section four, I examine the logic of food security. While the term “food security” was produced by western/ “international” development institutions, its creation was deeply entwined with global processes of economic liberalization. These processes have since transformed the landscape of “food security” policies, the contradictions of which manifest today. However, to understand the dynamics underwriting today’s paradox of plenty, the evolution of food security policies is not sufficient. We must go further back, before the emergence of the term “food security,” to the Green Revolution and its precursors. The Green Revolution reworked people’s relationship with food (how food is “governed”) in fundamental ways that laid the groundwork for “food security” and the paradox of plenty.

2 | The work and logic of “the economy”

The conception of, and belief in, “the economy” is the defining logic of our time; it is also the metric by which a place’s relative status is assessed. A larger and more robust “economy” is what the project of development seeks to attain. An improved national economy is to allow more of its citizens a higher standard of living. As Timothy Mitchell explains, the legitimacy of governments of post-colonial states in the post-war development era has been indexed to their ability to “grow”

their economy. This conception rests on the premise that the economy is a natural and discrete object, one to be properly nurtured and tended.

The idea that the economy was an object whose basic characteristic was to grow transformed political language in the postwar period in both the First World and the Third. ... Urged on by the United States, postcolonial regimes took up the theme of *economic growth to organize and represent their relationship to the populations they now governed*. ... All these innovations in the name of development took the economy as their object and helped establish it... *as a self-evident structure*.¹⁴⁰

The economy and—the dominant metric of its “health”—economic growth, come to represent not just the legitimacy and effectiveness of governments. More, this logic comes to mediate interactions and relationships between people and their governments. Notably though, all segments of society do not benefit from, or engage equally with, the terms that come to define this form of government. That people are differently affected is not a mistake, or a deviant result, but rather a logical outcome of the way “the economy” functions as a mediating relationship. For, “the invention [of the economy] also required a process of exclusion.”¹⁴¹ At the level of individuals, the “economic” aspect of such exclusion most often manifests in poverty.

2.1 | The development state, poverty, and the logics of exclusion

“Growing the economy” is the *raison d’état* and defining terrain of government, and in the developmental state in particular this growth is to uplift the life possibilities of the populace. In this context, Akhil Gupta¹⁴² considers poverty from a different angle. He asks why, after 60 years of a government whose *legitimacy rests on* uplifting the living conditions of the poor, so many of India’s citizens (by some measures—although not Gupta’s—the vast majority of the citizens¹⁴³) continue to live in dire poverty and in acute deprivation of the most basic necessities (food, clean water, and shelter). Gupta is posing a fundamental question about contemporary poverty in India: how to understand the fact that a state whose *central claim* is to *foster development* has failed to help the large number of people who live in poverty. Further, how are we to understand how *normalized* this acute level of deprivation is: the fact that “the life-denying consequences of chronic poverty, far from receiving too much attention, have in fact largely disappeared from public discussion.”¹⁴⁴

Gupta’s concern echoes a question Partha Chatterjee¹⁴⁵ poses about governmentality and *de facto* exclusion in “most of the world.”¹⁴⁶ Chatterjee indicates that the majority of the population in India can be seen as *de facto* denied (full) citizenship, exclusions which he credits to the limited resources of the state. To make sense of this he suggests that there is an effective

distinction between “citizens”—those bearing an ethical connotation of participation in the sovereignty of the state—and “population”—an instrumental, manipulable category to which most of the people in India and much of the world are relegated. Chatterjee explains:

Most inhabitants of India are only tenuously, and even then ambiguously and contextually, rights-bearing citizens in the sense imagined by the constitution. They are not, therefore, proper members of civil society and are not regarded as such by the institutions of the state. But it is not as though they are outside the reach of the state or even excluded from the domain of politics.¹⁴⁷

The state agencies recognize that these population groups do have some claim on the welfare programs of the government, but those claims could not be regarded as justiciable rights since *the state did not have the means* to deliver those benefits to the entire population of the country.¹⁴⁸

Chatterjee suggests that exclusion (e.g. from having basic needs met or from the social welfare programs of governmentality) is largely a matter of (the state claiming) resources are not available or deliverable to the majority of the people.

The “economic” logic of the dominant progressivist sequential account—one that tells the poor “not yet” (i.e. that their rights have to wait until the state has the means to deliver those benefits to the entire population of the country, and they are last in line)—is clearly challenged by the surplus food stocks rotting at taxpayer expense. Lack of resources cannot explain why people are excluded from access to the vast food surpluses (for example, even in the form of food-for-work programs).¹⁴⁹ Bureaucratic incompetence and/or corruption (other narratives often reverted to in popular accounts) also clearly cannot account for this “paradox.” While the logic of “the market,” the functioning of the contemporary food security regime, and the need to secure food’s exchange value are clearly driving forces, they *alone* do not explain this exclusion.¹⁵⁰

In this case, where exclusion is not simply a matter of a lack of resources, I suggest that exclusion results from (state building) projects which (re)define how, and which, subjects have access to resources. To approach this, it is necessary to consider the production of the *subject of development* and the effacement of vast portions of the excluded “population” from this subject position. The construction of who the imagined subject of development is shapes not only who receives the basic resources of the governmental state, but also whose needs and/or poverty are effaced when the government declares the nation to be “food secure.” In short, whose “security” counts, or is (in)visible.¹⁵¹

2.2 | The sequential logic of exclusion: “not yet” and “let die”

To indicate the naturalized acceptance of these exclusions, Gupta points to the radically different, even opposing, ways that governments respond to the deprivation of different subjects.

He offers that if there were a natural disaster in which millions were displaced from their homes, did not have access to basic food, clean water, etc, it would be considered a “dire national crisis requiring massive state intervention to aid in relief and rehabilitation.”¹⁵² However, when the tragedy that inflicts a similar level of acute deprivation upon large segments of the population is not a single discrete event, but rather results from the continued deprivations of poverty and exclusion, many development institutions and experts have a profoundly different response. In the case of the chronic deprivation of the poor, they instead:

...suggest that the best thing the state can do to improve the conditions of the poor is to *concentrate on facilitating the rapid growth of the economy* so that the victims can at least find employment and help to better their lives. *How would we react to such a solution* [if proposed as the way to help victims of a natural disaster]? Would we not find such a state of affairs to be appalling and even outrageous?¹⁵³

Gupta dubs this “the scandal of the state”¹⁵⁴—it could just as well be called the scandal of “development,” or even the scandal of “economics.” The dominant consensus (around the world, not just in India) is that the acute deprivations of poverty merit—even mandate—a fundamentally different form of intervention (far more austere and punitive) than other, more sudden, causes of deprivation merit. Most governments’ strategies of intervention assess not the extent of the deprivation, but rather *the cause* of deprivation as the indicator of the worthiness of the subject and the nature of the appropriate response.

In the punitive austerity that tells the poor “not yet,” the stagist view of historical progress¹⁵⁵ not only lives on, but is flourishing—presented as the most reasonable answer. The hypocrisy is all too clear in the protracted debates around the National Food Security Act (NFSA)—a plan¹⁵⁶ to make 25kgs of rice and wheat available per month to all “below the poverty line” (BPL) Indian families at a subsidized rate of 3Rs/kg.¹⁵⁷ While food security advocates critique the scheme as woefully inadequate,¹⁵⁸ others, brandishing their “economic” credentials, declare that it is “India” that cannot “afford” the scheme. Arguing that it will bankrupt the nation, they insist it is better to have the poor wait, and the food surpluses rot, a bit longer—at least until the current recession has passed and the “economy” can support them. The fact that this stagist logic of “not yet” persists—even for a scheme designed to help *save* taxpayer funds on disposal costs as much as to help the nutrition of the poor—indicates that this “economic” logic of “not yet” is not simply in search of the “cheapest” option. For that would be to let the poor access the food stocks, even if only to save the cost of dumping the food into the sea. Rather, the logic guiding this punitive austerity seeks to teach a lesson (an expensive lesson, at that) to the poor and hungry: while surplus food rots in excess and is dumped into the sea, the poor are told they must literally *earn*

the food. In a context where “the economy” does “not yet” provide them with a basic minimum of employment nor a basic level of affordable food, they must come up with their own means to earn sufficient money to procure the necessary food—or, they must wait, until the economy grows, until it has sufficient need for their labor.

By rendering this exclusion sequential (i.e. a condition to be remedied, just “not yet”), the logic implies that the production of poverty and exclusion is not constitutive of capitalist relations, or liberalism itself, but rather is a legacy of *other* pre-existing structures; and as such, that this exclusion is a condition which liberal capitalist development will resolve and correct. The logic which tells the poor as a class “not yet” renders exclusion from life-sustaining necessities into *the promise of liberal(capital)ism* rather than a reality that exposes its brutalities and contradictions. This self-presentation pivots on an assumption about the relationship between “the state” and “the market.” The logic of “the economy” rests on the perception of the state and the market as each offering a form of rationality, which together manifest in effective progress.

The question is framed as one of management. However, the forms that the exclusion of the poor takes, and the punitive terms on which their inclusion could be granted, also reflect a deeper Malthusian perspective—the “question” of who should be excluded, or what should be cut first when resources are “insufficient,” apparently does not even need to be posed. This naturalized Malthusianism, taken up by neoliberalism, masquerades as a humanitarianism yet to come, rather than a cold calculation of relative human “worth.” No official statistics are even kept on deaths from lack of food.

How does the defining “economic” logic of our times allow us to accept the death of *the very poor* from lack of access to surplus food without outrage, surprise, or even as worthy of note? What is it that allows the ostensibly sacred norms of preserving life to be suspended such that we *accept* that the poor are denied access to food—based solely on the criteria of purchasing power—while access to food is a right due even to common examples of *homo sacer*, e.g. prisoners?¹⁵⁹ That is, if the right to access food is thoroughly established and recognized, what in the defining logic of “the economy” allows the very poor to be relegated outside this “sacred” social contract? How is it that this act of “letting die” is seen *not* as an act of profound violence,¹⁶⁰ nor as a betrayal of the social code?

In large part it is because this is not seen as an “act” at all, but rather, is simply the institutionalized, or naturalized, course of policy.¹⁶¹ Agamben’s figure of *homo sacer* provides a framework for thinking about forms of exclusion, however, Gupta argues that Agamben’s thesis that the production of “bare life” is integrally tied to the “state of exception” does not hold up

when confronted with the forms of exclusion and the everyday violence of extreme poverty to which the majority of India's citizens are confined.¹⁶² For even as they are actively involved in society, their exclusion continues; it is not juridical, but economic and sequential; "the poor are killed *despite their inclusion* in projects of national sovereignty *and despite their centrality* to democratic politics and state legitimacy."¹⁶³ After 60 years of countless development projects—possibly more development schemes than in any other country, and with the poor actively involved (at least in the schemes Gupta has studied), and with well-meaning bureaucrats—Gupta asks why is there still so much deprivation?

The poor are slowly killed—in clinical terms, most often "let die" of afflictions related to hunger and acute chronic malnutrition—for a self-evident, even tautological, reason: they are (the) poor.

Appealing to Agamben's "*homo sacer*"¹⁶⁴—the figure whose death does not upset our accepted norms, laws, principles, or even our sense of "justice," in short whose death is not seen as a violation—Gupta suggests that we recognize the extremely poor as *homo sacer*. Their denial of access to basic food and life's other most basic necessary conditions constitutes a policy of intentionally "letting die." Gupta argues that this practice of "letting die" should be seen not simply as an "exposing to death," but instead as a "*killing*." That Gupta's argument might seem provocative, or even initially controversial, testifies to the solidified bio-political nature of poverty.

Recognizing that poverty is the crux of the issue of (bio)political exclusion is essential, but does not in itself explain the logic that continues and sustains policy choices. To interrogate the work of exclusion under the logic of "the economy," and the promises of liberalism's project of "development," I address the workings of the concept of "food security" in the next section. In mainstream "food security" discourse there has been a clear acknowledgement that at the crux of the issue of addressing hunger is the necessity of addressing poverty and exclusion. However, that understanding leaves open the question of the nature of poverty and how it is to be addressed.

3 | Food Security: hunger, poverty, and the (bio)politics of exclusion

The world has ample food. The growth of global food production has been faster than the unprecedented population growth of the past forty years ... Yet many poor countries and hundreds of millions of poor people do not share in this abundance. They suffer from a lack of food security caused *mainly by a lack of purchasing power*. -The World Bank, 1986¹⁶⁵

In a 1986 paper "*Poverty and Hunger*" the World Bank set out to redefine how developing

countries understand and approach policies for food security. The Bank's paper featured the epigraph above on the cover. The logic they offer is often considered to be a "liberal" argument in response to agribusiness' endless push for more food production, by instead making a case for attending to poverty as the core of the problem of deprivation and hunger.

In this paper, the World Bank takes the insight that hunger, deprivation, and exclusion are the result of poverty. From there they insert this understanding into the reigning logic of "economics" and conclude that food itself is not the issue. The issue is the exclusion of some (the "poor") from proper market access. Laying out this vision, the Bank's paper continues: "There is no one optimal solution to the problem of food security, any more than there is one solution to the problem of poverty."¹⁶⁶ Given this understanding, they offer a macro-level solution. Explaining that: "Problems of food security do not necessarily result from inadequate food supplies, as is widely believed, but from a lack of purchasing power on the part of nations and of households. *Economic growth will ultimately provide most households with enough income to acquire enough food.*"¹⁶⁷ The answer the Bank prescribes is the panacea of "economic growth" (to uplift individuals and the nation as a whole) and the attendant "liberalization" of regulations to promote this growth. Their argument is that such deregulation will enable "the poor" to access the wealth-generating potential of "the market."

In the Bank's paper we see the emergence of a new logic of how to address hunger—one which rises to the fore of global development policy. In this understanding, it is "the economy" and not the government or direct policy interventions that will address the problem. What is presented here is a resuscitation of some the oldest "solutions" to hunger and deprivation: Adam Smith's non-interventionist platform joins in a triumvate with developmental liberalism's renewed moral imperative of ending hunger, bolstered by the reigning logic of growing "the economy." Together they tell the hungry: "not yet."

In attending to the functioning of the dominant food security logic (as articulated largely by the World Bank policy mandates for "developing" countries) I indicate why viewing hunger as simply an issue of poverty is a profoundly inadequate response. Acknowledging that hunger is a result of poverty—while a necessary step—is insufficient. For it does not require addressing what has just been decreed the "real" question—i.e. what is poverty. Rather, it too often simply serves to put the question—now one of solving poverty—firmly into the dominant framework of "expertise;" that of development economics. As such, this argument can—and has served to—enable reactionary "economic development" policies which further immiserate the poor in the name of combating poverty. As food security policy has become increasingly subsumed within

the realm of the economic—under the array of policy shifts referred to broadly as neoliberalism—the *implicit* battle has been over how to understand and define the question of poverty and the appropriate response.

3.1 | “Food Security,” developmental governance, and market logic

Now ubiquitous, the language of “food security” was produced by the western development community in the 1970s. The term is credited as having come out of an FAO-UN World Food Conference in 1974 during the last major global food crisis.¹⁶⁸ Vestiges of the post-war “food regime”¹⁶⁹ are evident in the 1974 definition of food security: it included the need for an implicitly state-run system to “ensure adequate availability of, and reasonable prices for, food at all times.”¹⁷⁰ The language and thinking of the post-war era contextualized food security in terms of national development; the effective management of food was necessary to facilitate and ensure development goals.¹⁷¹ In this state-centric approach, “food security” pivoted on national governments’ capacity to ensure food for their population through intervening in markets and increasing production (and using food aid if necessary). While this logic dominated in the mid-1970s, the concept of “food security” also introduced a marked shift in the role of food in relation to the state, the population, and other sectors of the economy. Initially, food security largely replaced the post-war era’s conception of the “right to food;” and in subsequent eras, with the rise of the logic of “the market” as the most “efficient” tool of government, there was a shift in how food security was understood and what policies should be pursued to attain it. In this shift, the policy mandates of international development institutions (namely, the World Bank) couple with the rise of a new economic development regime to produce a neoliberal logic of food production, distribution, and security.

3.2 | “Fighting Poverty:” Shifting the terrain of “Food Security”

In the name of “fighting poverty,” the role and the duty of the state in development shifted. The state was to move away from acting as the agent, no longer to be responsible for designing policies that ensure people’s food security, by directly combating hunger, guaranteeing the availability of affordable food, and ensuring the “security” of its population *against* the international market and exposure to fluctuations in prices as in the 1974 definition of food security. Now, the state was to facilitate individuals’ unhindered engagement with this same international market—which came to be represented as ensuring individuals against the state’s “interference” and “distorting” inefficiencies.¹⁷²

The 1980s conceptual move to macro-economic interventions that focused on the

retrenchment of the state introduced two dual shifts in the concept of “food security.” The first, a shift in food security’s scalar focus: “down-scale,” from the scale of the nation to the scale of the household and the individual, and simultaneously “up-scale” from the nation to the global scale as the site of “the market” (now the mechanism of food procurement and distribution). The second, paralleling the above scalar shifts, was a conceptual shift in how food security was to be pursued—a change to focus on combating poverty, not simply guaranteeing food. With this came a change in how combating poverty was conceptualized and justified; efficient private sector led “economic growth” was declared to be the panacea. This growth was to be pursued through both the “roll back” of distribution and food support policies and the concomitant “roll out” of a new regime of production policies. These two dual shifts were defined by policy moves away from inclusionary welfare interventions (slashing food supports and social safety nets) and instead towards promoting policies aiming to stimulate the economy to “grow,” manifest in policies focused on liberalizing agricultural markets and promoting export agriculture.¹⁷³

3.2.1 | “Fighting Poverty,” the rise of the individual’s food security

The theoretical justification for the scalar shift to the individual is generally credited to a shift in the understanding of hunger and policies to combat hunger which stemmed from the publication of Amartya Sen’s 1981 *Poverty and Famines*. Sen’s seminal text came to be taken up by international governmental institutions including the UN and the World Bank.¹⁷⁴ Drawing on their interpretation of Sen, in 1986 the Bank (re)defined food security as “access by all people at all times to enough food for an active and healthy life.”¹⁷⁵ While this remains the most widely accepted definition of food security,¹⁷⁶ the definition is silent on how the cornerstone of the definition—the access—is to be attained and ensured.

The Bank’s rendering of Sen’s concepts has received substantial criticism for the simplification and instrumentalization of Sen’s argument. Sen’s argument on the necessity of attending to the scale of the individual in food security (i.e. not simply the household, but also intra-household relations), in the hands of the World Bank and the FAO, was reduced to a matter of the individual’s free and rational micro-economic decisions about a given commodity in a transparent and level “market.” Thus, rather than an expansion of food security to encompass the individual in the context of more responsive national policies, the discursive emphasis shifted to the individual, but without the attendant policy focus.

In their food security papers the Bank decreed that the site of policy intervention for governments was not actually to be the individual, or even the community. Rather, states were to

retract the “interventionist” and “distorting” food security policies—policies through which they had interacted with their population and attended to food security. Food distribution supports had been one of the major tentacles of state interaction with their populations;¹⁷⁷ now, states—in their role as “managers” of food security—were to turn their focus outward, to the global market. While rhetoric narrowed in on individuals, the scale of operation and intervention instead expanded outward to an imagined “global economy.” This, it was claimed, was not only so that the individual consumer and producer could have greater access to better food and markets for their food, but also so that they could be lifted out of the trap of poverty by the rising tide of economic growth.¹⁷⁸ While effectively abandoned by state policy in these prescriptive texts, the individual was not left alone—she was now rendered a consumer in the “global market,” and the state was given an attendant mandate: its role in ensuring her food security was to liberalize trade policies and promote exports. In the Bank’s rendering, Sen’s potentially groundbreaking insights were reduced to a fetishized, symbolic individual operating in a fetishized global economy with a monolithic universal panacea: economic growth. The core of Sen’s argument about policy interventions—creating a more effective means of cross-scaling and down-scaling governments to better attend to and aid individual food security—fell out and disappeared.

3.2.2 | *The sequential logic of food security and withdrawal of state “intervention”*

Alongside the scalar shifts came conceptual shifts; at the time of this redefinition of food security, India had the most extensive food-distribution system in the world, a legacy of colonial efforts that had been greatly enhanced and strengthened after Independence.¹⁷⁹ Once celebrated, this food distribution program now posed a problem in the view of the Bank. Food security needed to be transformed in the name of fighting poverty.

At the national scale, the new food security logic was articulated in policy efforts to increase national “competitiveness.” This was a lesson which had already been taken up by the GoI at a broader scale. The Eighth Plan (1992-7)¹⁸⁰ emphasized liberalization, claiming that: “There is today a recognition that in many areas of activity, [that] *development can be best ensured* by freeing of unnecessary controls and *withdrawing from State intervention.*”¹⁸¹ The retreat of the state on several inter-related fronts (regulatory, trade, fiscal etc.) claimed to open up space for increased private sector activity. In order to allow ample room for the anticipated private sector growth, the Government’s approach was evolving: “From a highly centralised planning system we are gradually moving towards indicative planning.”¹⁸²

Further, the World Bank instructed India that hunger, nutrition, and economic issues would

best be addressed if government efforts focused on “removing controls and distortions associated with the ‘food security’ complex.”¹⁸³ For, the Bank had earlier articulated that such policies of subsidized food for the poor not only “distort” the market, but also, that these:

... policies ... waste economic resources and fail to reach the target groups. It is in that sense as much about what should *not* be done as about what should be done. Probably no nation can be 100 percent food secure. That is all the more reason why *resources* used in the name of *food security* should be used in *cost-effective* ways. *Each country has to decide how much food security it wants and how many resources it can dedicate to that purpose.*¹⁸⁴

In its review and assessment of India’s extensive food distribution network (the aim of which was to ensure all people had at least minimal access to basic food at an affordable price), the World Bank deemed the support system not only “distorting,” but more, that it actually hindered the ability of the poor and those in rural areas to access food—decreeing that a market system would bring them food more efficiently, reliably, and at far less cost.¹⁸⁵

In exchange for development loans, the state was required to withdraw its support for individuals, households, and the agencies charged with the task of procurement and distribution of food grains. The Food Corporation of India (FCI) and its subsidiary the Public Distribution System (the PDS)¹⁸⁶—even though only 0.3% of the GDP—were targeted for “efficiency” under liberalization policies.¹⁸⁷ These food support systems were deemed to “hinder growth.” Attendant with the World Bank’s demands, India’s PDS (Public Distribution System) was slashed, or “targeted,”¹⁸⁸ in 1992 and then was restructured again for the 1997 elections.¹⁸⁹ Under the new “Targeted PDS” (the TPDS), the number of people the PDS reached was halved, food-prices doubled, grain consumption rates fell by 70% nationwide, and incidents of malnutrition, hunger, and starvation became increasingly widespread.¹⁹⁰

The Bank’s claims that “*each country has to decide* how much food security it wants” and how much it can afford,¹⁹¹ is contradicted by its requirement that India dismantle its food security system. With this policy restructuring, the Bank effectively told India that its people had more food security than they should *yet* be able to afford. In practice, it was not up to “Each country... to decide.” Rather, it was apparently up to the Bank, operating on its grid of progress, to determine and enforce the appropriate level of food security in the sequential logic of the “economy.” As the austerity requirements made evident, India was “not yet” at the point on the Bank’s imagined timeline where its citizens should have its level of food security. This was an argument the Bank made via its “economic” assessment of the resources India was allocating to food support; these were deemed too high. The Public Distribution System (PDS), the Bank assessed, was allocated more resources than India should be “choosing” to afford. The Bank’s

stagist scheduling of economic development was, in effect, deployed to knock down the level of Indians' food security to the point at which the Bank's implicit chart indicated "the economy" and "food security" should converge—via cutting 60% of the people off the lists of those eligible for food support entitlements. The Bank's insight that "Probably no nation can be 100 percent food secure," was becoming increasingly manifest.

Transpiring here is a re-arrangement of relations of government and a renegotiation of the state's relation with its populace through fundamental shifts in how its basic responsibilities are to be managed.¹⁹² In the face of the increasingly dire nutritional realities associated with global "competitiveness," the FAO reassured governments around the world to stay the course, that now "food security is as much about *individual strategies for survival* and wellbeing as about national programmes and public investments in *food production and income generation*."¹⁹³

3.2.3 | Food Security as a "private relation" within circuits of exchange

Phillip McMichael suggests that these shifts effectively transformed food security into a "private relation."¹⁹⁴ Extending this further, in Foucault's¹⁹⁵ conceptualization of "security" as the practice of managing risk, or negative tendencies, at the level of the population at large, "security" is about managing a specific population within particular territorial bounds,¹⁹⁶ but, more than that, "security therefore involves organizing, or anyway, allowing the development of ever-wider circuits."¹⁹⁷ This form of "security" becomes increasingly about "inserting *the population* into expanding circuits of exchange."¹⁹⁸ Security is presented as achieved via, and is also increasingly conflated with, exchange and market forces.¹⁹⁹ Exchange relations come to mediate and replace previous forms of relations; thus, the ostensible need to preemptively "withdraw state support"—in the name of efficiency and cost-effectiveness.

The World Bank's statement that "no nation can be 100 percent food secure... resources used in the name of food security should be used in cost-effective ways,"²⁰⁰ was not made only to (in effect) decree that the lives of those supported by the PDS were not "worth the cost." It was not simply a scaling back of welfare and resources while retaining the logic of the development state. Rather, the manifestation of this new approach to food "security"—which plunged millions into hunger and even starvation—follows a logic fundamentally different than that of the (post-war era) developmental state.

In the new food security project, the stated expectation and the goal is *not* to end scarcity or want. Rather, it is to *reallocate* scarcity and want: away from the "competitive" sectors and onto the sector(s) deemed superfluous. The results of slashed support networks make the (bio)politics

of this economic regime viscerally evident. As food security comes to take on the form of a “private relation,” it increasingly manifests in a governing logic where “doing away with scarcity is precisely what is *not* required. Instead, [the proper management of] scarcity, understood as managing the death of multiplicity [i.e. the sectors Chatterjee calls “population”] is crucial for the administration of the population.”²⁰¹ The category “*population*, and not people, is to be thought as coterminous with the *securing of exchange* as a substitute for ties among people.”²⁰² In the context of the results of the “targeted PDS,” Chatterjee’s characterization of the poor in India as “population” takes on a deathly cast. This management of death, or “necropolitics,” is not simply the result of cutbacks, but the transformation of crucial aspects of governing.

The paradoxical form of governing that emerges—marked by democratic “inclusion and unspeakable violence; [where] forms of belonging coexist with the production of bare life,”²⁰³ reveals a governing logic where “*despite their inclusion* in the national community and the development state, *their poverty does not constitute a scandal, and their death does not provoke national soul-searching.*”²⁰⁴ Rather, the logic of “the economy” provides a ready answer.

3.2.4 | *The invisible hand that feeds, and starves: the Bank on not taking responsibility*

The defining logic of “economics” and the visceral biopolitical realities of exclusion play out in increasingly contradictory ways in the World Bank’s (re)articulation of the idea of “food security.” The Bank’s early papers on FS seemed to remind themselves as much as their reader that: “*The alleviation of poverty and hunger are, after all, the primary purposes of economic development.*”²⁰⁵ Thus, when forced to acknowledge (to a limited degree) the unsettling effects produced by the expansion of the logic of “competition” as the most efficient means of governing all sectors, the Bank again reiterated that, “Hunger is the most extreme manifestation of poverty and arguably the most morally unacceptable.”²⁰⁶ Reflecting on the realities its policies had produced, the Bank honed in on one major effect which it found to be the most unsettling to the project of development: the “paradox” of plenty. They assess:

Particularly disturbing is the recent dynamics of world hunger. During the first half of the 1990s the number of undernourished people decreased by 37 million, but over the next 5 years it increased by more than 18 million. ... *In India, after a decline* of 20 million between 1990–1992 and 1995–1997, *the number of undernourished climbed by 19 million over the following four years.*²⁰⁷

But while “disturbed” by the “dynamics” of this “paradox,” the World Bank did not implicate their 1997 food security policy reforms in this “particularly disturbing” reversal nor did they take any responsibility for the policy direction that produced the about-turn in the life possibilities of

millions of people. Rather, the Bank maintained that the number of hungry people was all the more evidence why the Bank's appropriate policies must not only be continued, but expanded. For, the Bank did not suggest a logic behind these "disturbing" dynamics, or advocate any changes that might imply that this was not a "worthy" and "cost-effective" sacrifice (i.e. that the poor are not *homo sacer*). Instead, in the Bank's sequential logic, India's booming economy indicates overall success, with the need for a bit of tweaking; as such, millions in hunger (and the hundreds of thousands of deaths) are reduced to a regrettable (and perhaps avoidable) price to be paid on the path to development. Surely, such robust development will conquer "the most morally unacceptable" "manifestation of poverty"—hunger.²⁰⁸ The Bank's limited scope of concern with this "particularly disturbing" "improper sequence" of events is a largely predictable result of pursuing developmental goals within the liberal economic logic of "not yet."

As security becomes increasingly defined as exchange relations, Montag reveals that in these relations, the logic at work is "no longer discussing individual lives...but the life of a population."²⁰⁹ Conceptually extending the work of *the poor* as *homo sacer* (as offered by Gupta), Montag takes the logic of exclusion to its next step; in the operation of the (bio)political exclusion of "not yet," "the market... must necessarily, at certain precise moments, 'let die'."²¹⁰ This, he deems to be a "necro-economics."²¹¹

3.2.5 | *Competitiveness as the metric of production*

The realignment of the state's focus away from directly addressing the needs of the population to fostering and aiding private sector activity received substantial promotion in the *Ninth Five Year Plan* (1997-2002). Emphasizing increasing privatization in the name of increased efficiency, and mobilizing the rhetoric of scarcity, the *Ninth Plan* claimed that the "*discipline of competition*" will "ensure rapid growth at least cost." The Planners explicate:

One of the strengths of our economy is that we have a strong and vibrant private sector ... Our development strategy must be oriented to enabling our broad based and varied private sector to reach its full potential for raising production, creating jobs and raising income levels in society. A vigorous private sector, operating under the *discipline of competition* and free markets, will *encourage efficient use of scarce resources and ensure rapid growth at least cost*. Our policies must therefore create an environment which encourages this outcome.²¹²

Reflecting the ascendant authority of "competition" as the proper logic by which to structure not just production decisions, but also social and policy decisions, the aim was to make the national economy globally competitive, and within this, to make relevant sectors and individuals competitive. Attendant with this logic, the state's mandate for small farmers, who were not

competitive in a global context, had been restructured.²¹³ “There is thus a renewed focus on agricultural development, which pivots on the salience of industrial agriculture (as a supply source) in addressing food security.”²¹⁴ That is, it is not the small farmers’ “food security” which needs to be ensured via intervention, nor their “poverty” which needs to be combated by withdrawing interventions. Rather, the state must seek to help them by making the agricultural sector more “competitive;” the Bank offered solutions designed to ensure this: “to help developing countries improve their food security, the international community should: *Intensify efforts to accelerate growth*, through adjustment assistance, policy reform, and productive investment.”²¹⁵

That is, before global trade could start to bring the poor in poor nations upward mobility, developing countries had to institute structural “adjustment” policies, ostensibly to make their agricultural sectors able to be appropriately “competitive.” While the poor are told “not yet,” and to wait for the inevitable upward movement of the economy, at the same time, “if one compares the *complacency* towards endemic poverty [and chronic hunger] with the *impatience* displayed toward impediments to growth and accumulation, the disparity is striking.”²¹⁶ The key here is that even as the poor are being told “not yet,” this move to “competitiveness” is justified via the need to address their poverty.

3.2.6 | *Beyond the distribution question: the logic of food security as export production*

The conceptual and policy shifts regulating food distribution were just the first steps in changing the development approach. With the goal of achieving the requisite economic growth for food security, the World Bank’s policy logic further restructured relations of government to food producers. Global restructuring of production regimes accompanied the cutting of state subsidized food aid. Policies that could be construed as supporting domestic agricultural producers, needed to change. There was mounting pressure to maintain a strong national agricultural sector,²¹⁷ but within the new (neoliberal) development logic, this required being globally “competitive.”²¹⁸ This conceptual shift was advocated not just by the Bank and development institutions, but across transnational regulations. The effects of these conceptual shifts were consolidated with the subsequent

shift[s] in the ‘site’ of food security from the nation-state to the world market [which] was engineered during the Uruguay Round (1986-1994), anticipating the WTO’s Agreement on Agriculture (1995). Under this agreement, states no longer have the right to food self-sufficiency as a national strategy.²¹⁹

Developing nations were no longer were in the “right” if they set policies and engaged in efforts

to influence the production side of food security. Instead, the obligation of states is to create “through correct policies, an environment which *encourages investment* leading to food security.”²²⁰ This was based on the premise that, as the FAO explained:

food security research ‘has highlighted the strong positive interactions between cash-crop and food-crop activities and innovative methods for resolving many of the constraints facing small-holders’. In other words, *commercial farming in general is the appropriate strategy to increase productivity and thereby reduce poverty.*²²¹

To increase commercial farming, developing nations needed to implement policy changes to attract and encourage investment. As private capital was unlikely to invest in staple grains for domestic consumption, in order to attract this capital it was necessary to switch to specialty crops—specifically, crops for export. The staple grains were to be imported. As President Reagan’s Secretary of Agriculture, John Block, explained: “The idea that *developing countries* should feed themselves is an anachronism from a bygone era. They could better ensure their food security by relying on U.S. agricultural products, which are available in most cases at lower cost.”²²² It became the duty of the state to become more “competitive” in the global arena and thus enable “rural development driven by new *export agriculture* initiatives.”²²³ This was to be pursued through policies encouraging the production of “high value,” or specialty (i.e. “tropical”) crops for the global “market,” rather than the staple crops emphasized in the 1960s.²²⁴ Export of these crops was ostensibly to provide the financial means to finally conquer poverty and attain food security.²²⁵

Instructing India how to escape poverty and hunger in this context, the Bank explained why its farmers needed to move away from producing staple food crops. The Bank reasoned they had a cost greater than just the financial subsidies; they were harming India’s global competitiveness:

The underlying principle of the proposed policy towards maintaining self-sufficiency that also ties farmers to low-value rice and wheat production *will come at the cost of efficiency.* The continued large public sector role envisioned in foodgrain markets will crowd out private sector participation...[as it means] the government will continue to determine farm prices rather than the market.²²⁶

Not only did growing staple food crops keep Indian farmers poor, but the government’s crop price supports and food subsidies for the poor distorted food prices, produced inefficiencies in distribution, and wasted scarce resources.²²⁷ In the context of the disproportionately agrarian nature of poverty and hunger, the Bank’s way out of this cycle was for poor farmers to produce high-value cash crops—crops they could sell to raise their income, not simply to eat.

The focus of public investment on fostering export initiatives reifies and deepens the fundamental disjuncture and contradiction underlying the project of “feeding the world.”²²⁸ For, in the name of “competitiveness,” this production regime has come to be structured “around a *politically constructed* division of agricultural labour between [highly subsidized] Northern staple grains traded for Southern high-value products (meats, fruits and vegetables).”²²⁹ The push toward “competitiveness” has shifted which crops are to be grown, but there have been wider effects as well. Despite the promises of increased “efficiency,” as India shifted to “high value” crops,²³⁰ agricultural imports have increased at a far greater rate than exports.²³¹ These shifts produced other changes on the ground—as an FAO study on agricultural sectors across sixteen nations in the global south documents: the result of these policies was “the displacement of *at least 20–30 million rural people*.”²³² Uncompetitive and thus displaced, these once-cultivators were pushed by dynamics defined as “accumulation by encroachment.”²³³

The World Bank’s explanation that the production of staple grains is not “efficient”—“rice and wheat production *will come at the cost of efficiency*”²³⁴—is an assessment that begs the question: “Efficient” for whom? Who does the Bank envision as the implicit beneficiary of a restructured agricultural sector? Their writings dodge these questions with appeals to very real poverty and the panacea of “the global economy.” But this invocation, and the policies it enables, serves to enable the increasingly powerful stance of global agribusiness. As the chairman of Cargill articulated, justifying the vastly uneven WTO regulations on the agricultural sectors of nations of the North and South:

There is a mistaken belief that the greatest agricultural need in the developing world is *to develop the capacity to grow food for local consumption*. This is misguided. Countries should produce what they produce best—and trade.²³⁵

Beyond the “conversion of food into an export business [which] has been a central consequence of structural adjustment policies over the past three decades,”²³⁶ the scenario is further skewed, as the global terrain of subsidies, structural supports, and prices is highly uneven: “the World Trade Organization...rules (regarding agro-exporting) preserve farm subsidies for the Northern powers alone, while Southern states have been forced to reduce agricultural protections and import staple, and export high-value, foods.”²³⁷ In this context, the “comparative advantage” that is to serve as the determining criteria of what to grow is entirely a legislated advantage. It lies not in natural factors determining what can be grown, or even the level of farm efficiency, but rather in the hands of those writing the policies. It is highly skewed rules operating under the name of “the market” that are used to determine who should grow what and, in effect, who shall have “food security,” and who shall go hungry.

3.3 | Assessing: restructuring food security, logics of redistribution and production

The shift to “efficiency” and “global competitiveness” and the earlier scalar shift (to a focus on the individual in a global market) coupled to produce a “problem” that came to be called “the paradox of plenty” (i.e. the disconnection between surplus food and hungry people). The effect of the restructuring of production policies did not follow the trajectory that the World Bank had promised.

The shift to emphasize “competitiveness” and fostering the “*discipline of competition*,”²³⁸ included cuts in the PDS (Public Distribution System). This left vast food surpluses at the FCI (Food Corporation of India)²³⁹—which were disposed of in the sea.²⁴⁰ After slashing eligibility for food aid to include only the very poorest—to realign development supports with neoliberal economic policy—at the end of the Ninth Plan, the Government was spending more on the *storage* of the “surplus” food alone than it spent on all of its agricultural and rural development programs, irrigation, and flood control programs put together.²⁴¹ Just the storage of foodgrain stocks (even before disposal costs) required more of the “scarce resources” than the government had spent subsidizing and distributing these food stocks prior to economic liberalization.²⁴² In the name of “*efficient use of scarce resources*” and the “*discipline of competition*,”²⁴³ the government incurred significant new costs while hunger and malnutrition skyrocketed.

This reality indicates that the overall “cost” of the food procurement and support policies is not assessed according to the metric of “efficiency” given as the World Bank’s initial justification²⁴⁴ for, and laudatory response to, the cuts in the PDS. Instead, “food security” has been reshaped to have little to do with actual food supplies.

Rather than addressing the supply of food, “food security” evolved into a project of managing the population. In this management project, scarcity is reallocated, moved to segments of the population not “competitive” enough, and whose access to food does not “*encourage efficient use of scarce resources and ensure rapid growth at least cost*.”²⁴⁵ Through the shifts in “food security,” access to food was rescinded from the vast segments of society that were, in the logic of the Bank, not the “cost-effective” members (consumers or producers) necessary for a globally competitive economy and agricultural sector.

The widespread deprivation resulting from these policies was of course what the Bank claimed that competitiveness for growth was to fix. The poor were to be lifted up by the unfettered market to be able to afford their food. Instead, the application of the market as the mechanism governing distribution of food failed, unraveling its underlying logic. This unraveling reveals a different biopolitical logic: “the hidden assumption of the *market’s rationality and*

equilibrium in the notion of population itself, as that which contains within it a mechanism of scarcity by which individuals may not only be allowed to die, but to be pushed over into death.”²⁴⁶ As Montag, reading Adam Smith explains, the results reveal that:

...the rigour of the market as a mechanism that adjusts the proportion of labourers to the fund available for wages by *liberally distributing malnutrition* to the social ranks whose numbers exceed their ability to obtain subsistence, thereby “destroying a great part of the children” without any agent “intending or knowing it,” [a process which] *must be supplemented by direct human agency*.²⁴⁷

This *direct intervention*, which allowed the “market” to push the poor over the edge of hunger, even into death, is initiated under policies taking the title of “food security.” That *should* elicit pause—but it is not inherently a “paradox.”²⁴⁸

Campbell explains that this

Instead of being a puzzling paradox, this situation, is precisely what we could expect; Campbell’s reading of Foucault maintains that such an outcome is presumed by “the guarantee of competition, which is what ‘*govern the market*’ means.”²⁴⁹ This criteria “presumes that *some are not competitive and hence will not be ‘governed’*.”²⁵⁰ The market’s promise of “not yet” may be invoked, but the *outcomes* clearly indict the institutional claims that food security is simply yet to come. For, in the logic of “not yet,” the “non-competitive” sectors of the population are “surplus” to the “economy’s” need for their labor. Adam Smith notes this; and Montag demonstrates that exclusion is necessarily human directed. It is, in short, a societal choice that the poor are “let die” because *they*—not the food stocks—are the surplus: surplus to the new “competitive” economy’s need for their contributions.

The understanding that it is human *labor* which is in excess, not food, presents a different picture of the “paradox.” It is not simply about the increasing prevalence of “hunger amidst plenty,”²⁵¹ rather:

The paradox of this food regime is that at the same time as it represents global *integration as the condition for food security*, it immiserates populations, including its own labour force. The perverse consequence of global market integration is the export of deprivation, as ‘free’ markets exclude and/or starve populations dispossessed through their implementation. In turn, dispossessed populations function as reserve labour.²⁵²

It is because the labor of vast segments of the poor has been rendered superfluous by and to “the market” that food security had “not yet” been scheduled to arrive. Because the segments of the population where malnutrition and food insecurity are the most prevalent work in agriculture,²⁵³ it is clear that the root of the “paradox of plenty” extends beyond a question of the distribution system. It is the deprivation in this segment of the population—a result of their status as

“surplus”—which has been used to propel the reigning logic of the need to increase their “competitiveness.”

3.4 | The staying power of the productionist paradigm for “Feeding the World”

It is in this context of the “paradox of plenty” that cries resound for a *new* Green Revolution, to revitalize Indian agriculture to ensure food security for the nation. The most obvious problem with this demand is evident: *the nation* as a whole *is* food secure. However, despite this reality, it is this productionist “solution” which remains the touchstone. It has developed a staying power that confounds logic—but also is harnessed to justify an array of projects, in the name of the helping the hungry—who are most often the agrarian poor. The “simple mantra “increase production” effaces a range of structural issues including production-side problems of drastically uneven subsidies, support, and trade relations, as well as distribution side issues of slashed support and welfare nets and inadequate distribution mechanisms. The logic that should indict the policies is instead used to justify them.

The “production side” logic, which has created and deepened inequality in the name of feeding the world, plays out in the ways described above. First, vast disparities in structural support for production (e.g. global north staple crop subsidies), justified by recourse to the need to “feed the world,” have become naturalized and effaced. This naturalization enables the core of the contemporary global denomination of responsibility—as manifest in the project of development as well as in the current food regime—to remain unexamined. The underlying division is so thoroughly sedimented that even most critical scholarship proceeds via presuming, not challenging, the deep separations. Second, projects which expand and consolidate these divisions (e.g. accumulation by dispossession) continue operating in the name of “food security”—still the most common articulation of agricultural development policy, even while its regulations are exclusion-producing. Coupled with the austerity of the “targeted” distribution regime, the exclusion-producing nature of the dominant production regime has become particularly acute. While this has led to the reluctant recognition of the “paradox of plenty,” the recognition has not led to a re-examination of its causes.

Chapter Two

The Gateway Vegetable: Bt brinjal and the Question of Development

Biotechnology has enormous potential, and in due course of time we must make use of genetic engineering technologies to increase the productivity of our agriculture. But there are controversies. There are NGOs, often funded from the United States and the Scandinavian countries, which are not fully appreciative of the *development challenges* that our country faces. *But we are a democracy*, we are not like China.
-Prime Minister Manmohan Singh, 2012²⁵⁴

1 | Introduction

Every housewife knows the brinjal. And she knows what it is to cut into one only to find that it is entirely destroyed on the inside by a pest. When she takes the Bt brinjal she sees the difference, every time. It is clear in front of her eyes, and very appealing—why would she not seek this out?

-P. Balasubramanian (Professor, Department of Plant Molecular Biology and Biotechnology, Tamil Nadu Agricultural University, Coimbatore), 2011.²⁵⁵

Example of a promotional image demonstrating regular brinjal (left) next to unblemished Bt brinjal (right)



(NDTV February 09, 2010a)

On Wednesday October 14, 2009 India's Genetic Engineering Approval²⁵⁶ Committee (GEAC) gave its approval for the release of India's first genetically modified (GM) food crop:

Bt brinjal.²⁵⁷ Bt brinjal, an eggplant that had been genetically engineered with *bacillus thuringiensis* (Bt) was billed as “the world’s first genetically modified vegetable” (for direct human consumption).²⁵⁸ Bt brinjal was to secure India’s status as a center of “cutting edge” biotech research—it promised to boost India to the forefront of the emerging, and much hyped, agricultural biotechnology revolution.

Furthermore, Bt brinjal seemed to exemplify the model that proponents of “biotech for development,” or “biotechnology for the poor,”²⁵⁹ advocated: brinjal, or eggplant, is a cash crop grown largely by small and marginal farmers, and is regarded as an inexpensive “everyday vegetable,” it is the third most consumed vegetable in India, after tomato and potato.²⁶⁰ The Bt brinjal project—developed through an India-US international public-private-partnership (PPP)²⁶¹—claimed to renew long-neglected agricultural development efforts and to offer a model for future projects. The partnership included the engineering of both propriety and open pollinated varieties. The technology’s pest resistant qualities promised to boost small and marginal vegetable farmers out of subsistence poverty,²⁶² increasing their income to ensure their own food security, all while pleasing urbanites through the visible guarantee of un-blemished produce²⁶³ and the ostensible “sustainable development” status conferred by the technology’s promise of a reduced pesticide load.²⁶⁴ To advocates, Bt brinjal was “it:” a compelling and useful example of a familiar food engineered to meet society’s multiple needs: economic, environmental, food quality and production enhancing.

On the following day, Thursday October 15, 2009, India’s Minister of Environment and Forests,²⁶⁵ Jairam Ramesh, held a national press conference. He announced the Government was putting the release of Bt brinjal on hold.²⁶⁶ Then, Ramesh’s Ministry of Environment and Forests (MoEF) did something unprecedented. Following procedure as prescribed by internationally agreed upon global ag-biotech agreements,²⁶⁷ the MoEF held public hearings on the question of Bt brinjal.

Less than four months later, on February 9, 2010, Minister Ramesh would announce²⁶⁸ what came to be a highly anticipated and extensively covered decision: an indefinite moratorium on the specific genetic event in Mahyco’s Bt brinjal technology.²⁶⁹

Despite the laundry list of attributes, its status as a textbook example of “biotech for the poor,” (i.e. a crop made for uplifting small farmers and promoting development through improving harvests), and the committed salesmanship of a number of India’s top research scientists and Ministers, this eggplant will not be cultivated in India. Given all of the apparent benefits, its advocates genuinely puzzled as to how and “why should anyone, least of all the

environmental activist, have an issue with this technology?”²⁷⁰

There was much speculation on what reversed the path to release of this ostensibly ideal biotech crop. But, more significant than the question of the moratorium is: what insight can we gain from the process of consideration? Bt brinjal became one of the most discussed and debated vegetables in modern history—it spent months in the national headlines, the Government received over nine-thousand written submissions about it from across India and the world, and over six-thousand people attended (just the “official”) public hearings on the vegetable (another two-thousand protested outside the hearings). The significance of these debates is not confined to GM crops or agriculture, but has lasting repercussions for development and policy making in all arenas.

While the Bt brinjal technology was seemingly “perfect” on its own terms, the debate around it expanded the terms on which both the technology and its justifying rationale—India’s agricultural development and food security needs and problems—could and should be assessed. This process and the heated debate over an eggplant offer an unusual window into a society-wide discussion about food security and agrarian development, how these fit within agricultural and development policies today, and their integral relation to imaginaries of democracy and modernity.

The discussions of Bt brinjal, and even the process of open consideration around it, may seem contained to and/or inconsequential outside of quarters concerned with GM crops, however, I suggest the discussion process had a significant impact on broader questions of development and democratic decision making. An understanding of this discussion process is important to considerations of the politics of development, technocracy, and democracy far beyond the realm of agriculture. Technocracy—whether in the realm of economic policy, technology, development, or beyond—is framed in the literature as essentially rendering social choices self-evident and uncontestable by putting them outside the realm of politics. In the case of Bt brinjal, this technocratic positioning itself was taken-on and this façade was cracked. The debate that came to manifest could be summarized as turning on questions of the ongoing agrarian crisis in much of rural India—grappling with questions of who is the subject, or beneficiary, of agricultural development policy, of whose voice counts, who gets to decide society’s collective scientific and development futures, and on what grounds their claims are assessed.

1.1 | The framing of Bt brinjal

If the controversy a “mere eggplant” could cause was not yet apparent it quickly became so. Defying the confines of its proponents, Bt brinjal exceeded the bounds within which it had initially been relegated: a routine decision of crop approval, a dry technicality of national policy regulation. Instead, Bt brinjal came to be internationally regarded as a precedent setting issue of significant consequence. Agricultural biotechnology (or GM crops) can often incite an array of hyperbolic claims, and this was particularly the case with Mahyco’s Bt brinjal. For, it was seen as a “gateway vegetable” promising, or threatening, to open the floodgates to new policy futures.²⁷¹

Bt brinjal’s advocates “maintained that ... there is a regulatory path for GM crops which aims to establish safety and efficacy over an accepted period and it has been diligently followed by Bt brinjal on the basis of which the Genetic Engineering Approval Committee (GEAC) has given its positive verdict.”²⁷² They argued “thirty [of the] best scientists have cleared it...Bt Brinjal is absolutely safe for all mammals.”²⁷³ Raising the stakes and terms of debate, they invoked larger societal concerns on their side, promising that “not only is ‘it is safe for all humans. ... adopting this technology will help thousands of farmers’.”²⁷⁴ As Bt brinjal’s potential release came to be increasingly debated, Bt Brinjal’s advocates responded by characterizing questioning as conspiratorial, arguing “if threats and allegations reverse this verdict, it will be a *regulatory failing*.”²⁷⁵ Elevating the significance of the debate, Bt brinjal was seen as precedent setting—it is the first of fifty-plus biotech crops slated to be coming up for approval—all of which are purportedly necessary for food security. Bt brinjal was to lay the groundwork for this policy trajectory. Its advocates continued to remind the public that “scientists ... said that the ambitious Food Security Bill will require procurement of over 65 million tonnes of food grain annually and that biotechnology will help meet the need.”²⁷⁶

While the advocates attempted to write Bt brinjal’s process of approval as simply a routine matter of well-established policy, albeit one setting an important precedent, Bt brinjal emerged at the forefront of ongoing debates around GM crops and their role in development and food security in ways quite different than how its advocates sought to frame the technology. Rather than the cutting-edge technology that was to demonstrate India’s innovative application of modern science for development, Bt brinjal became muddled with risk in the form of uncertainty about its safety, and came to be laced with the specter of renewed foreign domination of India’s agricultural sector, through the technology’s intellectual property rights. Instead of the object that would embody and demonstrate India’s R&D prowess, Bt brinjal came to be framed in civil society as a “technology Trojan Horse”—with a dual mission of using a common and

inexpensive “everyday vegetable” to allow US-based agribusiness MNC Monsanto (which owns the patent on Bt technology and owns 50% of Mahyco, the company that developed Bt Brinjal) to gain control over the livelihoods of millions of small and marginal farmers and to accustom Indian consumers for the fifty-plus GM crops in the research and development pipeline—eventually enabling Monsanto to “colonize India’s food chain.”²⁷⁷ The possible approval of Bt brinjal was argued to be the latest battle for independence and sovereignty,²⁷⁸ waged with a “gene gun to our head.”²⁷⁹

While critics characterized Bt brinjal as a savvy symbol disguising the threat of neo-colonialism, advocates countered that the debate was “hijacked to unsubstantiated emotional levels,”²⁸⁰ making it “impossible to have a sensible discussion on GM crops.”²⁸¹ The advocates argued that if a technology as thoroughly documented as Bt brinjal was not approved, then what India would be showing the world was not its practical ingenuity nor its vast R&D potential, but rather demonstrating that the largest democratic nation was simply another developing country ruled by “mobocracy,” unable to address even its most basic problems “rationally” or with “common sense.” They “called for a non-political and unemotional decision.”²⁸² The advocates charged that not approving Bt brinjal would constitute a policy precedent derailing the nation’s long established and well-respected path to modernity and development based in the sensible use of appropriate science and technology, and that to do so would put the nation’s food security at dire risk—how could India hope to feed the growing population without harnessing the power of modern technology.

1.2 | Technology and technocracy: confining and defining the discussion

These visions are reliant on different imaginaries of how today’s situation has come to be and what needs to be done about it. Key to all of these accounts is how the broader social, economic, and (geo)political *arguments came to manifest through this technology*: Bt brinjal as an object allowed a space for an array of broader concerns to come to the fore. These debates can be read as simply about an eggplant, a technology, but I suggest that we read them as a “revealing” of how the technocratic framework has functioned and made its world. To function, the technocratic approach defines not only its object, but, as became clear in the debates around Bt brinjal, also writes the world according to its criteria. Central to this project is promising particular kinds of futures.

The concerns, or the charges levied in the debates, often had little or nothing to do with the object of Bt brinjal in itself. Rather, Bt brinjal provided an opening in which issues that the

dominant technocratic framework had largely written out of legitimate discussion now could be voiced. The technocratic framework assembles its own understandings of society's problems and means of managing them, or governing; its power rests in its ability to "write" the "world" according to its logic. In Chapter One I indicated that the concept of "the economy" creates categories and conceptual structures through which our understanding of society is channeled; to function, it must make a "world" according to its logic. Likewise, in this chapter I trace ways technology also functions as a governing formation that writes its "world": confining the world into multiple isolated parts, and defining how they fit together to make a functioning whole. In this framework, any and all problems can be broken down into component parts, the hindering factors identified, and the problem solved—by improving the functioning of the relevant aspect of the technology. Thus, in the dominant technocratic framework, technology functions as the arbiter of truth and its terms form the terrain on which concerns can be voiced.

The discussion of this engineered eggplant and its regulatory process offer important insight into understandings and imaginaries of development, science, and the roles of technology therein. Reading the debates around Bt brinjal in India symptomatically can unveil aspects of the "world" that the power we endow technology with has built. Likewise, it can reveal competing visions of what development should look like.²⁸³ In particular, claims about Bt brinjal offer a lens that can reveal how its "world"—of technocratic (agricultural) development (and food security) policies—is constituted. This lens revealed two main manifestations. First, a discussion of much broader issues—issues of social and agrarian distress, poverty, economic development, and broader contours of food security and agriculture policy—took place, funneled through the discussion of this technology. Arguments both for and against Bt brinjal relied on invocations of larger social problems. Hence, while the "technocratic" terms of evaluation—which reduce everything to discrete components, and address the problems society faces through incremental improvements to these components—were to provide the larger context in which the broader social issues were to be understood, the discussion opened further, creating significant cracks in this framework. Second, the process through which the debate transpired—including soliciting commentary and holding public hearings was itself outside of the traditional path; as such, this process allowed consideration of the way "technology" functions to write the world.

1.2.1 | *Technology: an object as an argument*

Discussing the vision of technology in the Green Revolution, historian Nicholas Cullather emphasizes "technology ... is a type of rhetoric, an argument in the form of an object."²⁸⁴

Drawing on this definition, I suggest that reading Bt brinjal as an object mediating, and manifesting, a larger argument offers new insight into debates about development and the roles of technocracy therein. These debates also open up the GR's legacy. The argument Bt brinjal embodied was, and is, about the future direction of development and agricultural policy in India, including how social policies and science policy should be set, and to whom they should be responsible. To unpack the debates over the possible futures requires understanding how they stake claims, particularly the representations of the past they invoke and rely on, and how these understandings are mobilized for their vision of the future. An understanding of technology as “an argument in the form of an object”²⁸⁵ can offer insight into the ways that technology must constantly write and re-write its world. As technology writes “worlds,” it also offers a lens into the constitution of these worlds—it offers to “unveil” them. Considering Bt brinjal as an argument in the form of an object, it is an object through which a world can be staged—an object through which a significant debate comes to be funneled.

1.2.2 | *Questions*

The debates played out primarily around the question of food security and the politics of scientific expertise. My central concern is the degree to which the debate process opened up the imaginary of development and its Green Revolution legacy. This entails two sub-questions. First, what futures, or imaginaries, did competing visions mobilize? Second, what is at stake in the competing imaginaries mobilized in the heated debates around GM crops, particularly in relation to their salient and most divisive claim of being the remedy for the country's critical food security situation? The first of these two sub-questions is addressed in sections two and three the second question in section four of this chapter.

1.3 | *Imagined development futures*

I suggest that we can understand the visions of development futures as reflecting two imaginaries, broadly conceived. The first: a technopolitical imaginary, in which modernity itself is development and the widespread use of “modern technology” has a cardinal role in achieving this state.²⁸⁶ The second: a pluralist democratic imaginary with a more autonomous and locally sustainable vision as integral to development and modernity.²⁸⁷ Unsurprisingly, these often come into conflict. Both traditions have deep and extensive roots in debates about and imaginaries of development in India, as has been written on at length.²⁸⁸ Further, both of the imaginaries are deeply entwined with the legacy of agriculture and agricultural modernization in India (e.g.

debates over the Green Revolution).

In the debates over Bt brinjal, those operating within the first imaginary adopted many of the standard claims of GM advocates: characterizing biotechnology as an extension of “age old” human practices of plant breeding and the next step in agricultural modernization; these claims formed the background for more specific imaginaries around India’s modernity and development. The second imaginary represented a more diverse array of alternative perspectives and visions of future paths, which received increased attention in the debates.²⁸⁹ While the perspectives within the second broad imaginary were not in consensus regarding the necessity or potential of GM food crops for India in general, there was agreement about the necessity of *open discussion* and a responsive model of decision-making in the case of Bt brinjal.

The two broad perspectives diagnosed the central problem with Bt brinjal from fundamentally different standpoints. On the one hand, the former maintained that the Bt brinjal decision should have been a routine matter of incremental technocratic progress. As such, the only appropriate question was: is it safe? On the other hand, the latter held the view that the technology could potentially have negative consequences which need to be taken into account, and more, that Bt brinjal is irrelevant to the issues its advocates are promising it will solve, and further, that its approval process was an unconsidered rubber-stamping—in part because the existing regulatory framework was not capable of addressing the social and ecological context which must be taken into consideration in any policy decision.

These imaginaries emerged and played out most clearly in two themes (1) the question of food security, and (2) the politics of scientific expertise.

2 | Contextualizing the claims: food security and the Green Revolution legacy of agricultural science

Although Bt brinjal’s advocates insist that the terrain of evaluation and assessment must stay “strictly within the terms of scientific risk assessment,” the promises and justifications for Bt brinjal exceed the framework of bench science: they promise that Bt brinjal will solve existing social problems. Such promises are hallmarks of the hegemonic framework of technocracy. But, within their framework, the very social, developmental, and political grounds that they invoke as evidence of the need for the technology are not allowed to be considered in the assessment of whether or not to adopt the technology. This contradiction laid the framework for the challenge to their argument in the form of an object.

The developmental promises of Bt brinjal are also clouded by the facts of the problems invoked. In India today there are massive food surpluses. Millions of tons of grain rot in the open as surpluses exceed the Government's recommended levels and its storage facilities by three to four-fold.²⁹⁰ The recurring problem of surplus grain disposal makes India's much more significant problem puzzling: India has one of the highest rates of malnutrition and chronic hunger in the world today.²⁹¹ In this time of surplus, the rates of hunger and malnutrition have actually increased rather than decreased,²⁹² childhood malnutrition²⁹³ rates have become among the highest in the world²⁹⁴ and the general population's food absorption and nutrition are lower than at any point since Great Depression levels pre-Independence.²⁹⁵ The conventional assumption underlying the argument for Bt brinjal for food security—that with sufficient food supplies hunger and malnutrition will be eliminated or at least ameliorated—clearly has not held true. This recent decoupling of food security and development raises fundamental questions about the nature of development and who reaps development's purportedly universal benefits. This deeply alarming situation is not beyond the stakes of the Bt brinjal debate. Rather, it elevates the stakes of that biotech for development debate, grounding it in a very real and urgent need, and also raising the question of the role of GM crops in this decoupling.

The last time that India faced such serious food and hunger concerns was after Independence, before the Green Revolution (GR). Today's problems are ones that India's Green Revolution ostensibly eradicated (with its application of modern technology to agriculture—in the form of HYVs, mechanization, irrigation, and chemical inputs such as fertilizers, pesticides, etc.). Credited with securing India's food independence, the GR is invested with an exalted status in the popular and nationalist imaginations.²⁹⁶ This definitional status extends far beyond the historical; the GR continues to set the terrain on which considerations of agricultural development take place.²⁹⁷ Its technology-driven approach comprises the scaffolding for agricultural education and institutional culture.²⁹⁸

Hence, while the food security claims for an eggplant in particular may seem preposterous, "food security" has been a hotwire for many decades and is always summoned as the backdrop in discussions of agriculture. And, the way to ensure national food security is thoroughly established in "common sense:" through large-scale technological improvements in agricultural crop technology.

The main framework through which food security, and specifically its relationship to development, is viewed in India today is through the need for a "second Green Revolution."²⁹⁹ But, as the debates over Bt brinjal indicate, there is a battle to define what this Second Green

Revolution should look like and who should inherit the authorizing mantle of the Green Revolution's expertise.^{300, 301} Biotechnology advocates are quick to claim this exalted mantle as their natural history, articulating ownership of this emergent "second Green Revolution" as the "Gene Revolution." Their claim for the promise of biotechnology is the dominant form in which the GR's legacy is defined today. This perspective has adopted the standard rhetoric of GM crops, claims: there are a billion hungry people that need food and hence all options must be on the table, especially the most "modern" of these options: the genetic engineering of food crops. The view of GM crops as offering a "Second GR"—one in which the problems of the first GR are addressed and solved—is based on the premise that by mastering technology, social problems will also be solved. In this view, it is the technology itself that is the issue of concern, not the (inevitable) problems plaguing society which render it necessary—for these problems will disappear with the appropriate technology. In this worldview, technology acts as an agent with capacities that exceed the human: while humans are bound by society and political constraints, technology is outside of such constraints and yet can enact changes to humans' social and political constraints.³⁰² The power of technology lies in the fact that it is beyond such constraints—enabling it to act as a mere dictator. This imaginary is fundamentally one of technocratic expertise, wherein technology steps in to resolve systemic societal problems by *circumventing* them.

In reciting a development story which explicitly links the GR to GM crops as the answer to the re-emergence of hunger as a national problem, Bt brinjal's advocates claim to continue the legacy of the GR approach of agricultural modernization *as* food security: using the most modern technology and scientific expertise to revolutionize agriculture and to overcome larger socio-political problems. The portrayal of agricultural-biotechnology as the natural extension of the GR—upgraded, safer, and more environmentally responsible—seeks to define the terrain for the debate, even to preclude the need for debate. The "science" that they mobilize serves their definition of "expertise," declaring for example that what is at stake is simply that "Researchers wish to improve crops and increase their productivity"³⁰³—as "the Indian Council of Agricultural Research's (ICAR) Deputy Director General (Crop Science) Swapan Datta said [while explaining] that anti-GM protestors do not seem to understand science and that genetically-modified crops are an extension of modern science."³⁰⁴ And as the executive director of ABLE-Ag (Association of Biotech Led Enterprises) Shanthu Shantharam characterizes: "The anti-GM lobby is fully conscious of the fact that they will lose each and every time best scientific principles are used to regulate GM crops, and they just don't want that. They want a

“political” body that can be manipulated by decibel power.”³⁰⁵

2.1 | How Technology writes its World: Producing expertise

We can read what is on debate through the lens of “expertise,” specifically technocratic expertise. By definition, “[t]he deployment of expertise requires, and encourages, the making of worlds that it can master.”³⁰⁶ In the Green Revolution the object to be made was a form of agricultural technology for development and national food security. The world to be mastered was a new (inter)national food economy.³⁰⁷ For example, in a 1965 report, *Agricultural Development: Problems and Perspectives*, after expounding on the seemingly endless problems of Indian agriculture, India’s Ministry of Agriculture explicates that what is necessary for “economic development in general and agricultural development in particular ... [including the] transformation of traditional agriculture is ...[a] *strong injection of modern technology and scientific technique on a massive scale.*”³⁰⁸

The role of technology in this imaginary and the development projects that it has enacted is “not simply politics by another name; [rather] they [have] produced systems whose design features mattered fundamentally to their success and shaped the ways in which those systems acted upon the world.”³⁰⁹ It is this “act[ing] upon the world,”³¹⁰ or the productive power of technology (e.g. as manifest in what I call the GR’s “afterlives”) that enables agricultural technology to function as an argument as it did in Bt brinjal.

In the case of the agricultural technologies of the Green Revolution, a new form of “techno-politics” (i.e. “the strategic practice of designing or using technology to enact political goals”³¹¹) was explicitly labored over in centers of global power³¹² and systematically deployed as an integral component of US foreign policy in many parts of the Third World.³¹³ In this techno-political project, the political goals were explicit: increase agricultural production without the upheavals of revolution or significant land reform;³¹⁴ agricultural technology was seen as the ideal technology to accomplish this task.³¹⁵ The technologies of the GR were meant to address social and political issues by circumventing them in order to solve them. They were not simply to side-step socio-political issues. Rather, the explicit effort to go *around* (rather than through) social problems is characterized, quite plainly, as one that is so effective because it is one that can actually be implemented (i.e. it is “realistic” or “pragmatic”—unlike many grander schemes calling for significant political-economic change or peasant awareness as a precondition). The prescribed small steps of technological (and technocratic) intervention were to be injected in multiple sites simultaneously in an effort to achieve the “necessary” or desired transformation,

and do so without the risk or messiness of questioning or disrupting existing social structures.³¹⁶ The technologies of the GR created agricultural “modernization” in this image. But the GR was also much more; it was a structure of belief—faith in technology as savior. As Gail Omvedt characterized it:

The Green Revolution did not simply mean the use of technology applied to agriculture: it meant the *belief that technologies* could be developed at large foundation-sponsored centers and spread on a massive scale and be adopted by Asian and African peasants *without any basic change* in the agrarian class relations.³¹⁷

The technocratic framework is defined by its approach—breaking all problems down into quantifiable object parts to be conquered via a particular set of expertise developed for each part. As such it is not bound to any particular technology, but rather bound to the view that technology can conquer all problems.

2.1.1 | *How Technology writes its World: Updating its expertise*

The second GR (or Gene Revolution) invokes the earlier GR claims, updating the context for today: namely, emphasizing a self-declared greater environmental awareness and an increased emphasis on expanding technology to small and marginal farmers (groups that were previously bypassed). These changes in how technology is marketed are accompanied by significant changes in the “driver’s seat:” MNC agribusiness corporations instead of foundations as the centers producing most of the new seeds/technologies. In this framework, the new ag-biotechnologies are to solve similar societal problems of poverty and to promote development, but also are supposed to fix the environmental destruction wrought by the first GR.³¹⁸ Thus, while updated, the same basic technocratic logic of the GR is deployed again. For instance, A. S. Kolaskar (Former Vice Chancellor, University of Pune and Former Advisor, National Knowledge Commission) represents the taken-for-granted reasons that there is a direct causality between increased use of modern technology and increased yields and increasingly prosperous farmers:

Indian agriculture *productivity* per hectare *is* one of the *lowest* [in the world today], *which makes our farmers poorest* in the world. There is *therefore a need to use modern technology in agriculture*. These technologies should be such that their utilization must increase the productivity but with least damage to the environment and soil as well at a least input cost. Biotechnology has the potential to improve agricultural productivity providing all the benefits mentioned above. ... I therefore suggest that without waiting for the approval of other developed countries, we should believe on [*sic*] our scientific data and its analysis and become at least in

this area the first country to *commercialize the production of Bt Brinjal and help the farmers*.³¹⁹

In this context of promoting development—based on the reasoning that farmers are so poor because productivity is low due to the lack of modern technology—coupled with a new-found concern for longer-term ecological impacts, advocates repeatedly make claims that GM crops are the only reasonable hope for the future. Hence, the commonly repeated claim that this Bt eggplant—genetically engineered to poison its predators—is “practically organic” (or, in the sympathetic reading of their claims, as close as “pragmatically” possible to organic agriculture³²⁰).

As Sen makes clear, the advocates seek to position themselves on the *same side* of the environmental imaginary as that to which they are tautologically opposed,³²¹ a positioning which reveals the contradictory position of the technocratic imaginary—an imaginary which seeks to simultaneously *invoke and expel* larger social, political, environmental and developmental claims. Thus, the claims that Bt brinjal will help the agrarian poor, the urban middle-class, and the environment all the while ensuring food security, but that it should be assessed and discussed only on its “scientific” merits, not on its selling point—the social impacts. For example, as Soumitra Sen (Professor, Advanced Lab for Plant Genetic Engineering, Indian Institute of Technology, Kharagpur) articulated:

First, there is an erroneous belief that GM crops confer a benefit only to the producer, not to the consumer. The farming communities are themselves a significant part of the rural consumer base, and there is not enough attention paid to how their productivity and their living standards will be enhanced by these techniques. Indeed, even the urban consumer stands to benefit from these [GM crops] techniques by way of lower prices, a greater shelf life of the foodstuffs, *as well as the possibility of consuming organically grown food [sic]*. ...

I conclude by saying that *the GM technology is one of the most potent tools in fulfilling the goals of sustainable agriculture and in organic [sic] farming of food crops*. Once the acute necessity and benefits of biotechnology and in particular genetic engineering for the long-term benefits of Indian agriculture is understood, the public's fears will be significantly reduced. As a scientist dealing with such issues, I fervently hope a public consensus about the topic will emerge based entirely on scientific facts and reasons, and not swayed by ill-informed fears.³²²

The advocates do not question the promise and desirability of what their critics and opponents put forth as an alternative—a more sustainable, environmentally benign, locally supportive and pro-poor agricultural system. Instead, they incorporate these promises, staking ownership claims for biotechnology on the desired future. The subtext is clear—integrated pest management, organic agriculture, and other “alternatives” to conventional agriculture are not necessary (or not

practical). GM technology will reach the same goal, more effectively and more efficiently. Indeed, as Nally explains, reading the OECD:

...corporate agri-business lays claim to being a *central player in the 'war on hunger,'* predicting a future of increased yields, reduced biotic and abiotic threats, and engineered crops that target micro-nutritional deficiencies in vulnerable communities. *In short, changes at the molecular level are seen to be the principal route to agrarian reform.*³²³

The focus is on a future; the technology is simply a means of attaining that future.

2.2 | Unpacking the imaginary of technopolitical expertise

The Bt brinjal debates were funneled into longer-running concerns about the nation's agriculture and imagined futures, and the technocratic imaginary drew heavily on the Green Revolution narrative of agricultural technology, which deploys the urgency of a temporal and moral imperative. These claims deploy a theoretical perspective that writes a certain "time" and the "time" they write is the urgent *now*, in order to mobilize a dual imperative of national security and ending hunger. In constructing "time" in this way, this approach seeks to write "politics" and write what is and is not possible. How the story is written is foundational to the success of this project—hence the heated struggles over defining Bt brinjal's place in the GR's legacy.

2.2.1 | Promising Doom, Narrating modernity

As it is mobilized today in the imaginary of GM crops, the GR as the techno-political cure is defined by two aspects: first, a prediction of doom (with its attendant technocratic solution); and, second, the narrative form that structures this tale of doom averted.

Doom is said to have been imminent.³²⁴ As C. Subramaniam explained at the inauguration of the National Commission on Agriculture³²⁵:

Let me recall here the events leading to the adoption of the New Strategy for Agricultural Development in India in the year 1965. Population increased at a rapid rate, agricultural production failed to catch up, imports of goodgrain [*sic*] had to be stepped up and the target of self-sufficiency in foodgrains seemed elusive. Then came the crisis of 1965 and 1966 as a consequence of one of the severest droughts of the century. Steep falls in foodgrains production, scarcity conditions over large parts of the country, and rising prices led to wide distress. It was even predicted by some foreign observers that at least one million starvation deaths would take place in Bihar alone. The prophets of doom were proved wrong. ... This was facilitated greatly by the availability of high yielding exotic strains of wheat and paddy.³²⁶

Indeed, India was heavily dependent on the US. This was a situation was not popular in the US. For instance, as the neo-Malthusian American bureaucrats, William and Paul Paddock,³²⁷ opined India was in a category where “to send food to them is to throw sand into the ocean.”³²⁸ The view they put forth in their bestselling book *Famine, 1975! America’s Decision: Who Will Survive?* deploys an imaginary of doom and urgency, a specter underwritten by Malthus’ canonical theory of population and food—in which the subject of history is the elite. It is the elite who must decide whether to let the poor die or to give them charity (and hence continue to live, at least temporarily).

The Paddocks take this logic a step further; updating Malthusianism to the geopolitical context of the 1960s, they assign to the US the role of arbiter in the impending “triage”³²⁹ of nations. Explaining:

President Johnson has proposed ‘that the United States lead the world in a *war against hunger*.’ On the battlefields of this forthcoming war the practice of triage will be vital because choices must be made as to which wounded countries will receive our food. The leadership in Washington comprises the medical staff. The stricken ones in need of medical attention (American food aid) are the hungry nations.³³⁰

In this technocratic doomsday fantasy, the US will be the responsible party—the humane arbiter to decide which nations’ populations live and which starve and perish. The determining criteria they use (despite their claims of being based in “medical humaneness”) are a combination of how slim a nation’s “chances” are, and to what extent the nation actively complies with US (inter)national interests. Hence, they decree that Pakistan—a US ally, and the country which sought out Norman Borlaug’s new HYV seeds before India or any others—“should receive food.”³³¹ On the other hand, they assess that “If we cut off food to India we are not losing a reliable friend. Nor do we gain an enemy able to do us serious hurt.”³³² That is, India—which was receiving 25% of the total US wheat crop³³³—fell into the “can’t be saved” group and should receive no US food or any other forms of aid. The arbiter and subject in this “humane” allocation of scarcity (and life and death itself) is the white liberal bureaucratic official in a developed nation (a thinly disguised version of the authors themselves³³⁴), the time is now. *And now. And now. It is a constantly updating “now,” for a constantly renewing threat.* The timelessness of the specter of Malthusian doom is matched only by its ever-present urgency. Thus is the motor behind the renewed claims of a world without hunger.

The answer to this situation and the way out for India is recited as only through the eager

adoption and dedicated use of the new agricultural technology of high-yielding variety seeds. In fact, Subramaniam and other Indian officials insist that “India was the first nation to conceive and introduce this [High Yielding Varieties] Programme as an organized *developmental*³³⁵ project designed to accelerate agricultural production.”³³⁶ In the imaginary of the GR as deployed here, the way India was able to escape the predestined clutches of doom, or sacrificial triage, was only through its foresight to adopt the newest agricultural technology for development. This imaginary—in which technology itself constitutes and brings development—is powerful and defines the way that the GR was sold and continues to be retold and resold today.

This narrative is today part of a global imaginary of development and the role of technology therein. Across the board, GR narratives characterize the use of *technology as itself constituting* an agricultural development *policy*. They credit the decision to use HYV “technology” as the bulk of the policy change; it was the technology that was the treatment for a dire situation of impending poverty and starvation. For instance, as Cullather explains, describing a NYT article on the Green Revolution:

Benigno Aquino [the Philippine’s Prime Minister] showed an American reporter what the Green Revolution meant to the Philippines in the fall of 1966. “Here is the bullock cart. Here is the nineteenth century,” he said. Then, pointing across the road to a paddy of stubby, dark shoots *planted in orderly rows*, “here is the jumbo jet! *The twentieth century.*”³³⁷ Over the next ten years, Green Revolutionaries took credit for saving the world from a Malthusian catastrophe. India, Pakistan, the Philippines,³³⁸ Malaysia, and Indonesia declared self-sufficiency in food, and *agricultural technology received praise for reversing the economic fortunes of one of the world’s poorest regions.*³³⁹

This imaginary in which HYV “technology” was not only the treatment, but the savior of the poor across Asia, remains deeply sedimented in agricultural policy and the popular and bureaucratic imaginaries. As the “*Resolution setting up the National Commission on Agriculture*” explicated several years after this drought and its attendant promises of doom: “Rapid improvement in agriculture is possible through advances in research and technological innovations, larger utilization of inputs and reduction in dependence on the vagaries on the weather.”³⁴⁰ In this narrative it is “nature’s” inadequacies and unpredictable patterns that were the problem, rather than the political-economic structures (e.g. those that discouraged local production, such as the cheap availability of US food aid making local grain production not remunerative). Given the construction of the problems, technology would enable them to be permanently resolved. As Frankel explains, the new technology was cast as that which would finally “liberate the fortunes

of Indian agriculture from the vagaries of the monsoon.”³⁴¹ Likewise, Ramachandra Guha characterizes the period immediately after the GR as marked by “a feeling that endemic scarcity was a thing of the past. Modern science was laying to rest the ghost of Malthus. ... ‘there is *a coherence to the economic picture*, for the first time an absence of feeling that the economy rested almost wholly on the simple success or failure of the monsoon’. The food problem was solved.”³⁴² Nature—be it droughts or a pest such as the fruit and shoot borer (FSB)—could now be managed just like any other system of objects. This management of nature via management of technology was to produce a state of modernity and the capacity for self-sufficiency—a sentiment which GM advocates actively evoke today.

This sentiment, as Guha describes it, takes its success from a sleight of hand—one which renders impending doom (i.e. starvation) as the counterfactual. Rather than being simply the vengeful fantasy of a few bureaucrats, triage and mass starvation become a “reality,” a set national fate altered by the use of technology, a doom narrowly averted. As M.S. Swaminathan’s characterization – “[w]e *proved them all wrong*, all those prophets of doom... *It’s quite likely that a billion people have been saved* in India, Pakistan, and Bangladesh”³⁴³ – indicates, the unquestionability of this tale as the counterfactual cements the powerful role of technology and its moral appeal to this day.

The second structuring aspect, narrative form, functions by telling of the escape from doom, offering logic that produces “common sense” through how it constructs the narrative. The dominant story of India’s GR is told in the context of mass starvation: doom, triage, stability disrupted, and governments at risk from the hunger of the masses. This, we are told, is what ushered in the GR. This narrative, with a neo-Malthusian inspired vigor, focuses on one moment: a now, the immediacy of which takes moral precedence over everything else, and serves to (re)define how these situations came to be. It makes sense only through the way it constructs causality, time, agency, its counterfactual, and the question of history.

2.2.2 | Doom, urgency, and the imperative of genetic engineering

These understandings continue to play out today, as prestigious voices from the halls of academia and policy circles invoke the GR. Summoning the “success” of the Green Revolution, agricultural technology is cast as modernity itself and as the route to ending hunger—an argument encapsulated in the form of an object. This imaginary continues into the present; technology and Malthusian imaginaries continue to be interlaced, each providing evidence as to the need for, and the success of, the other.³⁴⁴ As GR pioneer Norman Borlaug appeals:

We cannot turn back the clock on agriculture and only use methods that were developed to feed a much smaller population. *It took some 10,000 years to expand food production* to the current level of about 5 billion tons per year. By 2025, we will have to *nearly double current production again*. This increase cannot be accomplished unless farmers across the world have access to current high-yielding crop production methods as well as new biotechnological breakthroughs that can increase the yields, dependability, and nutritional quality of our basic food crops. We need to bring *common sense* into the debate on agricultural science and technology and the sooner the better.³⁴⁵

Mobilizing a similar notion of “common sense,” in a context where there is not “time” to ponder questions, J. Brian Atwood (former Administrator of USAID and Dean of Minnesota’s Humphrey Institute for Public Policy) writes in collaboration with Allen Levine (Dean of Minnesota’s College of Food, Agricultural and Natural Resource Sciences and Director of the Minnesota Obesity Center):

A half-century ago, when similar problems loomed, the Green Revolution—and the worldwide network of research agencies that grew out of it—created new higher-yielding, disease-resistant food crops for the areas of the world that most needed them.

But today, rather than uniting in a global effort to end hunger, we're settling into the same old "I'm right, you're wrong" camps. Environmentalists see only the negatives from the first Green Revolution: heavy use of environmentally unfriendly pesticides and fertilizers, and fewer options for small farmers in poor countries. Agriculture advocates point out that hunger and starvation would be even more widespread today without the advances from the 1960s and '70s and call for more of the same.

As with most other controversial issues, the debate is not so much about the final goal but about how to get there. *Global food issues, however, are so urgent that we cannot afford the luxury of lengthy ideological arguments.* With so much starvation and an ever increasing world population, we simply need more nutritious food, especially in developing countries, plus a viable distribution network.³⁴⁶

The perspective they voice is a widely held sentiment among “experts”. The dominant material object through which these claims manifest—as Borlaug referenced—is the updated technology of GM crops. An updated version of the GR narrative provides an imperative for genetic engineering in agriculture; for example, Nobel Laureate James D. Watson, credited for the landmark discovery of the structure of the DNA, says ‘genetically modified foods are good’³⁴⁷—not just good but necessary—they are the “way to save the world from starvation.”³⁴⁸ As Borlaug extols, linking this to the GR:

Thirty years ago, in my acceptance speech for the Nobel Peace Prize, I said that the Green Revolution had won a temporary success in man's war against hunger...³⁴⁹

Mushrooming populations, changing demographics, and inadequate poverty intervention programs have eroded many of the gains of the Green Revolution. This is not to say that the Green Revolution is over. ... However, for the genetic improvement of food crops to continue at a pace sufficient to meet the needs of the 8.3 billion people projected to be on this planet at the end of the quarter century, both conventional technology and biotechnology are needed.³⁵⁰

The more pertinent question today is whether farmers and ranchers will be permitted to use that technology. Extremists in the environmental movement, largely from rich nations and/or the privileged strata of society in poor nations, seem to be doing everything they can to stop scientific progress in its tracks.³⁵¹

The affluent nations can afford to adopt elitist positions and pay more for food produced by the so-called natural methods; the one billion chronically poor and hungry people of this world cannot. *New technology will be their salvation*, freeing them from obsolete, low-yielding, and more costly production technology.³⁵²

In this narrative, it is implicit that the “[n]ew technology will be their salvation”³⁵³ because it is to increase production to meet the needs of “[m]ushrooming populations.”³⁵⁴ The technology takes on a paternalistic moral valence in this presumption, marshalling a naturalized logic that we must produce more—because even if production alone is a deeply limited approach, it is the only viable way forward—and given the urgency of the need “*we cannot afford the luxury of lengthy ideological arguments.*”³⁵⁵ Rather, “We need to bring *common sense* into the debate on agricultural science and technology, and the sooner the better.”³⁵⁶

2.2.3 | Unpacking the technocratic imaginary

In this mobilization of the GR for GM crops today, there are three main strands structuring the narrative. First, the construction of the GR as “inevitable”—as if there was no actual choice. As Subramaniam insistently reiterates: “what was the better choice between the two? We faced starvation or we had to import and appeal for aid”³⁵⁷—it was adopt the GR or “the *whole nation will have to starve.*”³⁵⁸ The stakes that are laid out on the side of technology overwhelmingly rig the assessment. This serves to efface the discussions that preceded the GR, the depth of the controversy over its adoption, and the responsibility for the selected path (see Ch.4). This construction of inevitability works with the second, and related, aspect of the narrative form: the construction of what I call neo-Malthusian “time,” the sense of temporal urgency that functions to write out consideration of how political-economic situations and social conditions are produced. By seeing only the results, this perspective excludes examining not only the production of a dominant knowledge, but *contingency, possibility, and conjuncture* (e.g. that the GR was controversial at the time). The technologies become saviors, “conquering” nature

through the miracles of plant breeding. The ahistoricism that renews these claims is profound and enabling; more than simply a limited historical perspective, in its refusal to see pasts, it also does not see relations, and cannot see causes. The third aspect of narrative form on which these accounts rely is the production of a counterfactual. I suggest that the “success” narrative of the GR is dependent upon taking Malthusian doom as the counterfactual.

This narrative form obscures the important understanding that the “revolutionary” aspect of the GR was in *how agriculture is governed*; while the rhetoric was of “miracle seeds” (and the work of one or two men—Norman Borlaug and M.S. Swaminathan), the most substantive and lasting effects of the GR were in policy. This was a qualitative, not a quantitative, shift (see Chs. 3, 4 & 5). This narrative sleight-of-hand—in which a massive project of governing is presented as merely a “technological improvement”—is performed through the object in the form of an argument (i.e. the HYV crops). As Subramaniam explains: “[t]he fundamental departure that the new strategy involved was the emphasis on science and technology.”³⁵⁹ What is at stake in this narrative’s displacement of a socio-political project onto a technology is the hegemony of this view of science and technology rather than the particular object itself. When excavated, the obscured understandings challenge the narrative of GM crops as the natural lineage of the HYVs of the GR and offer insight into the work of GM crops.

2.2.4 | *The mindset of technology*

Underlying this technocratic imaginary of the GR—where technology steps in and solves social and political problems—is the assumption that technology does this by (1) allowing nature to be “managed” so that (2) more can be produced. The problem at the root is imagined to be scarcity (this is a classic concern of government—the management and allocation of scarcity (see Ch. 1)). These projects are considered “good” (i.e. are morally powerful) because they ostensibly solve social problems via increasing the size of the metaphorical pie. Implicit is the idea that increasing production alone is the moral imperative for action and the ethical criteria for evaluating agricultural regimes. Hence, Borlaug’s clear impatience with “anti-science zealots,” who—as he frames the issue—are not interested in ensuring that enough food is produced for everyone.

“Productionism is the philosophy that emerges when production is taken to be the sole norm for ethically evaluating agriculture.”³⁶⁰ This “productionist” view is coupled with a simplistic self-evidence, or a “naïve utilitarianism,”³⁶¹ which collapses productionist logic with the moral imperative of hunger, casting the “ethics” of agricultural production as simply about quantity.³⁶²

This formulation effaces all questions of access, ownership, entitlements, or sustainability of the food system. In writing out questions of *how* people access food, the storyline offers little grounding in whether the increased production comes at the cost of people's consumption (e.g. through dispossession of small and subsistence agriculturalists) or whether it comes within a framework that can enhance people's access to food.

A "utilitarian" theme crosses and defines the Green and Gene Revolutions' approaches to development.³⁶³ The coupling of agricultural science's "naïve utilitarianism" (borrowed from economics)—in which all innovations are assumed to be for the better—with science's positivist "neutrality" together "form the basis for a *productionist paradigm*, a world view characterized by total confidence in production-enhancing agricultural technology."³⁶⁴ But the Green and Gene Revolutions are not simply techno-political projects aiming to increase production; they are constitutively entwined with the political threats and ethical imperatives (around feeding hungry populations) that they marshal;³⁶⁵ indeed, their legitimacy is derived from these claims.

The debates around the gene revolution, as exemplified in Bt brinjal, played out most clearly in two defining themes (1) the question of food security and (2) the politics of scientific expertise. In each of these what was actually on debate was "authority," in particular the authority of science and technology as the solution, or arbiter of the issue. It was the determination of *what* needs to be questioned, *how* extensive this questioning should be, and *who* has the authority to question that the Bt brinjal discussions opened up anew. The central question is: to what degree did the process of open discussion around Bt brinjal reframe discussions of development, food security, and its Green Revolution legacy?

3 | Bt brinjal: debating possible futures

How can a lowly vegetable be an issue of national security? Is there a foreign hand in your belly? -Shoma Chaudhury (in Tehelka)³⁶⁶

The first war [for Independence] was in 1857 which we lost; the second one we won and got independence. We would have had to fight the third war of independence if Bt brinjal cultivation was given the go-ahead. We needn't fight it now. -Dr. Pushpa Bhargava (Founder and former Director of the Centre for Cellular and Molecular Biology, and the Supreme Court appointed observer on the GEAC).³⁶⁷

This [the moratorium on Bt brinjal] is a very wrong signal the government has sent to the industry. -Kiran Mazumdar-Shaw (Founder, Chairman & Managing Director of Biocon Limited).³⁶⁸

The futures, or imaginaries, that are mobilized in this debate are not only a particular state of being, but also, fundamentally reference an implicit (or occasionally explicit) governing framework that enables or prohibits that vision. Together these forge the second question of *what is at stake*—the question which the civil society debates around Bt brinjal sought to draw out. The array of voices that emerged in these debates made it clear that while many believed that food security, scientific expertise, and the nation’s development future were actually at stake, they did not accept the technocratic imaginary’s diagnosis of the problem nor its view of society’s development futures. Turning the “doom” GM advocates foresaw on its head, the civil society imaginary suggested that the technocratic approach itself creates the very situations it then seeks to escape from. And further, that there are many approaches other than this well-plod route and its exclusionary development futures. From this, the question arises: to whom do agriculture and food policies attend, and who are they aimed at. This question of who is *the agent* of development processes is key not only in creating “possible” futures, but in understanding the path to this point. The answers to both are deeply tied with technopolitics.

3.1 | Bt brinjal: the decision and its process

The banality of the GEAC’s October 14, 2009 meeting record largely belies the controversy and the significance of its decision to recommend Bt brinjal for release: “After hearing the views of all members and special invitees, the GEAC concluded that the report of the Expert Committee is acceptable to all members with some minor editorial corrections except Dr. P. M. Bhargava. ...The GEAC concluded that Bt Brinjal is safe for environmental release.”³⁶⁹ In a concluding sentence, however, the meeting notes record an unusual step—one which alludes to other possible outcomes:

Since this decision of the GEAC will have major policy implications, the GEAC *decided to forward* the recommendations and report of the Expert Committee on the safety and efficacy of Bt brinjal event EEI to the Government *for a final view*. It was also agreed that the report of the Expert Committee would be made available in the public domain by posting [it] on the MoEF³⁷⁰ website at the earliest.³⁷¹

The eruption of massive public outcry following the GEAC’s recommendation and the MoEF’s prerogative to give the matter “a final view”³⁷² prompted Minister of Environment and Forests, Jairam Ramesh to take an unusual approach: he acted swiftly to make the entire consideration and approval process transparent, pre-empting the otherwise inevitable accusations of corruption that plague opaque decisions, particularly ones surrounded by such controversy.

The framework the MoEF put in place included the immediate publication of all documents related to the case online with open access,³⁷³ a period from mid-October until the end of the year for the public and experts to submit commentary, and a subsequent series of hearings³⁷⁴ on the issue in seven states across the country in early 2010.³⁷⁵ The degree of transparency in the process and the occurrence of such hearings was declared by many to be a landmark for democracy and a path-setting approach to agricultural biotech regulatory policy. The MoEF and Ramesh, however, framed this approach not as setting a new precedent, but rather as following precedent and complying with international protocols, which stipulate stakeholder hearings.³⁷⁶

The sustained attention given to the question of Bt brinjal was escalated by the array of prominent voices that intervened expressing their disagreement on the issue, and was prolonged over four weeks during which seven official regional hearings were held; together these served to extend the mainstream media's attention span and keep the issue in the headlines for months. Many prominent figures—including the “father of genetic engineering” in India, Dr. Pushpa Bhargava, the “father of India's Green Revolution,” Dr. M.S. Swaminathan, and the retired managing director of Monsanto-India, T. V. Jagadishan—aligned against the approval or release of Bt brinjal. Significantly, the ruling governments of the states where brinjal is grown also came out unequivocally against Bt brinjal. An array of civil society groups and NGOs³⁷⁷ staged elaborate protests outside of the hearings and in a multitude of other sites across the country. The tactics varied from technical to performative—including marking fields as hazard sites,³⁷⁸ organizing large contingents of school children with signs imploring with (what came to be the familiar) refrain “*I am not a lab rat*,”³⁷⁹ and preparing record setting quantities of one of India's traditional eggplant dishes (*baigan ka bharta*) in city centers. These and many other such events were meant to raise the awareness of decision makers, journalists, and middle class urbanites and to sow seeds of skepticism and questioning about Bt brinjal. The issue also brought in a stream of international attention, with scientists and diplomats weighing in (in support and opposition) from across Europe, the US, and Australia, again all publicized in the national media.³⁸⁰

By the time of Minister Ramesh's decision on the future of Mahyco's Bt brinjal,³⁸¹ the issue had become a national controversy—framed largely around the possibility of a genetically modified version of one of India's primary “everyday vegetables” entering the nation's food system—a possibility which received widespread attention with almost daily (and at times sensationalized) coverage in the nation's major English language and vernacular media.³⁸²

Turning now to this controversy, I present first the case for Bt brinjal as its advocates framed

the issue and then address the primary ways that the issues were taken up by critics and/or those opposed to Bt brinjal—and how these conversations developed. On display in these discussions are two empirically grounded approaches that ask their questions of agricultural development and food security and follow the problems they identify through to very different levels, and that diagnose the issues at stake, and how to address them, in starkly different forms. It is these conversations themselves that offer the most insight into the larger questions at stake. My aim is not to be an arbiter, nor to assess the truth claims of each side or to take a judgment as to the beneficiary; rather, by attending to multiple perspectives the founding logics at the root of these perspectives can be revealed. It is the logic of these perspectives—their epistemologies and guiding narratives—that are my central concern. For, they imagine—and enable—very different political futures, and these visions and paths differently affect people’s food security and livelihood possibilities in multiple ways.

3.2 | Battles over knowledge and authority³⁸³

Considering the quantum of pesticide residues on the brinjal fruits available at the subzi mundies, this country must switch to Bt brinjal which sure is going to be more organic [*sic*] in terms of reduced pesticide levels.

The Bt brinjal variety seeds would be a boon to brinjal farmers who are mostly small and marginal. They could save the seeds for next sowings still retaining the insecticidal property of their future brinjal crops against the target pest, the fruit and shoot borer. This enables them practically not to spend, forever [and], to protect their future brinjal crops from the fruit and shoot borer. —P. Balasubramanian (Professor, Department of Plant Molecular Biology and Biotechnology, Tamil Nadu Agricultural University, Coimbatore, speaking about the publicly developed Bt brinjal, which he oversaw as head of TNAU’s Bt brinjal project with ABSP II).³⁸⁴

The scientists’, developers’, and GEAC’s stance on Bt brinjal is that brinjal is a major vegetable crop in India, a “daily” vegetable, India is the second largest producer (at 20% of the world’s eggplant) after China, and that there is a pest that is detrimental to the crop, the fruit and shoot borer (FSB). Farmers lose a considerable portion of their crop³⁸⁵ to this pest every season, and in an attempt to minimize their losses they apply chemical pesticides to brinjal. Some give very heavy doses of pesticides throughout the growing season, in such cases making “conventionally” grown brinjal among the more toxic vegetables. Hence, if there is a way to reduce farmers’ losses, while also reducing pesticide consumption, and to do this safely: how could one not upgrade? This is the crux of the main argument for Bt brinjal.³⁸⁶ Mahyco’s Bt brinjal is engineered to do precisely this. It is resistant to the FSB—when ingested the stomach

of the FSB shrivels up and its intestines explode. The FSB cannot destroy this crop. As such, farmers' yields increase and consumers gain unblemished vegetables with measurably less chemical residue (some chemicals are still necessary for the other primary brinjal pests).³⁸⁷

3.2.1 | *Making the case for Bt brinjal*

There are two main imperatives why advocates argued Bt brinjal is necessary: to advance scientific research and to promote development (e.g. to increase brinjal production and food security).

Framing this invention as a *simple step forward on the ladder of scientific innovation*, a step that has been extensively tested and proven to be without demonstrated risk—there is little reason to question it and no basis on which to reject it, argue its advocates.³⁸⁸

While the government is conducting nationwide public consultations on whether genetically modified brinjal should be commercially released, the [S]cience [M]inistry Tuesday endorsed the product, calling it 'safe for all'. 'As [S]cience and [T]echnology [M]inistry, we support the clearance of the expert group. It is safe for all,' Science and Technology Minister P. Chavan said.³⁸⁹

In the clarity of this logic, those who continue to question and/or oppose Bt brinjal simply do *not* understand: the science is clear, hence the case for discussion is (i.e. should be) closed.³⁹⁰ After all, "scientists took five years to develop a genetically modified brinjal. Regulators took another four years to approve it for commercialization."³⁹¹ The seeming rationality of the argument is essential to its project.

A second ground on which case is made is its potential to stimulate development and help poor and small-scale vegetable farmers.³⁹² Advocates argue that Bt brinjal is necessary for India to keep pace with both escalating food production needs and to increase the return farmers get for their crops. As the director of Indian Council of Agricultural Research's (ICAR) National Research Centre on Plant Biotechnology (NRCPB), and GEAC member, Ananda Kumar, testified to the GEAC: "With the adoption of Bt brinjal, the pesticide requirement would decrease and the marketable yield would increase which would be good for farmers both economically and from health point of view."³⁹³

Further, as has been widely documented, since the 1980s the means through which developing nations are told to ensure their food security has shifted from domestic production to an increased reliance on trade.³⁹⁴ The rise of food security as an end to be achieved through trade in specialty crops (rather than in staple grains or in the now declared anachronistically autarkic model of "self-sufficiency"³⁹⁵) the selling point for Bt brinjal became all the more compelling.³⁹⁶

This technology, they argue, is to help India “leapfrog” into development—to both catch up and keep up with global advances in science and the imperatives of food security.³⁹⁷ For example,

Bt is a safe science and it is aimed at boosting agriculture. *It is the technology of the future and is safe.* Through varieties like genetically modified brinjal we could spur the agri-economy," she [Kiran Mazumdar-Shaw of Biocon] said. India's BT industry is at an inflexion point, has attained "critical mass" and created a platform that allows it to leapfrog and deliver exponential growth, she said.³⁹⁸

The case being made here was explicitly to demonstrate both the necessity of, and the benefits of, genetic engineering in agriculture. And, to demonstrate this to the average working and middle class consumer: the housewife, Bt brinjal seemed just the object to make that case. But this live advertisement was stopped before ever reaching any housewives.

3.3 | Telling another story

There is another way that this story could be told—and this is one that civil society organizations of many stripes brought forward. The loose coalitions represented a vast array of perspectives and cannot be characterized under one stance on agricultural biotechnology. However, while the narratives of those challenging Bt brinjal are far more heterogeneous than the narrative in support of Bt brinjal, they can be characterized by their shared commitment to an open questioning of this particular product, including its place in India's longer term development goals, and how such goals are to be best achieved. Citing the glaring failures of the current approach, these challengers drew out more complexities—whether questioning how this crop came to be approved in the first place (without what they held to be basic safety tests), to rethinking the terms of the regulatory system, to going beyond the standard approach of simply modernizing technology for increased production, to asking broader questions of what can be done to expand the possible future paths under consideration.

3.3.1 | *The cases challenging Bt brinjal*

Two main realms of concern were manifest: (1) concerns over the technology on its own terms (i.e. within the terms of “science”) and (2) concerns that extended well beyond this terrain (e.g. social questions of development policy, agrarian support, knowledge and power relations, etc). Two areas of questioning formed within the former (i.e. on the technocratic terrain of science assessment). These were concerns with (a) “safety”—namely, the unknown health and ecological impacts of the crop—and (b) with the inadequacies of the regulatory process. Outside of the terrain of science/technocracy, questions formed around what came to be two main areas

of concern—(a) the structure of ownership (including property rights as well as the debated role of the “foreign hand” (i.e. US influence)) and (b) debates about the vision of longer-term development goals. While some of the points on debate may seem implicitly or directly contradictory, the claims I review here were made by and represent the views of a broad coalition of groups and individuals organized around a concern with issues in the Bt brinjal approval process (i.e. not a coherent perspective on Bt brinjal as an object in an abstract universal setting of perfect knowledge). As such, their visions of the role and appropriateness of GM crops are not necessarily in agreement, as discrepancies between some of these points make evident.

3.3.2 | *Concerns on the terrain of science*

Many of the most prominent critics were skeptical of the merits of Bt brinjal based on the testable scientific measures; they argued Bt brinjal did not meet standards, that some of the necessary tests were not conducted, and they took issue with the fact that Mahyco had conducted its own (unverified) tests, arguing that as such the test results, and regulatory process itself, were untrustworthy and flawed.³⁹⁹

Another significant concern was with genetic contamination and cross-pollination. India is considered to be the “center of origin” of eggplant and continues to be home to thousands of traditional varieties—it is estimated that over 3,000 varieties of eggplant are currently cultivated in India.⁴⁰⁰ Critics maintained that Bt brinjal and the processes around its introduction violated the Cartagena Protocol and the precautionary principle⁴⁰¹ against modifying crops in their centers of origin (for risk of wiping out our only record of genetic biodiversity).⁴⁰² Others were concerned with the biophysical impacts on human and animal health resulting from GM crops in India’s intensively utilized landscape.⁴⁰³

Another area of questioning revolved around *the approval process itself*, particularly practices of the GEAC⁴⁰⁴—namely whether Bt brinjal ever had any chance of *not* being approved. P.M. Bhargava (dubbed the “Father of GE” in India, and the Supreme Court appointed observer to the GEAC), Bhargava critiqued the process with an insider’s view, arguing that “Bt Brinjal was cleared by the GEAC and its expert committees without proper tests and under pressure from the developer Monsanto-Mahyco.”⁴⁰⁵ He and others maintained that the process was rushed, unconsidered, and that the mindset was that of a “rubber stamp” approval agency. This concern with the regulatory process extended well beyond Bt brinjal’s critics; many in the sitting government, like Planning Commission Member Abhijit Sen, were adamant

that “[w]hen a food like Bt brinjal is introduced, the regulatory mechanism has to be above suspicion.”⁴⁰⁶ Such views did not necessarily take any stance on questions around GM crops themselves, but rather their concern was with the legitimacy and efficacy of the mechanisms of government. This is a stance that broader sections of institutionalized (government and scientists) could agree on. Those supporting GM crops had even more incentive to insist upon this level of certainty, for any future for GM crops in India depends on people having basic faith in the integrity of the approval process.

Concerns with the inadequate regulatory process were exacerbated by several scandals around the data and the blatant undisclosed lobbying practices, and even plagiarism of some of the scientists involved. Media coverage of these events and circumstances confirmed suspicions and fortified the already mounting sense of doubt among influential sectors of the public. But, the more significant effect was that this provided a clear moment for the mantle of objective scientific integrity itself to be legitimately called into question. The contentiousness and the heated debate around Bt brinjal escalated because the ground for discussion was opening.

3.3.3 | *Concerns beyond on the terrain of science—rethinking development*

A second distinct realm of challenges concerned structural and safety questions which operated both within and beyond Bt brinjal’s own terms. Sectors of civil society and even state governments extended their questioning beyond the metrics of established expertise, and instead tried to contextualize Bt brinjal within the broader realities of development. First, questions arose around Bt brinjal’s ownership and property rights. The technology up for consideration was Mahyco’s Bt brinjal, not one of the publicly developed varieties. As such, there were significant doubts around how the intellectual property rights (IPRs) of the technology “sharing” between these varieties would work in practice. The arrangement, critics charged, was structured such that Mahyco continued to own all of the Bt brinjal varieties; hence, the supposed financial benefits to poor farmers (of non-proprietary seeds) would never actually arrive.⁴⁰⁷ Some charged this was the design of the project:

It’s good to remember the overarching philosophy of ABSPII. The project document states that “*to safeguard the licensor’s interests, specific strategies for the stewardship and monitoring of the technology by the licensees was addressed and formulated early in the sublicensing programme*”. So while references to pro-poor varieties sounds impressive, it’s important to remember that IPRs extract a price—from the licensees, sub-licensees and the customer.⁴⁰⁸

Mahyco’s Bt brinjal offered what critics charged were not just “empty promises” of free crop

technology, but ones that came at a price. More, the technology was cast as an attempt by Monsanto (Mahyco's partner) to penetrate, and eventually colonize, India's food chain.

As Bhargava explained his view on the process:

“They all have business interests. I know them well, and they are looking only at the vast export market that the US offers... I hope the minister takes note of this and puts a moratorium of seven years and sets up an independent testing lab facility. This will also give time to revamp the biotech regulatory system which is essential now.”⁴⁰⁹

Elaborating on this, the former managing director of Monsanto-India, T. V. Jagadishan backed up this understanding of the significance of the stakes involved and the difficulty of drawing a decision. In an interview with the investigative magazine *Tehelka* he explained:

[Q:] *Is the issue as big as its being made out to be?*

[A:] Yes, of course, it is. Monsanto is looking for control and with the introduction of Bt brinjal the control enters the bio-diversity of India.

[Q:] *What do you think the decision of Jairam Ramesh would be?*

[A:] I have a feeling that Ramesh is drawing a thin line between public opinion and the US.

We don't have the strength to withstand pressure from the US. Hence, it would be a hard decision for him. Although I hope and pray that he decides against introducing Bt brinjal, I feel that he may try and maintain status quo for some time.

... [Q:] *If there are so many problems, on what basis has the government even thought of introducing Bt brinjal?*

[A:] Sadly, the government has depended largely on company-generated data. When a company decides to introduce a new product, *the government labs should conduct a trial and produce believable results.*

But in this case, *the government has not bothered to do so.* Based on the data given by the company, the government committee has approved the idea [i.e. Bt brinjal].⁴¹⁰

Taking a clearly different twist on food security than Bt brinjal's advocates, critics argued that *this*—handing control of India's food supply over to foreign MNCs—was the primary threat to national food security. Questions of the structure of ownership expanded into broader questions about how agricultural development should be structured and directed.

In addition, pointing to the fact that this model of development is built on, and perpetuates, the exclusion of the majority of farmers, the critics note that this is representative of its future.⁴¹¹ The discussion and debate raised fundamental questions: whether the answer is to expand this approach in an attempt to include more farmers, or whether it would be wiser to pursue alternative approaches, particularly some currently being practiced in various districts by state governments and NGOs.⁴¹² Such institutions have advocated for and enacted a number of

“alternative” approaches to agricultural production over the past decade.⁴¹³ What makes these efforts distinct is that they are informed by agro-ecological production practices, as well as their emphasis on structural factors: the goals of agricultural development and food security are to be clearly integrated—unlike in the GR model of central government planning. That is, they take on the decoupling of development and food security,⁴¹⁴ the real question is whether the successes among these smaller projects should be scaled up, or if the old “failed” approach should be revived and extended.

Beyond this, others⁴¹⁵ suggested that GM crops are simply not the best (or only) path forward for India.⁴¹⁶ A vast array of different rationales and reasons for this emerged in the discussion, proffered by a range of groups, from middle class consumers’ health concerns, to agricultural policy experts’ concerns about the labor structure of India’s agrarian sector. Some policy experts offered broad concerns, holding that GM crops simply are not appropriate for India’s labor-intensive economic and social infrastructure.⁴¹⁷ Other parties, including regional government officials, expressed concern about the social costs of the increasing use of chemicals in the ecosystem (e.g. long-lasting downstream health effects and the burden that the purchase of expensive inputs places on farmers).⁴¹⁸

Hence, while some were not necessarily convinced of the ability of the scientists to fully know, suggesting that it is not possible or feasible to test every interaction, others maintained that these were not even the questions to be asking, and sought to expand the questions. The latter position was revealed to be far more threatening to the advocates of Bt brinjal than the critiques within the realm of science—such as the charges of inadequate testing—because the reframing of the question sought to move the discussion beyond the terrain of their “expertise” and into questions that have very different parameters and stakes, questions with the potential to reveal the work of naming technology as a development policy in itself.

3.3.4 | *Opening the confines of the debate*

As authority in food security and development policy broke down, Bt brinjal’s advocates turned to science, trying to leverage the prestige of “science” itself and mobilize its near fiat authority in questions of setting development policy. The assumptions were that they could better control the direction of the discussion if the confines of assessment stayed within the quantifiable terms of agricultural “science,” and that the terms of authoritative expertise are more clearly established and accepted in such science rather than in social policy. The argument characterizing critiques of Bt brinjal as inherently “anti-science” did have substantially more

traction than the food security claims could muster. Indian nationalism, after all, is deeply imbued with a science-technology-modernization logic. But, limiting this effect was the very outspoken presence of some of the nation's most prominent scientists who strongly voiced their opposition to Bt brinjal, which, bit by bit, ate away at these claims.⁴¹⁹

3.4 | Unpacking the discussion

The civil society challenges, at their best, emphasized that the decisions to be made are production *choices*—not simply technical decisions, but moral choices. In dominant framings the choice is written as simply between biotechnology or the status quo. GM advocates argue that choice is equivalent to the free market⁴²⁰ and the choice here should be “left to the farmers ‘to opt or desist from cultivating Bt brinjal as in the case of Bt cotton’.”⁴²¹ Their insistence that GM crops must be placed in the open market—reasoning that if a crop is effective, or superior, then farmers will use it, and if it is not, they will not use it—the advocates argued that it is the activists who are denying farmers (and consumers) any choice by not even allowing Bt brinjal's release.⁴²² This view presumes that either the crop has been “proven” to be safe, or that the arbiter of a crop's safety and appropriateness (ecological, socio-economic, etc.) should not be a question for society or state regulatory apparatuses, but rather up to individual consumers (presumably *homo economicus* with perfect knowledge).

This representation of the issue effaces social questions and passes over the fact that there is a broader choice of production policies. Highlighting these *choices*—that influence or shape the future directions of society as a whole—was the goal of the civil society discussions around Bt brinjal and GM crops.

The questioning of technocracy and the hearings themselves allowed an opportunity for more views to come into wider discussion, opening this into a society-wide debate about development and the directions of democracy, not simply about technicalities of inputs and expertise, as GM scientists would define it. The focus of attention moved to a larger issue: if the GR and current agricultural development approaches have not ensured food security for most people, then these approaches should not be continued, but rather seen as *choices* (even if mistaken ones) and corrected accordingly. What became apparent through the discussion of this new technology's implications for development and food security was an indictment of the (neo)liberal rationality. Namely, that the its long neglect of the majority of the population (both their livelihoods and their food security) forms the constitutive exclusions that continue to underwrite its functioning and serve as its mandate (see Ch. 3). Perhaps ironically, the strong

push for introducing the technology of GM crops served to open a larger civil society and media discussion about the future of food and farming. For many active segments of civil society, GM crops are not the answer; rather, the “answers” are to be found in attending to the distinct needs of the population.⁴²³ The democratic imaginary emphasizes bringing policies in line with the needs of the people, and in doing so, it necessarily politicizes these technologies and the dominant approaches (this politicization is a large part of what GM advocates condemn in civil society activism). But the work of civil society is not simply an effort to reinstate the liberal state. While policy is often a frontline in the battle, the larger struggle is to re-imagine what it means to be a “modern” agrarian nation and whose voices should be heard.

3.5 | The Hearings

The central theme uniting the competing perspectives—articulated at the official Bt brinjal hearings and broader public debate—turns on the dispute over who gets to decide society’s collective future: is this a matter to be put before “civil society,” or is it simply a matter for the “experts” to most efficiently parse out amongst themselves? More basic than that, who has the *authority* to even make this call? The experts and scientists whose task it was to approve it? Minister Ramesh, under whose jurisdiction the GEAC and GM crop approval falls? The Agriculture Minister Pawar, as this is a crop? The Minister of Science and Technology Chavan, as this is a bio-technology? The Prime Minister, as this is a national controversy with international implications? Each state’s own government, as agriculture is a constitutionally designated as a state subject?

Minister Ramesh made the call.

The process informing the call he made attempted to open this question and to transform what—in India and around the world—has been an opaque backroom “expert” process, and instead make it a question responsible to civil society, states,⁴²⁴ and science. Ramesh’s decision—to not follow status quo “standard” procedure—called into question assumptions about how decisions on agricultural policy were to be made. In adopting a “sunshine approach” to counter the model of opaque bureaucracy, scientific expertise, and the perception of backroom deals, Ramesh was not choosing an answer to the question of Bt brinjal’s approval but rather a process to reach an answer.⁴²⁵ This approach made the question both a “how” and a “what.” As such, it made the issues around Bt brinjal something more than standard procedure, and reframed the possibilities of the discussion.

3.6 | The Decision and Reactions

A day before the scheduled announcement date, the MoEF released the assessment.⁴²⁶ Navigating the incendiary rhetoric around the issue, Ramesh tread carefully, cautiously substantiating his points and the reasoning behind the ruling. In the statement he was explicit about the confines of the decision:

I should like to make clear at the very outset that my concern is with Bt-brinjal alone and not with the larger issue of genetic engineering and biotechnology in agriculture. The issue before me is limited to what to do with the GEAC recommendation on the commercialisation of Bt-brinjal.

All states which have written to me have expressed apprehension on Bt-brinjal and have called for extreme caution. ...this is extremely important in our federal framework as agriculture is a state subject.⁴²⁷

*Based on all the information presented in the preceding paragraphs and when there is no clear consensus within the scientific community itself, when there is so much opposition from the state governments, when responsible civil society organisations and eminent scientists have raised many serious questions that have not been answered satisfactorily, when the public sentiment is negative and when Bt-brinjal will be the very first genetically-modified vegetable to be introduced anywhere in the world and *when there is no over-riding urgency to introduce it here, it is my duty to adopt a cautious, precautionary principle-based approach and impose a moratorium on the release of Bt-brinjal, till such time independent scientific studies establish, to the satisfaction of both the public and professionals, the safety of the product from the point of view of its long-term impact on human health and environment, including the rich genetic wealth existing in brinjal in our country.*⁴²⁸*

*I believe the approach outlined above is both *responsible to science* and *responsive to society.*⁴²⁹*

The Government of India was placing a moratorium on this particular form of genetically modified eggplant (Bt brinjal event EE1).⁴³⁰ To substantiate the reasons for the decision the MoEF released a twenty-eight page report with the basis for and evidence behind this decision, supplemented by four annexure⁴³¹ detailing a wide variety of (public, agriculturalist, and scientific) perspectives on Bt brinjal and totaling over five-hundred pages; additionally, full video transcript of all of the hearings was made available online.⁴³² This decision—as the report and its annexure detail—was significantly informed by the period of commentary (during which the MoEF had solicited the expert opinions of prominent scientists) and by the official stance of state governments and their Chief Ministers, and by the series of national and regional public hearings that had been held over the previous months (all of which were included in the annexure).

The MoEF's verdict was extensively documented and clearly circumscribed (i.e. limited to only this one genetic event in this version of Mayhco's Bt brinjal).⁴³³ Yet, it was a decision that elicited both widespread condemnation and acclamation from across India and the world. The response to the decision was even stronger than the discussion beforehand. Not only was the issue seen as speaking to much larger concerns and policy futures, this decision was actually somewhat unexpected. For—despite the overwhelming public outcry and the explicit opposition of state governments—the ruling seemed to break with existing models of technocratic decision making on agriculture policy.

This was not an “established” policy path (such a moratorium was not the course of events previously in India nor in most other countries). The ruling was directly opposed to the widely stated position of other Cabinet Ministers in the ruling government—most outspokenly, Pawar, the Minister of Agriculture and Chavan, the Minister for Science, Technology and Earth Sciences. The ruling seemed to be in defiance of the goals of the collaborative India-US aid and development projects (ABSP II) under whose name Bt brinjal was being developed (and of the US interests that backed these projects). The ruling reversed the recommendations of the nation's highest expert committee on the matter: the GEAC. But, perhaps most significantly, the ruling seemed directly contrary to how decisions about agricultural methods and inputs had been made in the past, by a closed panel of “experts”—scientists and politicians. The earlier decisions were framed by “experts” who characterized the oppositions' concerns as “luxuries” that India could not afford to indulge when the nation's food security seemed to be on the line.⁴³⁴

In the MoEF's “sunshine approach” and subsequent decision to reverse the GEAC's ruling and impose a moratorium, the “expertise”-led model of decision making and the unquestionable authority of this “expertise” was suddenly thrown open, wide open.

Large segments of civil society applauded this move as long-overdue and of lasting significance. PM Bhargava, for example, declared the Bt brinjal ruling to be “the single most important decision taken by any Minister since Independence,”⁴³⁵ However, to Bt brinjal's advocates, the decision threw the established practices of national policy setting into disarray. Behind the condemnations, questions put forward by pro-GM interests swirled: how was policy set, and by whom—was it experts, scientists, senior politicians, or the people at large? What use was institutionalized scientific expertise if it was not going to be followed in important national policy decisions? The MoEF under Ramesh's oversight, they accused, was not only stopping, but actively derailing, and even reversing, the path of science and the nation's long-established march towards modernity.⁴³⁶ Critics in other Ministries and in Ramesh's own party charged his

decision with single-handedly putting India's scientific, agricultural and food security at risk, crediting this to the unsubstantiated panic of a few civil society groups.⁴³⁷ Skeptics of Bt brinjal, however, clearly saw this as a victory—not necessarily a victory for or against GM food crops, but *a victory for democracy*: a case where a government actually listened to its public on an issue generally marked by a lack of transparency, the regulation of food. Others suggested that this was not a decision but delaying making a decision. They saw this as offering a different model of governance: responsive, transparent and in line with India's aims of building a decentralized democracy.

While Bt brinjal's advocates claimed that the Minister caved to "irrational" and "uninformed" fears about GM food crops (fears they contained and dismissed as simply a result of Western meddling in India's NGO sector), an even larger concern emerged: *how* the Minister came to this decision. Specifically, the extent to which this decision was based on technocratic criteria of "scientific risk assessment" vs. concerns cast as "political" or even public opinion. The former was characterized by GM advocates as *the only* sound grounds for consideration, and the latter cast as inherently uninformed and unsubstantiated. While critics of Bt brinjal characterized the Bt brinjal ruling as the result of a process in which India demonstrated governing practices at the "cutting-edge" of democratic transparency, advocates of Bt brinjal characterized the process as one of mobocracy and declared the ruling itself as Ramesh caving to "anti-science" sentiment, throwing rational policy making out the window. They argued that only an approach of measurable scientific risk assessment could serve as the guideline to determine the future of agricultural policy and food safety.

After Ramesh's announcement it was not *what* the decision was, but *how* the decision was made that became the most heated issue of contention. This is not surprising, for a serious questioning of where the authority lies to ask, to reject, and the terms to do so, pose a greater threat to institutionalized power arrangements than (not having) a particular vegetable. It was the specter of potential policy futures, more than the crop itself, which inspired the deep concern (i.e. the seeming hyperbole) around Bt brinjal and GM food crops more generally. These discussions reveal that what was actually on debate was *authority, and development itself*, not simply a vegetable.

4 | Battles over brinjal: imagining the future, fighting for the past

Bt brinjal debates opened broader questions about the nation's future agricultural

development paths. Significantly, this wider discussion exceeded the confines of Bt brinjal and the control of its advocates. Their technocratic imaginary is dependent on invoking larger social problems to produce its imperative, yet, the assessment of what is to be done must stay within its defined terrain—here, of scientific “risk” assessment (and the rubric of, at most, “known unknowns”). The process of the hearings opened larger social issues, extending the realm of what could be questioned well beyond the technocratic terrain.

4.1 | Competing futures, what is at stake?

Returning to the two central questions of *what imaginaries are invoked* in these debates and *what is at stake in these imaginaries*, both of the invoked imaginaries are entwined with the legacy of India’s GR—the technocratic imaginary claiming the mantle of scientific expertise, the democratic imaginary including a range of structural questions regarding infrastructure projects, public ownership, and state support for agriculture. It was an amalgamation of the views of the second, democratic imaginary that came to feature prominently in the rationale in the MoEF’s report.⁴³⁸

Larger questions of agrarian distress come to be articulated in the Bt brinjal debates, based on⁴³⁹ fundamentally different understandings of the significance of the roles of production, distribution, support, and infrastructure policies in enabling agricultural development. These perspectives do not share the naturalized faith in scientific invention in agriculture as societal progress in itself—“the productionist paradigm,” a “world view [comprised of positivist science and naïve economic utilitarianism and] characterized by total confidence in production enhancing agricultural technology.”⁴⁴⁰

In the Gene Revolution appeals, in which the moral unacceptability of hunger is harnessed to promote production policies, these very policies are called into question as morally unacceptable—in that they create and perpetuate conditions of exclusion.⁴⁴¹ Defining the terrain as solely one of scientific risk assessment attempts to contain the questions that can be asked and to assign moral questions to issues of distribution. The well-established argument—that hunger is unacceptable and production capacities must be harnessed to their fullest extent to conquer it—is wielded without interrogating the differentiated effects of specific production policies. Yet production policies are not only technicalities, but involve fundamental—societal, and moral—*choices*. The fact that there is a *choice* of production policies is a question that is consistently passed over—even as these policies actively incentivize (and discourage) *particular* forms of production at the cost of others. Attending to the actual *effects* of such policies is imperative, for

the effects reveal a fuller picture. Attentiveness to the larger structural questions of production policy casts light on the work of technology and its technocratic framework in defining its questions to efface the reality of the majority.

4.1.1 | *Productionist paradigm unravels*

In the case of the second Green Revolution articulated as a “Gene Revolution,” the imperative of the sense of neo-Malthusian time couples with neoliberalism. This coupling offers a useful framework for understanding how the “need for,” or “imperative of,” genetically engineered crops of the Gene Revolution comes to be produced. In this instance, the object is Bt brinjal and the claim is that the nation’s food security is at risk. This claim is interesting precisely because it failed, which is to say it did not “work” as desired. The public was not convinced by the idea that a “mere eggplant” (although a staple, or daily vegetable for many, and grown in abundance in some regions) was necessary for food security.

In addition, the standard claims of GM advocates, with their attendant promises of doom and scarcity of a future without agricultural biotechnology, were rendered questionable by the facts of the current food security situation. “Hunger amidst surplus” is a far cry from the situation (of rationing and food-shortages) that defined the years preceding the GR. Despite the repeatedly drawn analogy between the two periods, the assessment of today’s situation as the return of a time of dire need did not prove to be convincing. The convergence of neo-Malthusian urgency with neoliberalism is critical to the technocratic and technological view of the world that underwrites the necessity of GM crops for the Gene Revolution. Or, it was until Ramesh announced “there is *no overriding urgency* to introduce it here.”⁴⁴² This time marshalling a temporal and moral imperative did not succeed.

When taken off its own terrain, the argument in an object unraveled. Outside of the technocratic terrain of “science,” the main question asked by civil society was “why?”: “why do we need this, brinjal already grows in such abundance that it is fed to cattle in some parts,” why would we want this risk? This “why”—or the lack of an apparent or convincing need for the technology—continued to shadow Bt brinjal throughout the discussions. The process Ramesh opened served to press “pause” on this “time” and its imperative, and in this “pause” a new discussion emerged.

[W]hen there is no over-riding urgency to introduce it here, it is my duty to adopt a cautious, precautionary principle-based approach. —
Jairam Ramesh⁴⁴³

In declaring “*there is no over-riding urgency*” Ramesh in effect “paused” this imperative and in this (highly watched) “pause” many other conversations were able to emerge. Without an “over-riding urgency” to silence conversations around Bt brinjal, technocracy itself emerges as a subject of debate, and different articulations of the imperatives of development and food security come forward. Instead of the imperative of doom coupled with the productionist paradigm, civil society activists point to the existing food security realities. These realities clearly complicate the debate about agricultural development and GM and the inclination to simply follow the conventional path of increasing production technologies. While that path remains the defining approach to agricultural development, the activists’ argument pointing to a lack of reason—beyond policy inertia—to continue this approach made substantial headway.

4.2 | The terrain opens

While the future of GM food crops in India is more ambiguous than ever, what is clear is that this Bt brinjal decision was not a ruling on the future of GM food crops in India. It was not meant to be. While it made a call in this particular case, the MoEF’s justifications were explicit that the ruling was for the particularities of this case alone, and as such reveal little basis on which to predict future decisions. Ramesh was unambiguous in his statement that scientists doing research on GM crops and other strands of Bt brinjal should continue, that they should get public sector support, and that a *public* biotech sector be pursued:

I have *stressed the importance of public investment in biotechnology for agriculture*. But Indian private investment in this area is already a reality. Clearly, such science-based companies launched by Indian entrepreneurs need to be encouraged and the regulatory process should not stymie such innovation. Apart from this, even *publicly-funded institutions* like the Indian Institute of Horticulture Research, Bangalore *too need encouragement* since I have been informed that trials using a Bt-brinjal variety using the Cry2A Bt gene are at an advanced stage. Scientists at another publicly-funded institution—the Indian Institute of Vegetable Research, Varanasi—have developed Bt-brinjal using Cry1Aaa3 gene in their own cultivar IVBL-9. *These public sector products need to be introduced first, if at all, going by the Bt-cotton experience.*⁴⁴⁴ *This decision should not, however, be construed as discouraging on-going R&D in using tools of modern biotechnology for crop improvement and for strengthening national food and nutrition security*, since issues of this kind have to be examined and decided necessarily on a case-by-case basis. I hope the moratorium period will be used to *build a broader consensus so that as a country we are able to harness the full potential of GM technology in agriculture in a safe and sustainable manner.*⁴⁴⁵

The hearings on Bt brinjal were not to establish an answer on GM food crops, but rather to

establish a path as to how such technologies were to be considered. That this framework of consideration exceeded the technocratic confines of previous agricultural development policy-making models is clear both in how it was structured and in the strong push-back from the biotechnology industry. *The process as a whole appears to have been not a referendum on the technology (i.e. GM food crops), but on the technocracy; opening the technocratic model of agricultural “modernization” to democratic accountability.*⁴⁴⁶

While the MoEF’s ruling itself provides little basis on which to predict future decisions, the hearings and subsequent discussion does allow some insight. In particular, since the Bt brinjal decision, multiple states have passed resolutions banning cultivation of GM food crops, making it unlikely that GM crops will be up for nation-wide release in the near future without further heated debate and questioning.

4.2.1 | *The struggle to set the terms of assessment reveal the terrain as already established*

The big question now is, does it augur a good precedent?

An essentially technical issue which needs to be addressed by scientists was decided by public sentiment, though many among the public do not have the required scientific knowledge to appreciate the question in the first place.

Didn’t Ramesh anticipate exactly this outcome when he planned his meetings? Will he follow the same practice in deciding other technical issues?

These are matters for further debate. For Mahyco’s Bt brinjal, it appears to be the end of the road, at the moment. Kalyan Ray (in the *Deccan Herald*).⁴⁴⁷

The accusations and struggles over Bt brinjal and the terrain of scientific authority reveal that the grounds of authority had been established and show the efforts made to ensure that the terms of assessment stay “strictly” on the terrain “science.” As the grounds of authority determine how an argument can be waged, there is a battle for hegemony, to set the terms of the discussion and assessment. That the terms became somewhat open in the debates and the “pause” made questioning GM crops “dangerous.” The struggle arose when Minister Ramesh stretched the terms of assessment beyond the confines of fights over scientific authority, to grant some legitimacy to other voices and other segments of society.

After Ramesh’s announcement, the central focus of the technocratic GM camp became the (im)proper role of civil society in questions about and decisions on agriculture and food (i.e. the “how” rather than the “what”). In the aftermath of the ruling, the “argument” remained alone—that is, the “object” Bt brinjal fell out of sight (for the proponents, at least). Hence, the heated accusations; while civil society activists around India and the world applauded India’s decision

as democracy in practice, or even enlightened governance, biotechnology industry groups and segments of the media characterized this process as one “hijacked to *unsubstantiated emotional* levels.”⁴⁴⁸ The insistent implications that the *public was not qualified* to hold an opinion on Bt brinjal, and that public concern was unsubstantiated, irrational, and “anti-science,” thickly deployed the singularity of scientific “expertise” to silence questioning.

When these tactics did not fully succeed (due in part to the controversies among “pro”-Bt brinjal scientists themselves, as well as the very vocal opposition of some of India’s most prominent scientists), the decision and decision-making process was described with contempt by segments of the media and corporate elite, including a dismissal of the questioning of GM crops as “foreign” or “western” in origin (i.e. only a result of western NGO interference). The image of impending doom also took on another character; it was no longer the threat of the hunger of the masses, but the threat of the (easily swayed) masses themselves. The act of policy makers giving credibility to—actually listening to, or appearing to make decisions informed by—public opinion was portrayed as fundamentally threatening the role of institutions of expertise. The complaints and response reveal that granting legitimacy to civil society this cuts to the core, eroding the technocratic framework. It also poses the possibility of eliminating the “need” for GM crops—a justification based in the exclusion of the majority. The technology does not and cannot offer the prospect of “re-including” the majority. Rather, its work is to enroll them in a governing formation. It is the capacity to frame and control any inclusion of the voice of the masses, more than simply the governing power of technology, that constitutes “technocracy.” Technocracy rests on the use of technology by an elite to govern people at large—people who, in turn, are often effaced. The GM interests’ strong reaction to the decision reveals the extent to which this system is dependent upon such effacement as a means to control potential disruption of the world it builds according to its terms and logic.

4.3 | Confining Risk, Defining (what is at) “risk”

To define is also to confine. In seeking to define the question at stake, different camps in the debate sought to confine the terms of the debate. As is evident, there were also continuous challenges to these confines. The Bt brinjal advocates repeatedly sought to define the appropriate grounds for consideration. To their view, the critics of Bt brinjal were bringing up irrelevant “emotional” issues meant to distract the public and decision makers from the real questions at stake—whether this technology was safe and if farmers should be allowed to give it a try. The rationality of this argument is based on expelling from its core all social context,

enforced by setting the terms of the discussion.

That a rethinking of the terms of debate seemed so profoundly threatening, was not because the scientists were “covering up” misdeeds or engaged in intentional wrongdoing. Rather, much more significantly, the threat is posed by opening up the taken-for-granted epistemology to questioning. The “risks” to be considered are no longer strictly confined to the measurable results of pre-established field and health trials; they now may include the loss of the multiple other futures and paths that have been foreclosed.

While rigorous scientific safety assessment is clearly a prerequisite, the critics’ point is that the issues around Bt brinjal exceed the rubric of “safety.” If Bt brinjal, and GM food crops more generally, were to be proven “safe,” this would alleviate the anxieties of many, but it would not resolve the fundamental questions of the debate—including what is at stake in their use (cultivation and consumption) and *who* is vested with the authority to decide what is at stake, and how that should be assessed.

The attempts to extend the discussion of Bt brinjal “beyond” the rubric of scientific “risk assessment” were not undertaken to undermine the metrics of scientific knowledge as some claimed, and not necessarily even to question status quo decision making models; but rather, to include other voices and perspectives on what is at stake. This openness itself was revealed as the issue, as Shanthu Shantharam (Executive Director, Able-Ag) explains:

...my biggest concern is that the whole Bt technology has been completely *politicized*. Because of the controversy there is an uncertainty on the future commercialization of biotech-based goods and services in India. It is really unfortunate that *Bt brinjal became a victim* of the ideologically motivated political campaign. The scientific knowledge, the empirical data from the field and the credible global scientific expertise have been neglected. It is no longer a fight on the safety of technology. *It has become a battle of political ideologies of different groups on how agricultural development should take place*. Some people claim to represent the 'public' or 'farmers' would like to shape this country's agriculture future by going back to old forms of agriculture. It is clearly conflict of ideology driven by activism of all sorts.⁴⁴⁹

Bench science and decisions about society’s collective future belong to fundamentally different metrics. The terms of assessment of the two are of vastly different scope and are set up to answer qualitatively different questions. The attempt to conflate the metrics of science as able to stand in for social questions is a long and ongoing project—a project of technocracy, or expertise, *marked by the production and definition of worlds that accompany such a project*. While scientific “risk” assessment is a prerequisite for deciding such cases, the attitude that it is sufficient for scientists alone to decide ignores all larger societal questions. The project of

confining the concerns up for discussion within the framework of scientifically testable “risk” is an explicit goal of pending ag-biotech legislation, proposed as a response to the MoEF ruling.

4.3.1 | *Efforts to close and keep open the question of authority*

The threat that such questioning poses is made evident by the explicit efforts to legislate the terms on which GM crops can even be discussed. The Minister for Science, Technology and Earth Sciences, Chavan, explained the effort behind the BRAI, or NBRA bill:⁴⁵⁰

Moreover, the government is actively working on to set up [*sic*] a National Biotechnology Regulatory Authority (NBRA) in the first quarter of 2010, which will ensure that strict scientific assessments are followed while testing of biotech crops. The authority is yet to be passed by our Parliament. Once in place, it will help in a way that *biotechnology policies are strictly based on scientific assessment of risk and not on any sloganeering and campaigning by public interest groups.*⁴⁵¹

Such “sloganeering and campaigning by *public interest groups*”⁴⁵² was diagnosed as the problem. It explicitly did not fit within the confines of the world as written by technology.⁴⁵³ However, the proposed heavy sentences—“[j]ail and stiff fines for those who mislead the public about the safety of GMOs”⁴⁵⁴ and/or those who make claims outside of the terrain of scientific risk assessment—blatantly contradict the advocates’ claims that the purpose of NBRA is simply to create a clear and orderly single-window system for rigorous safety testing and approval of GM crops.

As Chavan makes clear, *the need for such crops and the grounds of their assessment are not to be up for debate; the only question is to be one of “safety” and the only terrain of this assessment is to be the established “scientific” metrics of “risk assessment.”* This is a position in which he is joined by many other prominent officials, including the Agriculture Minister Pawar and Prime Minister Singh. That this argument and legislation for a national regulatory authority *criminalizing* discussion of an agricultural technology in any context other than “scientific assessment of risk” is made in the name of “safety” and “streamlining” the approval process is significant.⁴⁵⁵ Safety is the international standard and “streamlining” is code for aligning policy with the dictates of the US and corporate agribusiness.⁴⁵⁶ While the BRAI bill seeks to criminalize broader discussion of GM crops neither scientists nor the GoI are of one mind on this technocratic framework.⁴⁵⁷

Ramesh’s “pause” called the structure of the technopolitical assemblage into sight and into question itself. It allowed for a debate more rich than anticipated to emerge, and laid the grounds

for a discussion that continues to grow. The commitment to seeing a larger picture and longer-term view on the question also continues. This is made evident by the lawsuit filed against Mahyco-Monsanto for violating the traditional property rights of Indian farmers under the Biodiversity Act and Farmer's Rights Act, by appropriating knowledge and its material form that belong in the public domain and copyrighting it to make it into a private commodity. This larger view, and the lawsuit, represent a different logic of development, one in which the relation between society and its "technologies" enables a different set of social relationships.

4.4 | Summing up

What made this conjuncture different? Many aspects going in were different. One of the most commonly cited is the democratic impulse of the Minister of Environment and Forests, Jairam Ramesh, who decided to follow a "sunshine approach" and to hold hearings (a public discussion) on the issue. Without appealing to a "great man theory of history" it is clear that this moment was significant. For, in this pause and in the discussion that ensued, time and place were opened for larger public discussion—both of the particularities of the crop itself and of larger questions of possible and desired development futures. In this democratic moment, the question of what is the most urgent or pressing issue was rewritten. But, for how long? That depends on the discussion to come.

A second commonly cited reason for the "failure" of Bt brinjal was its ownership.⁴⁵⁸ Had the name on the product been different—particularly a product from one of the public agricultural universities tied in with the evocative power of the GR's legacy—the sense of urgency and the specter of "doom" might have played quite differently. Instead, Mahyco's Bt brinjal was spun as a "gene gun to our head,"⁴⁵⁹ a portrayal in which its Monsanto-affiliated ownership was the major liability. The GM crops produced by the public agricultural institutes and universities and by certain NGOs (such as the M.S. Swaminathan Research Foundation's efforts at modifying crops for "climate change"—e.g. saline resistant rice) may likely elicit very different public perceptions and futures. But, perhaps the largest problem with Bt brinjal was that the argument this object carried was not well constructed. It relied on the assuredness and authority of its own terrain, underwritten by the productionist paradigm and technocratic decision making; but, beyond the limited confines of this terrain there was no apparent need. The "why" in "why Bt brinjal" was not convincingly addressed; and without a compelling social context (i.e. the imperative of urgency to suspend questioning), technology's argument did not work.

"Technology" marks a particular viewpoint, and a development path. This path is propelled

by technology and also propels the work of technology, keeping it afloat; to do so, it must set and confine the terms of its world in clear ways. These ways were the established policy-making approaches. When the assumed model of decision-making was upset, the struggle that erupted far exceeded the (bio)technology and became about the technocratic viewpoint itself, because the “object” (Bt brinjal) fell out. That is, when considered beyond the confines of the established terrain, the object faded and failed, the argument was left without an implementer, without the object that does its “work.” Hence, the need for technocracy to define the terrain—as seen in the massive international efforts to “streamline” the safety process in countries around the world—in the name of rigor, and to rig the ground, so that the “why” question that unraveled this argument cannot be asked. The proposed Biotechnology Regulatory Authority of India (BRAI) bill can be read as an explicit attempt at this. Some other international projects⁴⁶⁰ are less explicit, but do similar “work,” and in technocratic terms, do it better, for they establish the terrain as beyond questioning; their *expertise is sedimented enough that they do not have to resort to trying to outlaw discussion*. And this matters; it matters for, as is clear, the “why” question is not just a technocratic question, but is about a fundamental societal choice; a what, a how, and perhaps most importantly, a who. Who matters and who reaps development’s “rising tide”—agribusiness? MNCs? The middle-class? The poor? Farmers?—which farmers? Are those who are least able to hold on instead swept away by this “rising tide”? Production questions are moral questions. Production technologies are social choices.

5 | Conclusion

The allure of technopolitical strategies is the *displacement of power onto technical things*, a displacement that designers and politicians sometimes hope to make permanent.

But, the very material properties of technopolitical assemblages—the way they reshape landscapes, for example, or their capacity to give or take life—*sometimes offers other actors an unforeseen purchase on power by providing an unexpected means for them to act.*⁴⁶¹

The Bt brinjal discussion exceeded the confines of the technology alone and the control of its advocates. While the technocratic approach invokes larger social problems to create its imperative, it also requires that consideration of how to address these problems stay within its own strictly defined terms. This approach creates not only a moral imperative for the technology, but also a temporal imperative; and as such, it constructs an orientation to time, an urgency. Ramesh’s decision to hold hearings, in retrospect, provided an opening for discussion

in which the issues went beyond the question at hand or what was to be expected and that called this imperative of urgency into question.

In this process—of opening the proceedings to include public hearings and then determining, based upon the discussions in that moment of “pause,” that there seemed to be no urgency, no need, in fact for this technology—it was no longer only Mahyco’s Bt brinjal that was summoned for consideration, but also the underlying presumptions of the technocratic approach. That is, the hearings provided punctuation in the temporal imperative, and in this moment, civil society members gathered to extend this into a larger opening. Hence, when Minister Ramesh announced “there is no overriding urgency,” he was not only allowing for the discussions to continue (with the indefinite moratorium); the announcement also had the effect of calling the functioning of the temporal imperative into question.

The moratorium also allows for the consideration of other pathways. What these pathways are is yet to be determined, but based on the vigor of the debates, such pathways could be quite varied and productive. However, calling this imperative into question, and displacing, or even opening, technocracy are not the same. Addressing the question of whether the technocratic model was “opened” up has several components, the most obvious of which involves addressing whether policy-makers seemed to listen or take seriously the views expressed. It seems clear that the government (articulated through Minister Ramesh and the Ministry of Environment and Forests) listened on the issue of Mahyco’s Bt brinjal. But, this again poses a larger question of who has a voice; *who is able to speak*. Clearly the techno-political approach has functioned in part by rendering many (most) voiceless. Yes, more spoke, largely the educated middle classes; but, the majority—whose livelihoods were harnessed on both sides (Bt brinjal will lift them up, Bt brinjal will make them beholden to foreign interests and lock them in debt) —while summoned in the debate remained largely absent. The question of “listening” thus is not only a question of whose voices, but also of the framework in which these voices can participate. Is the extent of the realm of “expertise” being expanded, or is its work is being interrogated (i.e. a more inclusive technocracy or a democracy)?

Clearly, calling into question and/or displacing technocracy cannot be expected to happen in a few months of discussion around one biotech crop. The discussions certainly opened many paths for consideration, and it appears that the critics of Bt brinjal managed to reframe the issue in this instance. Yet future cases are undetermined. Many prominent challenges remained largely within the grounds of science. Also, publically developed biotech crops might get quite a different reception, as the threats and imperative might be read differently. And the “time” that it

operates in might differ as well. The other aspect of the question concerns the discussion of technocracy as more than a decision-making model. Addressing technocracy requires taking on technology's work concealing (and revealing) who is governing whom, how. Whether that happened with Bt brinjal—if relations between *people and things* were opened up as also being relations between people, if the constitutive governing work of technology therein was addressed—is less clear. Issues that are manifestations of this relation were drawn out; however, the extent to which these permeate the larger social contexts has yet to play out.

Moving beyond the particularities of this case, the implications of these three issues—who has a voice, in what framework, and the role of technology in mediating relations—are clear, particularly in the decoupling of food security and economic growth. In order for the discrepancies that underwrite such conditions to be addressed, not only do the excluded (those without a voice) have to be included in policy, but policies have to change. As became clear in the case of Bt brinjal, and has become obvious in the Government's massive surplus food stocks, the dominant approach of how to attain food-security is disconnected from people's everyday realities, and seemingly from the realities of "responsible government." The technologies mediating these relations began to be revealed, and even interrogated, in the wider discussions opened by the Bt brinjal hearings.

On the issue of Bt Brinjal, India demonstrated a more open deliberation of GM crops than perhaps anywhere else in the world. And it is only from such open discussions that broader considerations, possibilities, and debates can begin. Out of the ostensible need for this GM crop emerged a discussion that revitalized the democratic imaginary. And this is where the hope lies. It has the potential to challenge the implicit assumption that people's livelihoods and food security are addressed through discussion of the "nation's" food security, and instead pose the former as the real issue. In so doing, it might nurture a new greener revolution that addresses the livelihoods of all. As the critics of Ramesh's decision scathingly noted, questioning the authorizing work of scientific narratives, and of technological progress as social progress, is indeed a break from established practice in agricultural policy and introduces critical new elements into this debate.

Chapter Three

The Development Man's Burden: Subject Making, Agriculture, and the Measure of Modernity

1 | The pre-conditions: Understanding the modernizer's "peasant"

Proceeding 'bit by bit' will not add up in its effects to the sum total of the single bits. A minimum quantum of investment is a necessary, though not sufficient, condition for success. This, in a nutshell, is the contention of the theory of the big push. -Rosenstein-Rodan 1961⁴⁶²

If India's agriculture was to attain a "*breakthrough*," what was needed was "*a big push* applied in short enough time span to ensure its effectiveness. Putting inadequate resources into the needed improvement of agriculture can be compared to pushing a large stone without enough concentration of impact—neither the production problem nor the stone may move at all." So much for the origins and philosophy underlying the package program. - Ford Foundation 1962⁴⁶³

Every village we looked into did not lack for any number of sturdy farmers, up-and-coming men ready for self-enrichment in contrast with the multitudes not yet in the "take off" process. If those multitudes are to be put on the rails and pulled toward self-improvement, we cannot conceive of better engine drivers than the few just referred to. -Ford Foundation 1962⁴⁶⁴

In his now classic text, *The Stages of Economic Growth*, Walt Whitman Rostow⁴⁶⁵ laid out five stages of development.⁴⁶⁶ His template brought together economic history and theory to relate economic forces to social and political forces and spelled out a vision for how to extend the conditions for, and possibility of, these laws being exercised to transform places in the "Third World." These "stages," Rostow⁴⁶⁷ asserted, are not merely generalizations, but rather reveal the "inner logic and continuity" of development.⁴⁶⁸ In his advisory roles to the two Democratic US Administrations (Kennedy and Johnson) of the 1960s, Rostow laid out what became the theoretical foundations for ongoing American efforts to bring about these transformations.

As National Security Adviser during the "Decade of Development" (1960s), Rostow was not simply theorizing, but was setting the trajectory of what became global development policy. The influence of modernization theory, and of Rostow himself, defined several decades of US

development policy and continues to underpin many mainstream Western development assumptions.⁴⁶⁹ Key to this theory (and its manifestation in geopolitical projects⁴⁷⁰) was the necessity of a concerted effort to produce the preconditions for development to enter the “take-off” process. Supplementing Rostow, Paul Rosenstein-Rodan⁴⁷¹ added the necessity of a “Big Push” to make this “take-off” come to fruition.

India’s “Big Push” is said to have finally manifest in the “package program,” but to have actually “taken-off” with the “New Strategy” of the Green Revolution (GR). The GR as a conceptual and policy approach was long in the making. The ground was being laid in these earlier American efforts at rural and agricultural development in India. To understand how this logic was formed and how it came to play out it is necessary to understand not only how Americans imagined the process of “development,” but also the ways Americans understood other places; it is particularly instructive to return to the Americans’ conceptions of India’s agricultural sector.

1.1 | The concern of this chapter: a prehistory of the GR, Americans in Indian agricultural development

Reading the discussions and debates around rural development policy, in this chapter I excavate some of the significant aspects of these (largely forgotten) discussions and I trace how their approach eventually came to manifest in what we know today as the “New Strategy” of the Green Revolution. I review preceding approaches (including the Community Development Programme (CDP) and the Intensive Agriculture District Programme (IADP)), as these reveal what came to be taken for granted understandings of the problems of rural development. Tracing through the notes, records and discussions of American Foundations in India (the Ford and Rockefeller Foundations), I read the dominant narratives and themes that emerge. Initially the problem is diagnosed as “cultural” and the response is marked by an obsession with changing the “mindset” of the peasant (via instilling “want”). Later, this cultural obsession merges with a more technocratic approach as the answer. This approach is marked by an abiding faith in technology as able to bring about the deep transformations in rural society that policy had long sought—but failed—to instigate.

In following these discussions, I attend to discussions indicating this change (the policy evolution leading to the GR) was not simply a change to make rural, or even agricultural, development more effective. Rather, I show how what began as a project of *rural* development and the upliftment of millions of peasant agriculturalists morphed into a set of policies

increasingly focused on the question of their production of food for others. Over the course of this “evolution” in agricultural development, there was a clear shift in what was deemed to be the central concern of rural development. This new orientation away from a focus on broad rural social and cultural transformation toward seeing the rural as primarily a source of food production shifted the focus of development efforts to a very small percent of rural people deemed suitable to be surplus food producers. (And eventually there is a further shift, from a focus on “food enough” and food self-sufficiency to the articulation of a project of “food security.”) As the question of development became increasingly confined, it was not only the question of the rural, but also of the peasants themselves, that fell out of policy focus; this broader concern was, in effect, largely abandoned by the American Foundations working in rural India.

The rural poor were left along the wayside as development policy deemed—in the name of seeking progress and advancement—that it could not afford to be weighed down by a project of uplifting such a tremendously large burden of the rural masses all at once. The aim of agricultural development policy shifted away from the poorest and most “backward” sections of society; instead, agricultural development policy came to focus on lifting only the upper-most segments—deemed the “progressive” sections—of rural society. The poor (i.e. the vast majority of society) were, in effect, told: “not yet.” The justification was that the realignment was implemented with the hope that the benefits would “trickle down” to the rest—that the poor and uneducated would see the success of the wealthy and seek to emulate it on their own. It is crucial to keep in focus the fact that while the poor were left out, it was not that the poor were entirely neglected, or effaced, initially. Rather, the discursive invocation of the poor remained indispensable—they continued to be the rallying point—as policies which focused on supporting the well-off were justified as absolutely imperative in the name of teaching the poor how to be modern farmers and (feeding) the nation as a whole. This process was guided by the modernizers’ imagination of the peasants’ mentality and their theoretical construction of what constituted development and how to achieve this.

2 | American modernizers in India: locating the problem

Development is an ancient concept but one which, in our modern age, has acquired new meaning and purpose. Its pursuit unites *two strands* of human thought: the belief in *progress* and the *conviction that man can master his destiny*. —Lester Pearson⁴⁷²

In “*Notes on Indian Agriculture*”—a (privately circulated) Rockefeller Foundation report—

compiled upon the authors' (J.G. Harrar, Paul Mangelsdor and Warren Weaver, all Rockefeller Foundation agricultural scientists) return from their four-week exploratory study trip to India in 1952—the men offer their colleagues their blunt assessment of the crux of India's agricultural problems and suggest the goals for the Rockefeller Foundation's own prospective agricultural development program in India.⁴⁷³ The explanatory framework which emerges in their narrative is instructive—it reveals their imaginary of India and Indian agriculturalists. The narrative was formed in their complete inability to fit what they saw and encountered in rural India into categories they could readily comprehend, and their simultaneous need to control and direct the processes they were grappling to decipher.⁴⁷⁴ In it we can read the ways that the limitations on their understandings come to shape the nature of the projects they would later enact.

They begin by painting the scene of rural India for the other American men in the Rockefeller Foundation:

The villages are so overwhelmingly important in the agricultural economy of India, as well as in its social structure, that they merit a brief description. The villages may vary somewhat from region to region but within a region they are as uniform as so many ant hills. Indeed, from the air, where a number of *villages* may be seen simultaneously, they *have the appearance of structures built by creatures motivated largely by inherited animal instincts, and devoid of any inclination to depart from a fixed hereditary pattern.* The inheritance in this instance, of course, is social.⁴⁷⁵

Recognizing that the “inheritance” is “social,” they argue that it could—and must—be transformed, and quickly.

2.1 | A cultural diagnosis

As “take-off” was the mandatory precondition for these basic transformations, the American development practitioners on the ground and the theorists at home (i.e. Rostow and his contemporaries) sought to determine precisely what was blocking peasants' progress toward this end goal. As W. Arthur Lewis⁴⁷⁶ diagnosed, and Rostow⁴⁷⁷ also zeroed in on: peasants (a term they often used to stand in for underdeveloped societies more generally) do not properly appreciate their own abilities to transform and *conquer nature*.⁴⁷⁸ This was a fundamental hindrance, for according to modernization theory “*progress* occurs when people believe that man can, *by conscious effort, master nature.*”⁴⁷⁹ The “underdeveloped” (largely subsistence) state of agriculture in the Third World was read as indicative of this “lack.” The “experts” found further evidence for their claims everywhere they looked.

In their diagnosis of the “natural” condition of India’s villages and the villagers themselves, the Rockefeller men elaborate that the villagers’ condition can be defined as symbiosis with nature, rather than an ability, or desire, to “conquer” it for the goal of expediting progress. They explicate:

The village system is a well-established ecological complex, centuries old, in which three elements—plants, cattle, and man—exist in a strange symbiotic relationship.⁴⁸⁰

Indeed, the three elements are so completely mutually interdependent that it would be difficult for any one to exist without the other two.⁴⁸¹

They argue that peasants’ lack of appreciation of their own ability to conquer nature—and lack of any apparent desire to conquer it—was at the root of another problem. They diagnose that rather than seeking out “progress,” peasants instead confronted “progress” with a “long run fatalism” and defeatism. The modernization experts ascribed this “mindset” to peasants’ preference for self-sufficiency, or subsistence, and their belief in “an otherworldly philosophy that discourages material want.”⁴⁸² All of which confirmed peasants’ status as not-yet “rational,” and in turn, became the metric and indicators of progress in peasants’ mindset.⁴⁸³

2.2 | Locating the problem: the “orientation to self-sufficiency”

Using these indicators as the diagnostic criteria of his own two-decades of work towards transforming peasants’ consciousness, the Ford Foundation’s first South Asia Office President Douglas Ensminger⁴⁸⁴ explains “the mindset” that he and Ford’s experts encountered upon their arrival in India in the early 1950s. It was a mindset they decreed to be defined by a lack of material “want.” Ensminger explains:

...each individual cultivator looked upon his land to produce enough to meet his family’s needs if he could. He certainly didn’t look at his land from the point of view of trying to figure out alternatives to *maximizing his production*. The cultivator thought only of meeting his family’s needs, not producing to sell on the open market.⁴⁸⁵

Ensminger traces the cause and location of the peasants apparent “lack of want” back to the very nature (or “mindset”) of peoples’ engagement with their land: they see their land and their labor on it as *only* a source of sustenance—i.e. in not conquering nature they do not see the possibility of surplus, or even a means of getting ahead. It was this “lack of want,” Ensminger and the Ford Foundation assessed, that bred the lack of ambition and foresight that the theorists had diagnosed from afar.

The Rockefeller men, unsurprisingly, came to a similar conclusion. Explaining the crux of the

problem Ensminger also lays out (i.e. why the peasants lack of ambition and lack of enterprising nature is the key limiting factor on the nation's development as a whole), they locate the biggest hindrance to India's development in the fact that each of the villages function as "a well-established ecological complex."⁴⁸⁶ That is, the problem they hone in on is that the villages are *only* self-sufficient. It is the self-sufficient or subsistence nature of the village economy itself which RF scientists deem to be at the core of India's many problems.

2.2.1 | *Addressing the problem of self-sufficiency: instilling want*

The American experts locate the crux of the problem as "this village orientation to self-sufficiency."⁴⁸⁷ The problem with the peasants' mindset, as Ensminger painstakingly elaborates, is that it is defined by the fundamental hindrance and limiting factor: namely, that self-sufficiency does not inspire the requisite material want. This lack of want, the Americans determined, was inhibiting man's otherwise inherently entrepreneurial and competitive nature.⁴⁸⁸ Lack of "want" is at the heart of the many "bewilderingly complex" intertwined problems preventing "take off."⁴⁸⁹ They diagnose that this is part of "a complex of problems"⁴⁹⁰ which, as the Rockefeller men explain: "at first glance *may* seem only remotely related to agriculture"⁴⁹¹—but which must be addressed through agriculture.

The crux of the problem⁴⁹² and its answer are entwined. As Ensminger explains, the way to address and overcome:

...this village orientation to self-sufficiency [is:]. If a cultivator is [instead] to [learn to] think in terms of *maximizing his production* potential with a market orientation one would assume the carrying out of these improved agricultural practices, giving increased income and profits, [which] would provide the income to get the things he wanted. ...Relating increased income to buying what was a *felt need* would provide the *motivation* for the cultivators to carry out the improved practices.⁴⁹³

However, having established their pathway forward, the Americans then found that the villagers did not seem to have sufficient wants or felt needs. The necessary precondition for this was first to instill "want."⁴⁹⁴ For, without sufficient want, the peasants had no incentive to leave self-sufficiency. As Ensminger explains, this as a key hindrance/problem:

In the early period of India's development the *villagers really expressed very few wants, desires and needs. They had come to believe what they had at any given time was all they were going to have* and they lived their lives on the basis of not expecting tomorrow to be different from today. *It took a good deal of time to change this orientation of village people.*⁴⁹⁵

Given the problem that the peasants' mindset of self-sufficiency does not inspire the requisite material want, what progress did come to these places—as Rostow,⁴⁹⁶ following Hirschman⁴⁹⁷—prescriptively explained, was only as a result of an “*external intrusion*”⁴⁹⁸ from a more “advanced” society teaching “them” how nature could be conquered, want stimulated, and society transformed. Further, as Ensminger discovered in his field work, such intervention was not only mandatory, it must be *sustained*, as it “took a good deal of time.”⁴⁹⁹

The modernizers' crafting of the situation issues a (re)new(ed) moral imperative—a “Development Man's Burden”—to provide the requisite “*external intrusion*” to save peasant societies from themselves.⁵⁰⁰ This guiding diagnostic framework—in which the “mentality” of the peasant comes to be articulated as the primary problem—is a defining theme throughout the notes, memos, and texts of the American development workers and agricultural scientists of the time.⁵⁰¹

2.2.2 | *Self-sufficiency and the problem of surplus production*

The crux of the problem *is that* the village economy as a “well-established ecological complex” is *only* self-sufficient. At the core of the Americans' obsession with “this village orientation to self-sufficiency”⁵⁰² was the fact that the villages were not producing sufficient surplus. For, it means that while:

The villages maintain themselves on a subsistence level with respect to food, but [they] *do not produce a surplus for the cities*. India has reached a point where the practice of *agriculture no longer serves the traditional and important purpose of providing leisure*.⁵⁰³

They are clear: the peasant farmers are not producing sufficient surplus to supply the cities nor to feed a leisure class. This necessary surplus value cannot be extracted because it is not being produced.

The RF had come to India in part because they had learned from their experience in Europe and elsewhere that agriculture was the original and fundamental realm of surplus extraction, and as such its surplus constituted the primary building block for all other development and cultural programming.⁵⁰⁴ The Rockefeller experts had from their earlier studies diagnosed that “*until and unless* improvements can be made in the returns obtainable from agriculture,”⁵⁰⁵ development and basic improvements would not be able to progress in *any* other sector of society. For, they explain “improvement in returns from agriculture have a far wider significance than the enrichment of the farmers and their governments”⁵⁰⁶—the surplus is what enables the transformation of society.

This understanding of the fundamental limitations on development and their assured expertise in how to conquer these limits had led the RF to seek out new areas of the world which they deemed to be in the most desperate need of, and most able benefit from, their uniquely capable assistance. India was at the top of the list.⁵⁰⁷

Musing on (the inherently biopolitical calculation of) achieving “take-off,” the RF’s paper on “World Food Problems” explains the biopolitics of surplus production in a context of subsistence agriculture. They locate the major problem with subsistence agriculture in the fact that:

...the curve relating food input to work produced *does not bisect zero* as in a machine but *instead bisects zero work produced at about 1800 calories* consumed. In other words, maintaining large numbers of people on a bare subsistence diet, as in parts of the Orient, is *enormously inefficient*.⁵⁰⁸

Analyzing the logic of a system in which people live just at subsistence, the RF men deduce that not only is this system “enormously inefficient”—for the peasantry are consuming *almost* as much as they would be if they were producing an appropriate-able surplus, but they are using up these resources without producing surplus value.

2.2.3 | *Whose leisure, whose surplus?*

The question is what proportion of human effort the peoples of the world are prepared to devote to merely feeding themselves. -Rockefeller Foundation⁵⁰⁹

The assumptions that guide what the American scientists are assessing and advocating should elicit pause: the problem in their narrative is *not* that the village people are starving. (In fact, statistically, villages on average consumed more calories (and more protein, lentils and legumes,⁵¹⁰ then than they did during the GR or than they do to this day⁵¹¹). Nor is the “problem”—as far as the Americans assess—that villagers are unhappy or are longing for a better life. Rather, the Americans repeatedly puzzle over how difficult it is to instill “want” and “the desire for progress” in these peasants. The problem is *not the peasants’ want*. Rather, the crux of the problem as they lay it out is that the villages are not sufficiently subsidizing others—be it the leisure of the rural landed elite or the profits of the urban elite (via cheap food for the increasing and underpaid urban proletariat). The lack of surplus is the fundamental core of the problem the Americans locate, for this surplus is, tautologically what is to enable “development.”

Whose leisure they seek to secure is not explicitly stated, but it is implicit throughout the texts that it is *not* the leisure of those “creatures motivated largely by inherited animal instincts, and devoid of any inclination to depart from a fixed hereditary pattern,” preferring their “strange

symbiotic relationship” with cattle and plants.⁵¹² The “traditional ... leisure” is so plainly not for these peasants that the RF experts need not explicitly spell out that it is for others, elites and urbanites.⁵¹³

3 | Addressing the problem

The “self-evident” answer to achieving “take-off” that the RF and FF experts present is to restructure agriculture away from its “orientation to self-sufficiency,”⁵¹⁴ or subsistence production, and into a structure that will effectively produce a surplus (which can then be appropriated). For this level of improved efficiency to be possible, people need to be drawn out of self-sufficiency and incorporated more fully into exchange relations, so that they can buy and sell the requisite calories to make their labor “efficient.” As the Americans’ writings had traced the lack of the basic “preconditions” for development to “take-off” to the subjects’ lack of response to the also lacking market structures and signals, in tackling the question of how to instigate this, the answer conveniently presented itself through unreflective self-projection: tracing “our” history back. The Rockefeller Foundation experts, for example, suggested an: “*industrial revolution of agriculture*,”⁵¹⁵ a process of dispossession through industrializing agriculture, or bringing industry to agriculture to create industrial agriculture. The understanding of how to bring “industrialization” remained within an impoverished notion of culture, where cultural difference serves an implicit metric of progress.

3.1 | The RF approach: the making of modern men

Examined in greater detail, the problems of Indian agriculture become exceedingly complex. Not only are there too many people, but the great majority are illiterate and not easily reached by educational programs. Millions are infected with a variety of diseases, among which malaria predominates, and are not easily aroused from their lethargy. More millions are enslaved by centuries of tradition and are not truly free to try new methods or to exploit their own inherent ingenuity.

Not only is there too little land, but the land has too little fertility, and is divided into far too many small holdings. The Indian farmer does not farm—he gardens—and he does so under innumerable handicaps.

-Warren Weaver et al., Rockefeller Foundation⁵¹⁶

Assessing the problems hindering India’s development upon the commencement of their four-week tour, the RF ag men declare that given that “millions are enslaved by [what they deem to be] centuries of tradition:”⁵¹⁷

The *most serious problem* faced by agriculture in India is not a technical one, but a

cultural one. The *greatest handicaps* which agricultural development must overcome are those ... *habits of thought* which prize *tradition* over improvement.⁵¹⁸

In their diagnostic framework, the oppressive power relations and profound inequities are elided and subsumed into the easy category of “tradition.” As power relations and deep structural and material inequities are cast as simply “tradition,” the task, or problem, is not a structural one in their lens, but *a cultural one*, which they traced back to what they called “habits of thought,” or “mindset.”

Once the need to break men out of “tradition” and forge a transformation in their “habits of thought” or “mindset” was established, their question was how to *most effectively* re-inscribe peasants’ “habits of thought” for this modern “mindset” to take hold. Assessing their task and the Indian context, the Rockefeller men declare that “The problem of village agriculture in India is not one to be attacked piecemeal”⁵¹⁹—only a comprehensive approach could work to address the situation.

3.1.1 | *The making of a successful intervention*

The Rockefeller Foundation (henceforth RF) *agricultural* scientists were new to India when they arrived in the early 1950s, but the RF had been involved in India for several decades in other sectors (namely health and sanitation), and the RF was not new to agricultural development work. The Foundation had a long experience in leading the charge to modernize agriculture for the purposes of ensuring “stability”—initially in post-War Europe and in Mexico.⁵²⁰

In India (as elsewhere) the RF ag scientists were explicit that their own projects must not be anything like the numerous already failing American projects they visited and commented upon in “*Notes on Indian Agriculture*.”⁵²¹ They regarded these fledgling and futile efforts to modernize India’s agriculture not only with deep disdain, they further argued that such failures, if allowed to continue, would pose much larger problems for American interests than simply not improving the lot of India.⁵²² The RF President is explicit—if American development projects (public and private) do not overwhelmingly succeed, then not only will they lead:

...to injury to the peoples and cultures we are trying to serve, [but also] to the erosion of Willkie’s reservoir of good will for us,^[523] and [we will serve] to *help Russia in her campaign to win the minds and loyalties of these people*. It is not inconceivable that if we mess out our advances badly enough, we may become, as the Governor General of India recently said to a friend of mine we were becoming, ‘the most hated country in the world’.⁵²⁴

In this geopolitical context, the question was how to *make sure* their efforts succeed. Given the abundance of already unsuccessful American projects⁵²⁵ attempting to be the “intrusion” necessary to modernize Indian agriculture, the Rockefeller Foundation maintained that their approach to the problem must be distinct.⁵²⁶ Having produced an imperative for their own intervention, the RF scientists muse over how to ensure that their intervention in Indian agriculture is up to their own high standards for success. They assess:

The task before us is to pick[—]out of a large number and variety of policies and programs[—]a few ... *projects so full of value and implications that still other gains will come from them as a natural and effortless sequence*. ... Our task is to choose the projects that will produce the largest and most significant *train of natural consequences*.⁵²⁷

Having established that: “the agricultural problem of India is *a complex of problems*, some of which at first glance may seem only remotely related to agriculture,”⁵²⁸ they are adamant that the only way to proceed is via “activities which explicitly face up to the *complex and interrelated problems of ignorance and tradition*, and seek to attack these problems.”⁵²⁹

They focus on culture, or “tradition” as this unique tactic of approach. Their “comprehensive” assessment determined the problems of Indian agriculture could be divided:

... into two main categories: [first,] *cultural complexities which will yield only to an exceedingly broad, skillful, and patient approach*; and [second,] physical handicaps, such as the maldistribution of water and the impoverishment of the soil, which can be effectively attacked only on a very large scale and with enormous funds.

One must recognize that tremendous forces are already being brought to bear on [the second of these, the] large-scale problems, these forces being principally financed by the Indian and United States governments, with substantial aid from the Ford Foundation. ... we need not and *should not get directly involved in any of the very large-scale movements* which already have tremendous funds.⁵³⁰

Instead, they hone in on the former: the “cultural complexities which will yield only to an exceedingly broad, skillful, and patient approach.”⁵³¹ Citing Kipling’s advice on the utter futility of trying to “hurry the Orient,”⁵³² the Rockefeller ag men nonetheless insist that their four-weeks of studied observation made two major points evident: first, that the cultural approach offers the effective pathway they are looking for and that “[a]lthough it would be a folly to ignore or underestimate the difficulties—particularly those connected with the cultural patterns—of working in India, still we do not think it necessary to be paralyzed by these difficulties.”⁵³³ And second, that to conquer these challenges, “improvement has to occur on a *broad social front* at a simple level, and that there has to be a *departure from old customs and ways of thinking*.”⁵³⁴

The Rockefeller ag men frame the central problem, or “challenges,” as “cultural patterns”⁵³⁵ and “ways of thinking”⁵³⁶ that need to be “conquer[ed].” As they set out “to conquer these challenges” the ones they see and seek to address are not structural issues (e.g. uneven tenure relations, lack of access to land, water, and credit), and are not caste, or power structures, or processes of dispossession. Their categories and framework of understanding do not see power relations with even the basic level of nuance they would use at home. Rather they focus on the “culture of thought,” particularly as manifest in the material culture of self-sufficiency or subsistence. Their framing, and in turn their interventions, are defined and fundamentally limited by this understanding. It is in many ways an amalgamation of an orientalist and classically liberal understanding and approach, a view which sees the issue at hand “at a simple level.”⁵³⁷ in short: they do not live like us because they do not think like us, hence it is our job to teach them to think and to be like us. But, simultaneously, because they are not actually like us, they do not deserve the same treatment, assurances, or policies (not to mention protections) as we would want for ourselves. Those they seek to create subjects out of are in a class distinct by its difference and inferiority, yet similar enough to evoke a haunting sense of responsibility.

3.1.2 | *Subject-making*

The approach that the Rockefeller Foundation men advocate—of focusing on trying to instigate nothing less than a large-scale broad “cultural” transformation aimed at making modern subjects—would have seemed most appropriate and expected to their colleagues at the RF headquarters in New York. This was the line of the RF projects globally—as a RF conference on South Asia the same year laid out in its concluding assessment:

The needs of India and Pakistan are bewilderingly numerous. It may seem trite, but it is not trite to say that *India’s greatest need is first class men*. Having been governed for two hundred years by foreigners *Indians are not accustomed to taking responsibility* as first-class men take it in other countries.⁵³⁸

This focus—on making *responsible modern “men”*—was a defining theme and grand aim of the RF projects globally. The reason for this focus was based on what they deem to be the soundest of evidence: empirical experience. The Foundation had learned that to initiate real “success,” the RF must begin with the principle ingredient of change: the people and the making of subjects. As the RF President explained:

A central theme which emerges from the Foundation’s 42 year experience is that *the bottleneck to progress*—in any field—is usually people ... Without attempting to be too specific about details of the expanded program at this stage, it can be

safely predicted that the *training of leadership must play a major role*.⁵³⁹

This most essential of ingredients—the quality of the “men” [*sic*] and their ability to “take responsibility” or initiative—remains a consistent and defining theme of RF concern until the RF’s Indian Agricultural Program (IAP) closes two decades later.⁵⁴⁰

Meanwhile, the Ford Foundation (FF) articulated a similar diagnosis of the problem and offered a related approach: changing the mindset of “tradition” and breaking out of this “mindset” to achieve “take-off,” a process to be instigated through technology.

3.2 | The FF: Endemic Traditionalism and the need for modern agricultural technology

...over and over again I would ask myself the question why there was not greater concern and greater anxiety in India about India’s slow progress in agricultural development. *I felt many times I, as an individual, had a greater concern about India’s improving its agricultural potential than the people in the Government.*⁵⁴¹ —Douglas Ensminger, Ford Foundation⁵⁴²

Having produced an (internal and an external) imperative for their own intervention in India’s agricultural sector, the FF experts’ writings are quick to diagnose the “traditional mindset” as endemic across all segments and aspects of society.

The effects of this “traditional” mindset, the FF discovered, extended far beyond the evident lack of interest in “producing for a market” or “maximizing production”⁵⁴³—even the most basic practicalities of agricultural modernization were hindered by what the FF regarded as out of date belief systems. Ensminger relates a series of tales detailing his case: “It was very difficult to get the cultivators to permit the spraying of crops [with pesticides] because in many areas there were very strong religious prejudices against taking any form of life. ...even if there had been more pesticides [available,] one would have encountered difficulties in their application.”⁵⁴⁴

The FF texts’ recurrent narrative argues that it was because of this “traditional mindset” alone that development programs were being held back. Ensminger’s narrative repeatedly alludes to this obsession, offering instances and details of how this “mindset”—content with the way things were and resistant to change, or improvements—defined every level of society he interacted with. It was not the peasants that the FF saw as most worrying in their deep resistance to change. Rather, they diagnosed that this “mindset”—characterized as marked by a deep resistance to change and a lack of concern with instigating development—was also endemic among the elite and the administration.⁵⁴⁵ Ensminger paints a picture of the Indian administrative elite as largely unconcerned with (what he and the FF regarded to be) the most basic necessities of, and pre-conditions for, agricultural development to be able to “take-off.” He explains the significance of

“mindset” in this:

...more important than the fact that *there was not a single fertilizer plant* in India was [that] there were *many strongly held views against using fertilizer*. There were people in the colleges of agriculture; a very prominent person in the Planning Commission; large numbers of political leaders—even the President of India Dr. Rajendra Prasad; who had grave doubts as to whether or not the repeated and continued use of fertilizer would destroy the soil of India.⁵⁴⁶

Ensminger relates his tales somewhat incredulously, seeking to indicate both how far India’s agricultural development “progressed” during his tenure and also the constant and significant challenges which modernizers like himself had to overcome every step of their way. The series of tales he offers are also meant to convey his adamant case that the challenges that tradition posed were not confined to technology—but extended to any (new path of) action itself:

...in 1962-63 when we were in the process of trying to get greater support from the [Indian] Government to move forward on all recommendations of the Food Crisis Report ... I had a conversation [with]...a senior person the in the Ministry of Finance. ... He saw that I was considerably concerned about the lack of attention on the part of the government to implement [agricultural] programs. After a while he said, and I will quote him, “*Oh Hell, Doug, until a couple of million people in India have died of starvation, don’t expect us to get very excited about what we are doing or not doing on the agricultural front.*” ... This I record simply to illustrate the great difficulties we had in working with India when the top leadership itself was more or less lackadaisical about implementing programs once they were conceived, tested and proven to be workable.^{547, 548}

He is at pains to detail the pervasive effects of the “traditional mindset” in the 1950s and 60s. While the perspective above is obviously profoundly paternalistic,⁵⁴⁹ at a deeper level this paternalism is also enabling. That is, it is a perspective defined by the framing: *they do not care of their own fate. Only we do. So, we can (and must) steer it as we see fit; for, no matter what we do, it is already better than what would have been if they were left to their own without our intervention.* This easy coupling of orientalism and liberal paternalism enables policy suggestions to take the form of policy mandates, backed by implicit threats of what will happen (namely, of imminent famine⁵⁵⁰) without the suggested interventions.

3.2.1 | Making modern “mindsets:” the role of technology

In this framework of understanding, the first thing their necessary intervention, or intrusion, had to do was transform the guiding philosophy through restructuring agriculture away from subsistence—a process of change to be instigated by, and steered via, market relations introduced through agricultural technologies. But, as the Ford Foundation’s experience (trying to get farmers

to use modern chemical inputs and the administration to approve their use) had made clear, if they failed to address the “traditional mindset” first, then all of the modern implements, inputs, and improved practices that the Americans or GoI programs could offer would be useless. Thus, the project targeted the making of modern subjects via transforming their “mindset” in the name of agricultural development and increasing production. Ensminger explains what they sought to teach and the corresponding pathway to this state:

It took time for people to think of planning for tomorrow being different from today. Many people do not understand it was not until well along in the Sixties [that] we had the basis in India for relating improved agricultural practices to the villagers’ family life and village conditions, to where we could through an educational program say to the villagers, ‘*if you want better education for your children, if you want better housing, better agricultural implements, the one way you can get these things is to carry out the improved [agricultural] practices, and with your increased profits you will then have the money to buy the things you want*’.⁵⁵¹

Noting that it took almost a decade for these education programs to even be able to effectively communicate, Ensminger reiterates the difficulty of initiating any functional change due to “traditionalism.”⁵⁵² At the same time, it seems that the FF could not see the largest hindrances to their agenda and programs: the limits of their own understanding of the society they were trying to transform.

They largely overlooked social and structural relations in the villages where they were trying to affect change. As an early FF report reflects:

In choosing the [first] package districts, the land tenure question didn’t form part of the criteria upon which selections were made. Whatever the reasons, the omission is proving to be very troublesome. Evidence is accumulating that the tenants who rent a very substantial part of the cultivated land ... are poor investors in the package program. It is admittedly difficult to deal with the land tenure in the package districts, but nothing is gained and much is lost by neglecting it utterly.⁵⁵³

In retrospect, Ensminger explains that while India’s politicians lacked the will to enact the necessary changes to the agricultural sector, the American aid workers did not understand or give sufficient consideration to the many levels of access and deprivation, or even to the differentiating effects of power relations within India’s villages. Even while acknowledging the significance of some structural factors and inequities—like tenure relations—as “complicating” the picture of agricultural development in ways that they had not expected and had been unable to account for or address, it remained nonetheless “mindset” or “habits of thought” that was the central early pre-occupation of both the RF and FF. Beyond the land tenure issue they

(eventually) realized they were missing, they did not give consideration to even the most basic differences nor to the deeply embedded intricate histories of power relations that enforced the deep inequities. This would come to change, but more significant was what they would come to do with their understanding of hierarchy and inequality within the villages.

4 | The Community Development Program

It was not only the Americans who assessed the peasants' "mentality" to be the necessary starting place. This perspective unites Indian government reports and documents and American Foundations' texts from the time. For instance, India's *First Five Year Plan* in 1952 argued for the necessity "to create in the rural population a burning desire for a higher standard of living and the will to live better."⁵⁵⁴ With this argument, the First Plan was introducing and describing a new concerted American and Indian joint effort to make this happen: the "Community Development Program."⁵⁵⁵

The Community Development Program (CDP) was created to promote village development⁵⁵⁶ and make villagers "self-reliant."⁵⁵⁷ As a GoI policy paper explains,⁵⁵⁸ it was established as:

...a programme of aided self-help for individual and collective welfare of India's vast rural population. The programme is intended to be planned and implemented by villagers themselves. Government offering only technical guidance and financial assistance.⁵⁵⁹

The CDP was originally proposed to Prime Minister Nehru by the American Ambassador Chester Bowles,⁵⁶⁰ in 1950.⁵⁶¹ It then came to be cast in a Gandhian discourse (and was inaugurated on Mahatma Gandhi's birthday), framed as a tribute to the values of "self-sufficiency" and helping build each village as an autonomous entity. While the American and Indian administrative elite shared the view that the "traditional mindset" was the major source of the problem, and while both were preoccupied with the need to change mindsets,⁵⁶² their respective answers of how to do so and how to proceed to development were often at odds. This was the case with the "orientation to self-sufficiency,"⁵⁶³ which was one of the specific policy goals of the CDP. "This new initiative was attempting, in essence, to overturn tradition-bound rural India, and to create in the process *self-sufficient*, confident village republics."⁵⁶⁴ Yet, what none of the Foundations' experts note in their discussions is that "this village orientation to self-sufficiency,"⁵⁶⁵ was not just the "natural" state (which they implicitly categorize it as), nor was it simply happenstance. The emphasis on self-sufficiency was just one of many points of conflict, for "American and Indian

officials often held conflicting views on the meaning of the term ‘development’,⁵⁶⁶ and likewise had different understandings of how to achieve it.

4.1 | The question of food production in rural development

The view at this time within the Indian government and Indian development experts regarded food and agriculture (the “food problem”) as part of a much larger problem of underdevelopment and rural dispossession. In this vein, the food shortages were read as indicative or symptomatic of the need for larger rural change, as much as problems to be addressed in themselves. Baviskar and Saberwal of the Ford Foundation explain how this perspective came about:

Following the Bengal famine of 1943, the government introduced the Grow More Food (GMF) program. Much of the focus of the GMF was on encouraging farmers to bring more area under cultivation, to use better seeds and green manure. Farmers were encouraged to use compost pits to generate manure. Financial support was available for irrigation. Ultimately, however, the program petered out, in part because *it was seen as too focused on food production*, and not sufficiently engaged on a more broadly defined vision of development. In 1952, the staff of the GMF was merged with the new Community Development Program (CDP). This new initiative was attempting, in essence, to overturn tradition-bound rural India, and to create in the process self-sufficient, confident village republics, with villagers aware of and keen to access the latest technology in agriculture, small-scale industry, health, sanitation and education.⁵⁶⁷

Pushing back against this shift away from prioritizing modernizing food production, the FF advocated for India’s approach to rural development (i.e. the CDP) to again be more focused on agricultural modernization as the means to village modernization, and for the prioritization of agriculture above other goals, instead of addressing agriculture through larger questions of rural and societal development.⁵⁶⁸

4.1.1 | *A political option: increasing food production through social restructuring*

To address the agricultural production aspect of this equation and the means of most efficiently increasing yields, Prime Minister Nehru and many others looked to China as the most clearly successful model to follow. China was able to feed more people than India with less arable land because they had found a way to produce yields as much as five-times higher than those in India, and had done so through integrated rural reforms. As such, in 1956 the GoI sent two teams to China to study their model of increasing agricultural production through a mix of using labor more intensively, land reform, and grower cooperatives. The study teams concluded

that this approach would work well in India.⁵⁶⁹ “The Chinese cooperative system was given major credit for increasing agricultural output in that country, as well as for diverting local surpluses out of agriculture to keep food prices low in the urban area, and for increasing industrial investment,”⁵⁷⁰ in short for accomplishing all of the goals that India sought to achieve with its agricultural development programs. “Nehru argued that if China could do it, India could as well--and that India could do so on a *voluntary* basis.”⁵⁷¹

To achieve these goals, the CDP together with the National Extension programs operated on the premise of using the abundance of rural labor rather than hard to come by financial resources to uplift Indian agriculture and rural development. (Beyond agriculture, the program aimed to construct an array of rural infrastructure--roads, irrigation works, etc.)⁵⁷² The main limitation of the CDP, however, was not the approach in theory, but the fact that it was not financially supported, and hence was not ever able enact many of its basic goals. In effect, the CDP functioned as a way of *putting agriculture on hold* while focusing policy emphasis and resources on industrialization. This was not what the CDP was meant to do—it was supposed to offer a means to develop agriculture *without* diverting any of the scarce resources from industry. But with almost no resources, the former couldn’t even happen.

The CDP was formed at the intersection of many interests and aimed to take a comprehensive approach, but despite its mission it did not have a sufficiently clear tactic of intervention and was never allocated the resources sufficient to bring its mission into fruition.⁵⁷³ The original goals of the CDP were never enacted. The program’s lack of success was in large part due to the shortage of financial and infrastructure support for the program and the fact that India’s Five Year Plans largely prioritized industrialization over rural development. Moreover, even when the goal was agreed upon and clearly stated, such as “increasing agricultural production,”⁵⁷⁴ the path forward was not. Thus, although it was initiated with U.S. government and FF support, the means through which the CDP sought to increase agricultural production were not aligned with the approach that the Ford and Rockefeller Foundations came to promote as necessary for India. While not explicitly attacking the program, the FF’s documents present the CDP’s approach as inadequate—it could not provide the rupture necessary to break with “nature” and “tradition” to overcome the pervasive “mindset of self-sufficiency.” The Foundations were moving toward a new policy focus: one which emphasized food production first and foremost. Nonetheless, the CDP is of note because even though it is today an overlooked and largely forgotten development program—commonly dismissed as “a total failure”⁵⁷⁵—the CDP was laid out in the First Plan and it existed as a program for over 20 years.⁵⁷⁶

The push from the Foundations for a more modern and food focused project than the CDP and its (voluntary) cooperatives coupled with vested interested within India. The landed elite in India were largely opposed to efforts to enact structural changes in the social and economic order. As such:

The calls for cooperative agriculture predictably met stiff resistance from Indian landowners, particularly politically influential, large planters. The Congress party organization responded by backing off from the reform agenda. While the final draft of the Second Plan set ambitious goals for the creation of service and credit cooperatives and the formation of communally owned farms, it made association with such institutions *voluntary*. Most landowners did not rush to embrace the social experiment. Lacking the political will to reorganize the agrarian sector, the government fell back upon the underfunded Community Development Programme.⁵⁷⁷

But while the political solution to increasing yields was rejected, at the same time, it was clear that something more needed to be done. The Americans were in India in no small part to make sure that India's path provided a model for the third world entirely different from that of China. As the FF's Paul Hoffman argued "India, in my opinion, is what China was in 1945"⁵⁷⁸—the conditions were open and the US needed to do all it could to keep India from going down the path of China. The last thing the Americans felt they could allow was for India to emulate the Chinese method of increasing agricultural production. India was to be *the* demonstration of *better* success with a "free market" "democratic" approach to development. Merrill explains that: "[t]he American effort to make India a model for capitalistic growth and non-Communist political evolution can be understood to have constituted an effort to implement indirect control over that nation's future."⁵⁷⁹ This move was a project that was enacted through prioritizing agriculture, and increasing food production more specifically (see Ch. 5 for a more sustained examination of this aspect). Further, Frankel⁵⁸⁰ and Rosen⁵⁸¹ document that many of the powerful state governments as well as the Ministry of Finance were opposed to the CDP approach. The landed elites at the state level were in no way interested in such programs which they regarded as designed "to hasten their own decline." Rosen explains that in this context the Chief Ministers who were against it and went before the P.C. to push for an agricultural policy based in price supports coupled with an influx of science and technology.⁵⁸²

4.1.2 | *The "Food Problem" and political instability*

As the Foundations record it, the main problem was the fact that the rural sector was not producing an adequate surplus—whether to feed the cities, to provide for leisure, or to offer a

viable alternative model to China. The GoI's recommendation of a cooperative production regime might produce higher yields, and even produce a surplus, but how much of the surplus would be appropriated outside of the rural producers, and importantly, on what terms? The rural poor across India were undernourished, and if agricultural production were simply increased across all sectors of society—without food first being inserted into exchange logic and navigated through market relations—there was likelihood that the agrarian poor would consume all the increases in production.⁵⁸³ This would in effect leave development efforts in the same place: still no appropriable surpluses.

Not only was the CDP underfunded and understaffed, in the Foundations' assessment it was not focused enough on the mission of agricultural development to affect the necessary degree of change. A much more targeted development program was necessary, focused specifically on increasing food production rather than on broad questions of improving the rural community. The modernizers at the Foundations pushed for the direction of India's rural development programs to be realigned, away from the articulated goal of making "*self-sufficient, confident village republics*"⁵⁸⁴ and towards what they argued were the pressing necessities of the day: increasing food production and the surplus yielded from agriculture.

Invoking the pressing needs of the nation, they marshaled the specter of shortages and hunger for this project of prioritizing food production above other projects and goals of rural development. As the RF worried: "Mr. Munshi, the Minister of Food and Agriculture, told us that *unless the food problem is solved* within the next five years, at least South India *will go Communist*."⁵⁸⁵ Noting that a major problem with hunger and malnutrition is not just that it is "enormously inefficient," but also that there is a threat of political instability that accompanies food shortages, the Americans also crafted a moral and political urgency specific to India. While they maintained that the impetus for change and modernization as a general rule comes from outside, the impetus for change was not necessarily solely external. Instability—resulting from population growth and *hunger*—itself threatened to be the necessary "disruption" to prompt a shift from traditionalism on its own, but not in the direction that the Americans wanted.⁵⁸⁶ The "development experts" project was to control and direct this shift. This threat is particularly salient in the era of Independence with its the promises of a democratic government and developmental state. They explain:

The problem of food is so acute that practically all government officials are preoccupied with it. During our stay in India there was scarcely a day in which the newspapers did not have a front-page story on some aspect of the food problem or upon measures initiated to solve it. ... India will remain *a world*

danger spot so long as she has an acute food problem. *The people of India, although accustomed to famine in the past, have come to look to their government to guarantee them freedom from hunger. If the government fails it will undoubtedly change.*⁵⁸⁷

The specter of hunger was not as much a moral problem as an explicitly (bio and geo)political one. Their concern with hunger lay in the perceived threat it posed to the stability of established local power structures and American interests (rather than in a concern about marginalization itself or the neglect of the poor). Even more, the threat itself was mobilized as self-evident and sufficient justification for intervention. “Foreign assistance” and the project of development in India were deeply entwined with fighting the specter of Communism (represented by the Soviets, the Chinese, as well as a generalized faceless but persistent threat).⁵⁸⁸ The gravity with which the Rockefeller Foundation, Ford Foundation, and US Government took this threat is difficult to over-emphasize.

As attention to the “the food problem” increased, the CDP came to be re-cast, as primarily concerned with dramatically increasing agricultural production. The state government of Madras’ “*Field Manual for Village Level Workers*” in the CDP lays out the situation:

The basic problem is twofold. Agricultural production is not keeping pace with the ever increasing population and village people need opportunities to greatly improve their level of living and learn how to become effective useful citizens in a new independent India.⁵⁸⁹

The task for the CDP’s Village Level Workers was explicitly spelled out as: to “stimulate the desire for a better life”⁵⁹⁰ and teach the means to this goal—namely through “increased agricultural production.”⁵⁹¹ The CDP remained a FF-GoI joint project, and with American Foundation support, the re-defined CDP provided the beginnings of a policy emphasis on quantitative yield increases as a development goal, even though the targets were not met.⁵⁹²

Articulating this concern, the Americans advocate two major shifts in how development is practiced in India. The first is a move away from a comprehensive approach to the rural, to instead prioritize agriculture, and the second was a shift in the imagined subject of development: to not address all rural people, but instead focus only on those ready for “take off,” the elite. In the evolution of the CDP⁵⁹³ lie the roots of what came to be the “Green Revolution” approach, known as the New Strategy.

4.2 | To instigate transformation: Before all else, Agriculture

Prime Minister Nehru has much to say on a recent occasion on how difficult it is “*to rouse up the hundreds of millions of our people who live in rural areas,*

to make their minds work differently.” He concluded that “*that is the basic task in India.*” In effect, Mr. Nehru is saying that their thinking must be attuned to *greater productivity*. We should add that particularly and immediately this [need to transform their thinking] applies to the package districts. —Douglas Ensminger, President, Ford Foundation India Office⁵⁹⁴

Ensminger’s (re)interpretation of Nehru’s modernization mission as first and foremost concerned with agricultural productivity is indicative of an emerging consensus among the American modernizers—if they were to reach Indian peasants to transform their “mindset” and introduce them to market relations and the logic of economic maximization, they would have to begin with the realm that peasants already inhabited and understood: agriculture was the keystone of larger change. The programs they developed are indicative of this emphasis. In this project the *reasons* for targeting agriculture first and the *methods* were intertwined: beyond producing more food to prevent hunger, transforming the agricultural sector was to produce the necessary pre-conditions for development and was to tie all of these changes (the conquering of nature, the creation of subjects with a new “modern” consciousness, and a “rational” responsiveness to market signals) together into a coherent project. Expanding and marketizing agriculture was the necessary base for development’s “take-off.”

4.2.1 | *Making rational subjects: agricultural modernization*

To unpack the Americans’ push for a realignment of the path of development away from the CDP and towards increasing food production for the market, it is instructive to return to their discussions of approaches that could yield the desired results. Given the nature of the problem they had already laid out: insufficient surplus production in the agricultural sector and a lack of “want” to drive a desire to change this, they deduced that the means through which they could most effectively *change the people involved* in order to forge these modern subjects was through changing their engagement with their own labor, in agriculture. As A. T. Mosher (the head of the Allahabad Agricultural Institute⁵⁹⁵—one of the first major projects which the RF Indian Agricultural Program funded in 1952⁵⁹⁶—at the time and later the President of the Agricultural Development Council) argued, agricultural modernization is fundamental to instigating the desire for, and cultivating the growth of, a new development consciousness. Laying out the project of “*Getting Agriculture Moving*,”⁵⁹⁷ Mosher explained that targeting agriculture first had the effect of targeting both peasant and national consciousness—making peasants rational development subjects (then able to grow into market subjects) while also transforming the nation’s self-perception, aiming to guarantee that its leaders and people felt they had a stake in ensuring the

“forward progress” of the “free world.”⁵⁹⁸ He expounds:

We are likely to think and talk of agricultural development as being valuable only because it makes more farm products available for human use. In fact, it has an additional, and perhaps *more important product: it changes the people who engage in it.*

For agricultural development to occur, the knowledge and skill of farmers must keep increasing and changing. As farmers adopt more and more new methods, *their ideas change.* They develop a new and different attitude towards agriculture, toward the natural world that surrounds them, and towards themselves. Their early success in increasing production increases their self-confidence. Their increasing contacts and transactions with merchants and government agencies draw them into closer acquaintance with the world beyond their villages. They increasingly become citizens, full members of the nation.⁵⁹⁹

Through targeting and transforming the agricultural sector, peasants, society, and the nation as a whole could gain the conditions of possibility for market conditions to be able to take hold “as a natural and effortless sequence.”⁶⁰⁰ The proper agricultural projects were necessary for the “significant train of natural consequences” to result.⁶⁰¹ Such projects of agricultural modernization “will be able to effect a total transformation of the economic picture in the developing countries.”⁶⁰² Because, as the Nobel Peace Prize Committee later explained:

The increased earnings of agriculture will ensure ‘ring-effects’ in the form of growth impulses in all the activities created by more productive agriculture. It will be possible to increase employment: sowing, fertilizing, hoeing, harvesting, marketing will have to be carried out several times a year. Seasonal unemployment will be reduced: a balanced economic policy, correctly pursued, should make it possible to provide work for the large surplus of available manpower in the developing countries.⁶⁰³

While agricultural modernization was the *keystone* of larger societal change, the FF, RF, and others saw the role of the agricultural sector in this larger transformation (of subjects and societies) as largely instrumental—it was the “black box from which people, and food to feed them, and perhaps capital could be released.”⁶⁰⁴

5 | A strategy for change: the IADP

Creating the proper agricultural development program was the most challenging aspect of the plan to produce a modern “mindset” through changing the methods of agricultural production. During the 1950s as teams of American agricultural experts toured through vast areas of the Indian countryside, they not only recorded notes and observations, they also wrote up reports recommending exactly what India needed to do to address the problems they were concerned

with.⁶⁰⁵ Most prominent among these reports was the publicly circulated (published by the GOI and FF together) 1959 Ford Foundation's "*Report on India's Food Crisis and Steps to Meet It.*" This 239 page "*Report*" set about to transform Indian agriculture with the focused expertise of an international coalition of scientists.⁶⁰⁶ At the time of the *Report's* publication, the Ford Foundation and the GoI were already working together on several agricultural development programs, most notably the Community Development Program. Following the 1959 Report, the FF and GoI introduced a new program, largely eliding the underfunded CDP in popular memory (the CDP did also continue). This new approach was the Intensive Agricultural District Program (IADP).⁶⁰⁷ The IADP, popularly known as simply "the package program"⁶⁰⁸ was created based on the understanding, as the FF put it: that "If India's agriculture was to attain a 'breakthrough,' what was needed was 'a big push applied in short enough time span to ensure its effectiveness'."⁶⁰⁹

As the FF consultants explain: the package program was conceived to confront the fundamental limitation that "the multitudes [are] not yet in the "take off" process."⁶¹⁰ The CDP had failed to instigate or achieve this necessary process. They sought to transform this barrier into a condition of possibility for a modern "mindset" to take root. The fundamental difference was in how this was to happen.

5.1 | Securing success, Selecting subjects

The "foot soldiers" in the metaphorical war to rewire the "traditional mindset" and modernize India's agricultural sector had only one task: to succeed. The dual goals (changing mindsets and the modernization of agriculture) were intertwined, and the method of attacking them was unambiguous. The Rockefeller men's diagnosis of the habits and nature of "village man" details what is necessary—they assess that while "the 'demonstration effect' is clearly active"⁶¹¹ in the rural areas, nonetheless, from earlier experience they learned that "demonstration of the new crops and techniques is not enough" to instigate the farmer to change or to adopt the new crops and techniques. Rather, the demonstrations must be both more sustained and more explicit than a simple series of lessons; what is necessary is that "one man must come forward and employ the new technique *and succeed. His success* acts as a spur for others to follow him."⁶¹² This, the American modernizers explicate, is because of the "village orientation to self-sufficiency."⁶¹³ "Man at *village level* lives insulated from the values, drives, incentives of urban life. He responds to minimum requirements for food, clothing and shelter."⁶¹⁴

Thus, while the stability of the village's "well-established ecological complex"⁶¹⁵ served as

an insulation barrier against modernization, during their ethnographic tour the American scientists' had gleaned another insight into the "mindset" of "village man"—that "man must have a felt psychological need to change his behavior otherwise he will refuse to deviate from the traditional patterns."⁶¹⁶ The American modernizers operated from the premise that what needed to be instituted was not a cooperative approach to increasing production, but a competitive society, with clear and visible rewards for those who set out to break with "tradition" and who "succeed." Toward this end the modernizers identified another tactic through which they could instigate a rupture in the "mindset:" jealousy.⁶¹⁷ Reading peasant consciousness they explain:

Beyond this [i.e. basic subsistence] he has need to maintain his social prestige in the community. It is only when these minimum requirements *or social position* are threatened that he is moved to change his ways. If one man in a village sinks a bore well or builds a stone house or buys a tractor, *the whole village becomes restless and awake and will not be content until they equal the success of the pioneering individual.* There are innumerable instances where lands were pledged, jewels sold and the whole life style changed to accomplish what one man has done.⁶¹⁸

But this does not simply happen. There must be an instigating force to "rouse this spirit."⁶¹⁹

To instigate and steer the process of change, they suggest that they must be the agents to intervene and ignite this "*spirit of emulation, sense of competition, feeling of jealousy* [which] is a powerful motivating factor *in village life.*"⁶²⁰ Operating from the presumption that in order "[t]o rouse this spirit and release fresh energy for development in rural communities it is necessary that one from among the group raise himself slightly above his original social position."⁶²¹ They explain that given the need "[f]or development efforts to succeed, *agricultural graduates, bank agents, and researchers* must begin to penetrate into the rural communities and convert demonstration programs into *living examples* among the people."⁶²² That is, given the persistent difficulties of trying to get local cultivators to adopt the logic-rewriting technology of their own accord,⁶²³ then if "village man's" jealousy is to be "aroused" it must be by the "external intrusion," if necessary in the form of an expert pretending to be an ordinary village cultivator.

Operating within this profoundly paternalistic view of villagers as essentially simple puppets—rational in a way that is predictable and easy to manipulate but not fully "rational" in that they refuse to abide market logic as the decision making criteria—the American modernizers devised to animate the villagers out of their "lethargy"⁶²⁴ and into action—by inducing one man in each targeted area to demonstrate the certain success of adopting these changes. In cases where the "living example" was actually from the village, it was imperative to fully support him so that he could *not but* succeed. The farmers that were selected to "succeed" were—as per the IADP's

(and the New Strategy's⁶²⁵) stipulated criteria—the established farming elite of the village. These men, the FF reasoned, already garnered the respect of the “the multitudes [who are] not yet in the ‘take-off’ process,”⁶²⁶ and hence, they rationalized, “the multitudes” would be more likely to respect and try to emulate the success of the elite⁶²⁷ (than they would the success of a lower class or lower caste person).⁶²⁸

Arguing for the necessity of this new top-down approach, the Ford Foundation justified that they were helping the whole of rural society. Their logic is of the irrefutable *visuality* of the “living example,” they explain: “the results gained and examples set—by involving those in the *top layer are bound to affect favorably the rest of the village.*”⁶²⁹ As the FF consultants laid out: “Therein lies one of the important services rendered by the program. To *corral the cultivators and move them another step and yet another step is*, of course, the problem of problems facing the package program.”⁶³⁰ To do this, “The package [program], unlike any other program in India, attempted two pioneering ventures: [1] to divorce agriculture from its past where necessary, and [2] to provide the catalyzing resources to make that possible.”⁶³¹ As Ensminger explains: “After a decade of attempts [in which] other organizations in the field have failed to create it; the package program has initiated it,” the IADP is finally the program that will “introduce the notion that there is more to farming than what they [farmers] have been used to, and in *an observable way.*”⁶³²

To make sure that the observable effects succeed, the IADP was to select only: “sturdy farmers, up-and-coming men ready for self-enrichment in contrast with the multitudes... If those multitudes are to be put on the rails and pulled toward self-improvement, we cannot conceive of better engine drivers than the few just referred to.”⁶³³ The IADP, the Ford Foundation assessed, was “it:” the long sought after “intrusion” that would finally lead to the “significant train of natural consequences” and to “take off.”⁶³⁴ Where the CDP had failed—in fostering initiative among the rural people⁶³⁵—the IADP was to initiate. The Americans were explicit: under the new approach, the “success” of the landed elite was to be supported *in the name of changing the mentality and lot of the poor “multitudes.”* The modernizers’ reading of village psychology dictated that the “success” be on a massive revolutionizing scale, that the “success” be led by a few farmers from the established elite, and that the state guarantee the elite the material conditions for their success. Those selected in the IADP had to see the value of progress on their own, as only then would development finally be able to “*take off.*”

5.1.1 | “The problem of the small farmer”

The theory of peasants as resistant to change licensed the IADP (and the New Strategy of the

GR after it) to be conceived of and enacted as projects that explicitly “singled out small farmers as one group which may suffer relatively to other economic groups.”⁶³⁶ In effect, the Americans come to the realization that the small farmers were not worth trying to extract more surplus from directly; rather, the strategy instead became to ignore them and focus on those who could produce a surplus, and ideally the others would observe, learn, and follow the lead. Justifying the exclusionary policies with the logic that the poorer farmers could not be induced to adopt modern methods if their “role models” (presumably the elite in their villages or experts posing as local farmers) did not change first, and reap great success, they argued that the more comprehensive approaches to agricultural development—e.g. approaching it as a part of rural development, rather than simply increasing food production among a tiny segment—could not work given the “realities” of the Indian villages. Beyond the hurdle of trying to instill a modern mindset in the small and marginal farmers, they offer practicalities to bolster their position of targeting the elite. It is necessary to modernize farmers—and even get them off of the land if necessary to allow for surplus production. They assess this exclusion as necessary because the small farmers inhabit an anachronistic and

...antiquated system of land tenure and land inheritance [which] leads to smaller holdings in each generation. The fields are already pitifully small. ... *There is little possibility of the widespread use of modern agricultural machinery under present conditions.*⁶³⁷

As technology cannot be used under these conditions, the conditions need to change, and at minimum cannot be extended. Arguing that, given the pressing needs of “national welfare,” land reform needs to be “practical,” the FF insisted that “[c]are should be exercised, however, so as not to break up farms that are efficiently and productively operated.”⁶³⁸ If appropriate care is taken, then their development efforts could focus on those farmers who are able to properly use technology—in the name of “maximizing resources.”

They argue for a change from the existing approach which tried to address the mindset of “the multitudes not yet in the ‘take-off’ process,”⁶³⁹ for, these multitudes were likely to have small, marginal, or rented plots, or to work as agricultural laborers. Invoking the problem of “agricultural production of the country as a whole” as making it “imperative”⁶⁴⁰ they focus the new project on only the:

...20 percent of the famers, [who] own, or control in one way or another, 65 to 70 percent of the land. These are the people who *produce the bulk of the marketable surplus. Theirs are the more viable units* of cultivation with respect to size, water facilities, equipment, and investment potential. And it is in this group that farmers will generally be found who can and are prepared to take risks

with new programs and practices.⁶⁴¹

Supplementing their arguments regarding plot size and other resources needed to make efficient use of technology, they offer an even broader justification: the specter of looming scarcity as an imperative of raising agricultural production rates above all else.

In this context, The GoI was, however, very reluctant to actually implement what the 1959 Report recommended. Despite the fact that the Ford Foundation funded the vast majority of the IADP,⁶⁴² the approach of “concentrating scarce resources in a few districts at the inevitable expense of others”⁶⁴³ was deeply unpopular. Feeling he was making little headway, Ensminger threatened to resign. In order to prevent that from happening and to ensure the continued flow of Ford Foundation funding—which went to many other development projects as well—the GoI stepped up progress on implementing the recommended agricultural concentration and modernization programs (appointing a chair to oversee the process).⁶⁴⁴ Beyond the central government, at the state level there were also strong objections to this approach of “concentrating the ablest officers and such scarce inputs as fertilizer in one district out of the many in a state,”⁶⁴⁵ for the state’s CDP workers were transferred to the district getting the funding.⁶⁴⁶ That said, the IADP went forward, setting the path for agricultural development over the next several decades at least.⁶⁴⁷

As the Ford Foundation’s review of the IADP explained, citing the insights of its own definitional 1959 *Report* as the guideline for the forward path of agricultural development.⁶⁴⁸

This *overriding fact of shortages* and of the need to make the best use of what is available *dictates a different approach*, well stated by the Ford Foundation Consultants, [the] IADP, in these words:

These *scarce resources* should be combined and used consistent with the *objective of maximum production* of the higher priority item. Scarce production resources should be *channeled to the areas and farmers that are producing or have the potential of producing marketable surplus* of the higher priority item.

Our own observations lead us to the same conclusion. The proposal to concentrate on farmers who produce the marketable surplus of grain and cash crops raises the questions as to the size of that group and the acreage they control. . . .

Practical considerations suggest that the number of new programs must be tailored to the availabilities, at the same *time concentrating on the top layer of the farm communities*, at least during the early period of its operation.⁶⁴⁹

Deploying this logic,⁶⁵⁰ and asserting that this top-down approach is the only “practical” one, the FF’s American experts genuinely insisted that they were not favoring the elite for the sake of further consolidating well-entrenched inequalities—but rather, they made the argument that this

was necessary for *all* to take off. (This is an argument that, in India, eventually comes to be re-articulated as necessary to not starve⁶⁵¹ (see Ch. 4).) The “cultural” and “social” justifications, however, are kept at hand, never far. Invoking the need to be “practical” in times scarcity, the FF and its consultants explain:

We recognize the need for considering programmes of relief for those who have no land, and for those who cultivate too little land. But it is imperative to achieve this objective in ways that will not retard the *increases in food production which are vital to national welfare*.⁶⁵²

What they are seeking to articulate are acceptable justifications for the exclusions—in who shall be chosen as the subjects of development, and in the exclusionary structures of support for these new subjects—that are being built at this time. These are justifications which over time cease to be so labored, and become self-evident. The exclusions, they explain, are enacted not only in the interest of “national welfare”⁶⁵³ but also in the name of lifting up and benefiting “the rest of the village.”⁶⁵⁴

The problem of the small farmer is fundamentally a social rather than an agricultural problem. This is *not to suggest that their needs are to be neglected*. On the contrary, it is anticipated that, in addition to normal assistance Government extended to farmers, *the results gained—and examples set—by those involving the “top” layer are bound to affect favorably the rest of the village*. Our assumption about the role of leadership which underlies our second proposal should hold good in this proposal as well.

We noted in the preceding paragraph why the contemplated program must be progressive-farmer oriented. We should also note, and at the risk of saying the obvious, that the agricultural production of a country as a whole, especially in the past two years, *makes such a move imperative*. ... a program so oriented may indeed bring about larger and faster advancement to less fortunate areas and cultivators than one spreading India’s resources too thinly all over the place.⁶⁵⁵

This is the logic which guided the reasoning and recommendations of the Ford Foundation’s 1959 Report titled “*India’s Food Crisis and Steps to Meet It*.” The selling point to the GoI was not the exclusionary logic itself, but the increase in yields it was to produce. This, as Dayal explains, was why the GoI adopted:

...the [Ford] Team’s suggested Intensive Agricultural Approach to solve our food problem. The Government of India accepted the suggestion of the team. The intensive Agricultural District Program (IADA [sic—IADP]) popularly known as the Package Program was accordingly initiated in 1960-1 in seven districts of the country.

It was proved by the various tests that the *output in these areas will go up by 40 to 60 per cent during the Third Plan*, as against 31 per cent elsewhere. The then Union Food and Agricultural Minister, Shri Patil, declared in the Parliament that the *Package Programme was the only way in which the agricultural output of*

*Indian farmers could match with that of the farmers of advanced countries.*⁶⁵⁶

The IADP realigned the question of rural development. This realignment was not just a move to a policy of “concentration,” focusing on the well-off at the expense of the rural “multitudes,” based on the premise that the “the multitudes” were “not yet” ready for these changes. More broadly, understanding produced the IADP (and the NS after it) as programs that did not address the vast majority at all—rendering them outside the position of the subject of development, and eventually, in effect, excluding them entirely from the question of development. The IADP realigned development *away from the question of rural development* to focus on *the question of increasing food production* above all else. The other aims (of rural change) were largely left by the wayside, and when nodded to, served primarily as justifications for why this approach was necessary—i.e. the beneficial effects of helping the elite were to “trickle down” to assist the rest of rural society. Rural development policy came to be seen as best achieved through the trickle-down effects of “the results gained—and [the] examples set—by those involving the top layer [which] are bound to affect favorably the rest of the village.”⁶⁵⁷ These far-reaching favorable effects were to come through the introduction of the modern mindset via the “practical” deployment of agricultural technology.⁶⁵⁸

The claim that lies behind this policy transition is that CDP did not instigate cultivators, or rural people more broadly, to take initiative and to adopt change (i.e. it did not manage to get them “on the rails” to “take-off”). The IADP, on the other hand, would initiate this process by focusing exclusively on agriculture, introducing the use of modern ag-technology, irrigation and other forms of mechanization more extensively, and addressing a target group—only those financially able to implement these new technologies. However, the latter—the status of the subjects who participated—is generally glossed over in celebratory accounts of the IADP and the GR. While the CDP, by most accounts, did not benefit the poorer sections of society as much as the middle and upper sections, its stated aim was specifically to help uplift the lower segments of society. The IADP and NS approach after it, on the other hand, were designed specifically to uplift the upper segments of an already deeply stratified rural hierarchy. In this process the rural people (the “multitudes”) are rendered into the paradoxical subject position of being effaced—even as they are indispensable and are relied on for their labor to increase food production and provide the surpluses to be appropriated for other segments of society.

What emerges is *the prioritization of agricultural production above all else, a distinct shift from the industrialization-focused development path in which food production had been part of a*

broader agrarian and village development programs. Food production now had its own place, outside and above rural development, and even more than that, the GR's perceived success was dependent on choosing "guaranteed winners" (i.e. the wealthy farmers).⁶⁵⁹ This, in short, is the making of industrial agriculture.

5.2 | IADP to the New Strategy

The FF had declared that the IADP was the program which would finally bring success "after a decade of attempts" and failed programs,⁶⁶⁰ and there had been high hopes. The projections of the IADP's increases in production—of increasing output "by 40 to 60 per cent during the Third Plan"⁶⁶¹—were set based on the Third Plan's targets, which were 100 million tonnes. However, the results of the IADP fell far short of the promises. Not only was this target not met, agricultural production actually declined during the period of the Third Plan—from 80 million tonnes in 1960-1 to 72.3 in 1965-6.⁶⁶² In (only) two cases were IADP districts actually higher than adjacent districts that did not receive the funds, attention, and "modern" implements. The program, in short, did not meet expectations. Nonetheless, none of the parties involved were in a position to give up on the project. Even when none of its goals were met, the IADP was still declared as the only way to progress and as the only path to success in agriculture. Despite falling far short of target, many more districts were included and the IADP was expanded into a larger program, the IAAP:

The [IADP] package was provided initially to a set of 7 pilot districts, later expanded to 15 districts—one in each state, and 2 in Kerala. *Subsequently, in October 1965, with food production levels not showing much of an increase during the period 1960-64, this was extended to 114 districts (out of a total of 325)—known as the Intensive Agricultural Areas Program (IAAP). The districts were to be provided with a package of services, as recommended in the Food Crisis report—including credit, modern inputs, price incentives, better access to markets and technical advice.*⁶⁶³

The question of what set of policies should be adopted to best address "the food problem" and promote rural and agricultural development was not posed again. Instead, the perspective adopted, as illustrated in the draft outline of the Fourth Plan was unquestioning: "Evaluation areas done so far has shown that with the exception of some districts, *progress has not matched expectation. All the same, there is no doubt either about the validity of this approach or the impact it is making on production.*"⁶⁶⁴ The IADP's advocates note that *India seemed to have few options.* But, of foremost concern here is the fact that despite the IADP's failure to meet the desired production results,⁶⁶⁵ it nonetheless had significant effects in terms of how it realigned

development and in laying the groundwork for transformations to come.

5.3 | The New Strategy's appeal and the legitimate realignment of development

Four years later a Government of India pamphlet “*Towards a Better Life: The New Strategy*”⁶⁶⁶ reiterated the exclusionary logic the Ford Foundation had put forth. While the changes were extensive, the subjects to be forged were limited to a very small elite of the farming population, for that was how this extraordinary revolution was to finally “take-off.” Explaining that “...the new food strategy is not a departure from earlier policies, but a follow-up of what has already been done.”⁶⁶⁷ the pamphlet lays out the logic of why the New Strategy (NS), like the IADP before it, targeted the upper segments of society.

What is this strategy? In simple terms, it means that we concentrate our efforts on the *best cultivatable* areas all over the country, *areas which have assured irrigation, and do not have to depend on the whims of nature*. We make available to farmers of these areas the right kind of seeds, enough fertilizers on time, pesticides and technical know-how as well as other inputs, so that they can get out of the land *three to five times the grains they do at present*.⁶⁶⁸

It can be spelled out in one brief sentence: To get from [the farmers on] about *a tenth of our cultivated area* (i.e. 32.5 million acres out of 330 million acres under food grain cultivation) nearly 25 million tonnes of extra food over the next five years.⁶⁶⁹

To sum up, the new food strategy is not a departure from earlier policies, but a follow-up of what has already been done. *It is the first step towards making agriculture a profitable and stimulating enterprise*.⁶⁷⁰

The operation will be on a vast scale, vaster than many a war fought in history.⁶⁷¹

That these significant shifts in approach came to be implemented is indicative of the fact that it was not only the American modernizers who held this view of how to address tradition and change village mentality. To the Americans' relief, a number of India's administrative elite shared this modernizing perspective and deep impatience with impediments to it.

This larger project allied with the vision of several “responsible” “first class men” in the elite of India's administration. Most prominently, C. Subramaniam,⁶⁷² India's Minister of Agriculture during the period of transition from the IADP to the New Strategy (i.e. the GR), negotiated the NS and ushered it in. US government cables, USDA FAS records,⁶⁷³ the RF, FF, and Ensminger's files indicate that they viewed Subramaniam as a singular exception among the leadership.⁶⁷⁴ Not only was Subramaniam a “resolute modernizer,” when transferred from Minister of Steel and heavy Industry to Agriculture Minister he proved to them to be a person concerned enough with India's “food problem” to take decisive action. As Ensminger explains:

During the 19 years that I was in India the Ministers of Food and Agriculture were rather representative of the political leadership of India in their understanding and orientation to agriculture as being necessarily traditional. The only exception to this was C. Subramaniam who, more than any other individual in India, gave leadership to the designing of agricultural programs to move the nation from *traditionalism to modernism*.⁶⁷⁵

Ensminger argues that all of the other Ministers simply were not concerned with the food problem, simply assuring the nation that everything was fine.⁶⁷⁶ He and others assessed that Subramaniam bore the burden of overseeing the transition from “tradition” to modernity and that others were at best “lackadaisical,” if not opposed to it.

Ensminger also notes that many of staunchest critics of the IAD and the NS were eventually convinced about the approach. While the most significant differences were over the privileging of the elite, there was clear agreement about the need to address and transform peasant’s mentality. Despite this, how to accomplish this remained debatable. However, the IADP and particularly the New Strategy after it, provided a clear object which could be endowed with the task of instigating change in the traditional mindset: the modern agricultural technology used in the package program. Technology was not simply a product of modernization, it was to bring modernization through its use. This shared commitment to producing a “modern outlook” laid the conditions for change, but—as one of Ensminger’s staunchest opponents turned supporter, V.K.R.V Rao of the Planning Commission⁶⁷⁷ explained—this alone was not enough. For this revolution to actually “take off” across larger areas of India, Rao stated that “something has got to be done to change the psychology”⁶⁷⁸ of farmers, to make them willing and able to engage in and benefit from the transformative effects of modern agriculture’s exchange relations.⁶⁷⁹ The adoption of agricultural inputs would require the farmer to re-calculate the nature and “value” of his own labor and his engagement with his produce. Resonating with Mosher’s explanation of the use of technology to transform peasants into modern subjects, Rao explains:

I shall go on now to list the policy requirements for implementing a programme of increased agricultural production. *Motivation* is the most important condition for maximization of agricultural production. ... *The farmer’s motivation, which really turns upon what profit he makes, becomes particularly important because the moment he begins to use fertilizers and other modern methods, his inputs go up and agriculture becomes an expensive job and not something where you just sow the seed and let god and nature do the rest. When agriculture becomes scientific and modern, it involves investment.*⁶⁸⁰

The spark that could trigger the requisite “psychological change” took the form, again, of an “external intrusion”—this time, in the form of an object, specifically a commodity: agricultural

technology. Modern inputs and mechanized implements carried, with their adoption and use, a logic that was to re-inscribe the fundamental calculus of agriculture, transporting the farmer entirely outside of the logic of subsistence.

As Ensminger had found in earlier efforts to introduce the package program changing the conditions by spreading a program was not sufficient for success—the FF reported that the farmers were not “invested,” it was only the GoI keeping the program properly afloat. A more effective way to get farmers’ mindset to change was to alter the conditions they navigate, or better yet, have them literally *invest* in the process of transition. This is why Ensminger and others were so deeply concerned with the resistance to fertilizer and pesticide use at all levels of society—it was not just about the inputs, but about the fundamental role of technology in requiring an “investment” necessary to produce the proper modern mindset—that is, the mindset of surplus production.⁶⁸¹ This project aimed to forge modern, *rationaly-motivated*, scientific subjects through modern, investment-intensive agriculture. The metric of “rationality,” as indicated by subjects’ responsiveness to the market, was the terrain on which these new subjects were chosen.

The essential difference between package program, or IADP, and the New Strategy was what the IADP did not have: a new technology to put a name to, to sell the strategy. The emergence of a new agricultural technology: the high yielding variety (HYV) seed, was the key to what made the NS different. The HYV was the enabling difference between the IADP and the NS; it is what made the NS “the miracle story of modern development”⁶⁸² and is why the NS is considered not just a “success” to be remembered, but a “revolution.”⁶⁸³ As the Nobel Peace Prize Committee explained:

Dr. Borlaug was in India in 1963 in order to find out whether the breed of wheat he had developed in Mexico could be used in this country too, and history repeated itself. The highest results in the history of India were achieved in 1968 with a crop of seventeen million tons. This event was celebrated in India with the issue of a new postage stamp bearing the inscription “The Indian Wheat Revolution 1968.”⁶⁸⁴

5 | Conclusion

The Green Revolution was designed to bring peasant production into circuits of regional, national, and global capital, prompting larger necessary societal transformations. The GR was planned this way in order to transform society. These transformations focused on creating the modern subject for these development projects, and did so through shifting to prioritize

agriculture above all else. This was a *prescriptive narrative* rather than a diagnostic one. Tracing this narrative in Chapter 4, I demonstrate that the exalted place of technology is itself prescriptive; agricultural technology enabled this top-down social revolution to be written as the “natural” path of “modernity.” Technology was to be the “trigger,”⁶⁸⁵ launching countries into takeoff.⁶⁸⁶

The way that technology is understood and the causal role that it is given in the project of forging a “modern” consciousness makes it much more than a mere tool; it is *the* indispensable agent of and for this project. This view invokes the idea that injecting technology into sectors dominated by “traditional” production methods and mindsets will, in itself, bring modernity in the form of exchange relations. It is not that a “modern mindset” must come first, but that technology *in its commodity form* itself restructures society in accordance with its logic of exchange. Thus, is offered is not just an appeal for technology, but an appeal for the commoditization of peasant life—agricultural technologies offered as the tool that could subsume the workings of life itself and force a transition from subsistence agriculture to surplus production. *Subject-creation* was constitutive of how the GR operated. The creation of the development subject in the GR processes was not superfluous, but integral to its success as a “development” project; it underwrote the GR as a coherent (ideological) project. In so doing it created a world-view and an understanding of what development is and how it is to be pursued.

Chapter Four

Promising Doom, Narrating Success: Writing the (Afterlives of) India's Green Revolution

It is axiomatic that a well-fed world is a peaceful world. -J. G. Harrar, President of the Rockefeller Foundation⁶⁸⁷

1 | Introduction: legacies of the Green Revolution

We proved them all wrong, all those prophets of doom. Borlaug brought a revolution in ideas, a revolution in thinking, a revolution in technology. It's a totality. It [the Green Revolution] was a great social change. It's quite likely that a billion people have been saved in India, Pakistan, and Bangladesh. -M.S. Swaminathan⁶⁸⁸

There is no way to escape the fact that, notwithstanding highly visible increases in production and yields of a few crops in a few areas, *both agricultural production and agricultural productivity in the aggregate showed a lower rate of growth after the Green Revolution technology was introduced.* Even if one doubts the statistical significance of small changes in the trend rates, it is still impossible to maintain that there was any improvement in the growth rates of aggregate production and productivity. There definitely was no revolution in the Indian agriculture with the introduction of the new 'revolutionary' technology -J.K. Bajaj^{689 690}

In any contemporary discussion of international food policy, agricultural development, hunger, or even genetically modified crops, specters of the Green Revolution live on, writ large. The dominant narrative of the GR casts a larger shadow than almost any other aspect of the revolution.

In the quote above M.S. Swaminathan, the "father of India's Green Revolution," recites the well-known narrative of India's Green Revolution: that new high yielding agricultural technologies came in and revolutionized India's approach to agricultural production, and with it redefined their "thinking" itself. As the story goes, these "revolutionary" *ideas* released momentous changes, breaking India's peasantry out of the shackles of "tradition," allowing farmers to spectacularly raise yields, liberating the nation from its dependence on US food aid and the increasingly onerous conditions on this food. In the logic of the meta-narrative of development, it was the Green Revolution that demonstrated that India was to be taken seriously at the "table of nations," for—in the metric defining the metonym of development in the 1960s—

India could now “feed herself.” The Green Revolution (henceforth GR) holds a significant position and responsibility in the national imaginary, but what M. S. Swaminathan is referencing also extends far beyond the popular national imaginary.

The imaginary of the Green Revolution’s success is also very much a global imaginary of success—the GR cannot be understood outside of the geopolitical context of the time—as Dowie explains in his book tracing the history of American Foundations “the Green Revolution ... is the single largest and longest-lasting initiative of the American Foundations.”⁶⁹¹ The Green Revolution continues to loom large in the imaginary of American projects—“in development lore only the Marshall Plan rivals the Green Revolution’s achievement,” as diplomatic historian Nick Cullather⁶⁹² explains summarizing the lasting legacies of post-war international intervention.

India is widely considered a poster-child of the wholesale transformations that such agricultural modernization and development offer.⁶⁹³ It is India’s GR that is most often appealed to as the template in contemporary calls for a “new Green Revolution for Africa.”⁶⁹⁴ The imaginary of India’s GR is of a transformation that was much more than simply an agricultural revolution—it is a story of transition: from poverty, dependence, and stagnation to growth, development, and success. In short, the GR remains the quintessential story of “take-off” (in its Rostovian sense).

The collective imaginary that has produced and that peddles this view is widely shared—from applied texts in agricultural science to popular bestsellers—in India and around the world. For example, Jeffrey Sachs’ rendition of India’s GR reflects the international mainstream and widely repeated perspective:

India’s first major economic breakthrough came in the late 1960s and early 1970s with *the introduction of the Green Revolution* into the country. ... The resulting *rise in food yields freed India* from the chokehold of famine. After the Green Revolution, India was able to feed itself even in years when the monsoons failed. The seemingly *endless saga* of India’s fighting mass starvation *came to an abrupt end*, well before its market reforms triggered a sustained acceleration in economic growth.⁶⁹⁵

The representation of the GR as *the* key spark for India’s subsequent 50 years of transformation is largely—and surprisingly—uncontroversial. Those critiquing liberalization reforms also offer a similar diagnosis of the GR’s role in transforming India’s fate—both agriculturally and economically. As Majumdar explains: “Thanks to the green revolution, India attained self-sufficiency in foodgrains in 1970 and what is more, has emerged as a major exporter of foodgrains in more recent years: Exports of rice and wheat soared to 10 million tonnes in 2002-

03.”⁶⁹⁶ As is clear, in this narrative’s imaginary, the transformational power of the GR was underpinned by a revolution in the yields of food-grain crops.

1.1 | The GR as “Narrative”

Much lies behind these narratives of the GR; they offer a telling that both reveals and conceals—they reveal and conceal what the GR project consisted of as well as the continuing work of its success narrative. The GR in popular narrative is regarded as incontrovertibly a success: that it “worked” is not a matter of question today. In this narrative, the central component of this transformation and success is modern technology.⁶⁹⁷ In this chapter I examine the work of this success narrative, I draw out the conceptual, political, and policy lineages underlying the Green Revolution approach and I trace the production of the certainty of the GR’s success.

In pulling apart the narratives of the GR-as-success, my aim is not to write a “truer” narrative of the Green Revolution.⁶⁹⁸ Similarly, simply showing that narratives “do work” is not my point; we know that narratives do work, and that narratives of the GR do work. It is *what* this work *allows and enables* that I excavate: through examining how this narrative came to be produced, how it defined the problem that needed to be addressed and the necessary means of addressing it, how it told its story of progress, and what was, and continues to be, effaced in this telling.

Further, as the GR’s success narrative is one of the key forces sustaining the drive for continued agricultural “modernization,” an (re)examination of this narrative also allows a means to open and attend to questions including: if the GR made India food secure, how are we to understand why the majority of the population is food insecure and/or malnourished today? Do today’s high rates of hunger have anything to do with the GR and if so, what is the relationship? In excavating the work of this success narrative and attending to these questions, I step forward and back, navigating the gaps of various renditions of the GR’s success. I read the success narrative of the GR symptomatically to expose its operation and work. I unravel its explanations to construct an account of *how*: how this dominant narrative came to be, and *what*: what is at stake in this rendition of the GR, and what work does this narrative of the GR’s success do?

I suggest that the *narrative* of the Green Revolution-as-success was itself fundamental to enacting its changes in the 1960s and that it remains the key aspect of the GR’s continuing productive power to this day. For example, contemporary calls for a renewed “second Green Revolution”—including the Gene Revolution’s advocates’ attempts to summon the Green Revolution as its natural history—are premised upon the foundational certainty of the (first)

Green Revolution's success. The GR-as-success narrative serves a justifying and enabling function. In the story it weaves, the logic and the empirical terms it mobilizes are co-productive; as such, many critiques do not adequately separate them. Attentiveness to narrative is necessary not only to understand these questions; more than that, narrative is a necessary tool in the project of liberal-capitalist development and geo/political-economy. I suggest that a symptomatic reading and a genealogy can help draw out the stakes of how this narrative operates.

I aim to indicate the necessity of a *method of reading* in order to understand the stakes of the Green Revolution for the future of development, agriculture, food, and exclusion there from. The work of *narrative* itself cannot simply be overlooked or dismissed, as most approaches do. I demonstrate that this success narrative (which relays the GR as a quantitative yield success) was forged as a tool—in battles over what “development” should be and what path of development India should adopt. The success narrative was constituted in and by the GR's deeply controversial new tactic—an approach which many saw as an about-face from previous development commitments and an approach which suffered from repeated “failures” to deliver as promised. The GR narrative was a device to bring closure and forge a structure of necessity—a sleight of hand to stand in as an answer to critiques of the highly indicted “New Strategy.” As such, the “success” which it “reports” is not an empirical state, nor an originary condition of this “revolution;” rather, the narrative account was forged in these critical moments, as a response to its controversies and failures. Yet, it also became a fundamental narrative that both invokes and writes what have come to be comfortably familiar tropes—of what development is, of what the GR brought, and of what was there before.

1.2 | Building a successful “revolution”

This volume, a report on more than ten years of cooperative work between the [Rockefeller] Foundation and the Government of India toward [food] self-sufficiency ... *reports a success* in a field where success is relatively rare. –Streeter, for the Rockefeller Foundation, 1969.⁶⁹⁹

Accounts of “development” projects, it often seems, chronicle a series of schemes that have consistently not reaped or delivered anything like the promised or the theoretical results. These failed projects are considered to offer insight; in the context of a larger imaginary of simplistic mis-understandings of people and societies, people look (back) to these schemes for an understanding—of the time, of what went “wrong” etc. In this imaginary of development projects the “successes” and the “failures” are clear. It is because this is such a well worn and familiar

story that the GR stands out so tremendously among the 60-plus years of development efforts; the GR is regarded as one of the few exceptional successes. The question is how an approach widely critiqued and rejected not only came to be policy, but came to be regarded as the most widely recognized example of a successful development project in history.

1.2.1 | *The (Success) Narrative*

The opening pages of the Rockefeller Foundation's "A *Special Report from the Rockefeller Foundation: A Partnership to Improve Food Production in India*"⁷⁰⁰ offers an example of the "natural history" of the Green Revolution, i.e. of how the transformation is widely narrated:

India's farmers are breaking out of centuries-old patterns of subsistence agriculture into a new day of commercial food production. Given demonstrably superior seed and a price incentive to produce, they are impressing the world with their enterprise. The result is that India approaches self-sufficiency.

In moving from food shortage to an approach to plenty in just a few short years, India is not only winning the battle to feed herself—that has had to come first—but is also breaking out of a centuries-old bondage to mere subsistence into an era in which her hundreds of millions of people can face the future with confident self-reliance.

Until very recently, *most of India's farmers were tilling the soil behind slow-moving bullocks, with the kinds of tools used in biblical times.* Under the British ... [and after independence] both farming and research were primarily defensive, aimed at reaping at least some harvest under even the most unfavorable set of conditions; they were neither aggressive, expectant, nor innovative.

Then, in two successive years came the *terrible droughts* of 1965-66 and 1966-67, the worst in 40 years. Crops were ruined, and millions of people in parts of India were even in imminent danger of running out of drinking water. They had to be fed from government food stores, which were supplied out of 10 million tons of grain rushed from the United States and other developed countries. Quite literally, India's people at this time were living from ship to mouth. ...

But today, only two to three years later, India has more than beaten back the threat of hunger; she is now producing close to enough of the major cereal crops to supply her daily needs and is even trying to build a buffer supply (the latter still with some US help). ...

In just a few short years, in a country where agriculture has been geared for *centuries to an ox-cart speed*, India's farmers have begun to move from the level of *subsistence farming to that of commercial agriculture.* Whereas until recently *most farmers aspired to little more than feeding their own families and their own animals, millions of them now have something to sell*, and can thus acquire the means to farm still better and also enhance the quality of their lives. *In other words, they are moving from existence to living.*

India's turn around in agriculture occurred in the season of 1967-68, but this did not happen overnight. ...

The speed with which India's farmers and scientists, with some materials and counsel from the outside, suddenly gave their country an approach to an abundant

food supply has never been duplicated on an equal scale anywhere else in the world, including the agriculturally sophisticated United States. And they did it under great handicaps, from almost a standing start. Their story has romance, color, and drama of which this report attempts to give some small glimpse. ...

Much has been said about the 'agricultural revolution' in India, and one has certainly taken place as it relates to crops—at least in those parts of the country that can get enough water. But the *real revolution* is one that has happened, not to farming, but to *farmers*—the revolution of hope. It has meant *a new concept of self*, in which the farmer can believe he may fulfill his destiny as a liberated human being. Not only agriculture but also all the businesses dealing with agriculture have quickened as a result and indeed, the whole national economy has been strengthened.

The educator, the plant breeder, agronomist, entomologist, pathologist, agricultural engineer, economist, and the Indian farmer going about his day's work and causing the 'land to yield her increase,' may not always appreciate the full impact of their labors. ... [but,] In doing so they are adding stability to the whole world.⁷⁰¹

C. Subramaniam, the Minister of Agriculture during the Green Revolution offers a somewhat less sweeping narrative of the events in the Government of India's National Commission on Agriculture Report:

Let me recall here the events leading to the adoption of the New Strategy for Agricultural Development in India in the year 1965. After an impressive increase in agricultural production during the first two Five Year Plans there was a spell of stagnancy in the early 1960s. Population increased at a rapid rate, agricultural production failed to catch up, imports of foodgrain seemed elusive. Then came the crisis of 1965 and 1966 as a consequence of one of the severest droughts of the century. Steep falls in food grains production, scarcity conditions over large parts of the country, and rising food prices led to widespread distress. It was even predicted by some foreign observers that [there would be] one million starvation deaths in Bihar alone. The prophets of doom were proved wrong. ... it was during this period of crisis that we decided to step up our food production through the adoption of the New Strategy. ... This was facilitated greatly by the availability of high yielding exotic strains of wheat and paddy. ... The pace and progress again proved the skeptics wrong and ushered in the beginning of an agricultural revolution. And this is not confined to India; it covers the whole of South and South-East Asia.⁷⁰²

Each rendition of the narrative poses the questions: how did this narrative come to be? What work does this story do? What does it enable?

As is evident in the narratives above, the GR's "natural history" and success narrative picks as its "origin" the drought of 1965-66. The drought's severity⁷⁰³ provides a powerful foil for the transformations yet to come and supplies a "self-evident" referent allowing the dire food situation to be ascribed to "nature," by association. Causality is written in, implicit—aiding the narrative's

evasion of acknowledging structures, or of even mentioning any reasons for the situation leading up to the 1965 crisis. The structural factors contributing to or producing this situation are effaced—collapsed into a “centuries-old” problem of low yields and subsistence or into a temporary challenge of scarcity and stagnation. Constructing the problem as such provides a clear thread and a singular obvious solution: the new agricultural technology. With theatrical flourish, the HYVs (or in the RF narrative *Sona Kalyan*, the “Golden Savior,” specifically) enters to finally save India from “centuries-old” farming practices and a lack of local technical capacity or ability to improve agriculture.⁷⁰⁴ As this narrative constructs the problem as entirely outside of any political, economic, social, or even structural factors, addressing such factors is made to seem almost out of place, even presumptuous. Only (an impoverished and instrumental notion of) “culture”—old and new, as embodied in subsistence and in technology, respectively—fits in this storyline.⁷⁰⁵

The narrative’s framing, the powerful story of the “Golden Savior,” clings to this day, its simple narrative cohesion buoying it along, such that its connection to actual events or realities it (claims to) narrate becomes increasingly irrelevant. Such is the power of narrative: the tale, an un-tethered empiricist account, functions to write the record of events, for a popular national natural history.

Although this narrative is unapologetically “spin,”⁷⁰⁶ it should not be discarded—the representation is productive of lasting power which must be unraveled, not simply cast aside as untrue, dated, or irrelevant. Through a symptomatic reading this chapter interrogates the construction of the GR’s success narrative—a “natural history” taken up by the second Green Revolution.

1.3 | Method of Inquiry: *Reading the Green Revolution Narrative*

There is no important difference between stories and materials. ... stories, effective stories, perform themselves into the material world—yes, in the form of social relations, but also in the form of machines, architectural arrangements, bodies, and all the rest.⁷⁰⁷

HYVs (high yielding varieties) were to be the ‘engines of change’ that would modernize and radically transform traditional agricultures; they would be... ‘to the agrarian revolution of the poor countries what the steam engine was to the Industrial Revolution in Europe’.⁷⁰⁸

I attend to *narrative* in an account of agricultural development and hunger because—as the GR’s sedimented success narrative makes evident—representations (of situations, events, and problems) become inseparable from their “reality.” Representations are not only productive of

“reality,” representations are co-productive of, and come to co-constitute, that which is at stake. With the GR it is clear that the way in which the technologies and the events are discussed does not exist in a realm separate from or “outside” of the event itself. Rather, accepting that “language is a material practice... in the sense that textual and linguistic constructs are... reified or transformed into material things and practices in the world,”⁷⁰⁹ it is not that events and their discourses become muddled or inseparable, but rather that *language is productive*. Narratives do material work. The “things” that language becomes are not just stories, but also the subjects made and the policies constructed. The ways that we understand the world around us and events therein are produced through narrative as much as through their materiality.⁷¹⁰ As such, to understand the GR and its success narrative, representation(s), material practices, and on-the-ground occurrences must be read as constitutive of one another.

Further, how we understand such “things” frames the conditions of the (im)possible; that is, our conception of how things operate informs what we think can and should be done. Discussions of “world hunger” provide an example: some argue that to address hunger it is necessary to grow more food while others argue it is necessary to address poverty and distribution and in the meantime give food-aid to the poor. The “answer” in each case is written by how and what the “problem” is understood to be. Like most problems, the *problem* of addressing hunger exceeds the visceral state of physical deprivation and takes on another existence entirely, one defined by its many competing understandings. Hence, tracing how particular understandings come to be, and how they produce and/or define particular problems in specific ways can help reveal how particular forms of knowledge come to be; this in turn informs how policy approaches come to be. To construct an account of this relation, its underlying enabling narratives must be carefully excavated and attended to.

To execute this, the methods I employ are inseparable from their theoretical underpinnings—which has implications for how we conceive of possible futures. I seek to tell a historically contextualized account that is not linear or historicist. “Reading” is the method through which I proceed via dwelling in and “*revealing the mechanics of representation and reading the archive as literature.*”⁷¹¹ I suggest that a method of reading matters centrally—in this case in taking apart the narratives of GR success to construct an account of agricultural development, the specter of hunger, and the continuing work of the GR.⁷¹²

1.3.1 | *Reading: multiple texts to form the narrative*

Reading is, of course, tied in with narrating; the symptomatic reading in this chapter of the Green Revolution success narrative includes, for example: the Green Revolution made India food secure (as Majumdar invokes, above); the Green Revolution warded off the Malthusian specter (as Swaminathan insists, above); the Green Revolution was the “take-off” stage in Indian agriculture (as Sachs claims, above). These representations, cliché in any mainstream account of the Green Revolution are examples of the GR’s self-evident “common sense:” they assert claims but do not have to go through the work of actually proving these claims. While a myriad of individual accounts and narratives make up and reinforce this overarching narrative, my approach does not seek to conduct a symptomatic reading of each individual text, rather my focus is on the construction of the overall narrative of the Green Revolution-*as*-success. As such, I read multiple texts and narratives together.

The texts I read include (i) modernization and development theorists writing at the time, (ii) published accounts of actors involved, (iii) transcripts of hearings, conferences, speeches, Parliamentary records, and (iv) (declassified) archival records from the Government of India (GoI) and the US Government (USG), and (v) archival records of the private US foundations involved: the Rockefeller (RF) and the Ford Foundation (FF). As this chapter is concerned with the success narrative of the GR, I invoke material largely from (ii), (iii), and (v).⁷¹³ (Chapter Five relies more heavily on (iv) the “official” government documents.)

2 | Literature Puzzle: Navigating narratives contesting the GR as success

While the dominant and widely held narrative of the GR is that it astronomically increased India’s level of food production—securing the nation from the threat of hunger, enabling India to be independent of US food aid, and spurring development’s “take off”—this popular rendition of the GR has been thoroughly examined and critiqued. However, these critiques have been largely confined to empirical and statistical grounds. This is understandable given that the *success* narrative rests on the understanding—as M.S. Swaminathan articulates in the epigraph at the start—that via the new GR seeds and modern techniques, India produced a much greater quantity of food. As J.K. Bajaj (also in the in the epigraph at the start) explains, the government’s own production reports and agricultural statistics do not support such claims.⁷¹⁴ Given the “gap” between the field reports (i.e. the official data) and the popular discourse, a number of scholars have taken up the question of how this disconnect between the facts and the story of the Green Revolution came to be.

This literature interrogates the veracity of the GR's claimed results and asks what work the GR's significant social, economic and political changes brought, but it generally lets the narrative itself off the hook—as “just a story.” It fails to account for the fact that the GR *narrative itself* was then, and still remains, deeply important to the work of the GR—in fact, the narrative of the GR as a quantitative success not only lives on, it is the “healthiest” part of the GR today. To let the narrative itself off the hook is to allow its work to slip by, unexamined—which was and is the purpose of the narrative. Rather than rejecting the quantitative success narrative out of hand, it is necessary to ask how to understand it.

The literature poses the situation as follows: overall nation-wide production levels did not increase (according to GoI statistics and RF reports, the latter actually indicate a decrease⁷¹⁵). Yet, the GR is told as a story of modernization through increased food production rather than any of the many other possible presentations of its approach.

2.1 | Examining the Literature Puzzle: Where is the success?

In unpacking what is at stake in the axiomatic understanding that the GR was a *yield* revolution that made the nation food self-sufficient and able to feed itself, the common response in the literature is to declare that the GR was in fact not a revolution, that it was simply an over-hyped narrative created for a particular (geo)political conjuncture at a time when a “success” was desperately needed by all parties involved. This is a well-argued case that has been made with varying levels of complexity and analysis since the late 1960s. Mainstream (agricultural and economic) academic analyses of the GR continued well into the 1970s and more critical, or theoretical, scholarship on the GR has continued to address it over the last thirty years.

Transcripts of conferences on the GR in the mid-1970s and a number of academic authors insist that the only real conclusion about the GR that anyone “prone to take their homework seriously”⁷¹⁶ can make is that “the Green Revolution remains a Chimera or a non-event.”⁷¹⁷ Others probe the reasons why this “non-event” is so hyped and look for other causes behind this pervasive narrative. Some refocus the analytic lens, arguing as Sen does, that:

It may be held that it is quite wrong to look for revolutionary changes in a quantitative, and even more so, in a statistically rigorous sense. ... One can run into entrepreneurs who rotate their crops to face the nuances of change in relative prices, quite as well as their urban counterparts do, if not better. *If this is the Green Revolution in action what fool would look for it in a statistical time series?*⁷¹⁸

That is, since changes do not appear in national level yields or agricultural output, many were led to initially conclude that the “revolution” at hand is qualitative. It involves technological and

social shifts: for while it is the case that “[o]n the whole then, Indian agriculture cannot be said to have been through any green revolution... At the same time, it is true that *hybrid varieties* are receiving the attention of our researchers and administration and hence reaching the field.”⁷¹⁹ Others indicate that the introduction of these technologies themselves answers the widespread question of “why now?”—why has this talk of revolution suddenly appeared, given that “India’s food production has been *steadily* on the increase since the last two decades, almost keeping pace with her population. Why is it then that we hear of a green revolution only in the recent few years?”⁷²⁰

2.2 | Producing the Narrative: accounts of a quantitative leap in yields

To work through the representations of the GR, a key entry point is how the narrative operates to transform incremental changes into the clear break of a transformative event. It takes a situation which by a quantitative account (in 1974, well after the GR had ostensibly occurred) would seem deeply ambiguous:

All the time, the Green Revolution remains a Chimera, particularly to the economic statistician, or rather the ones who are prone to take their homework seriously. The figures show fluctuations and growth. But no structural breaks in the series can be discerned, even for wheat in Punjab. What is even more disconcerting is that for all the series almost any kind of a curve gives a fairly good fit. A straight line, an exponential curve with rising or falling rates of growth.⁷²¹

Or, at best, uninspiring, as Sen explains in 1974:

The *expectation is* that since the Green Revolution represents a sharp break from the past, *it will have raised the long run trend rate of growth of foodgrains output* considerably over the rate of the 3.05 per cent per annum established during the period of 1949-50 to 1964-65 [but, there was] an improvement that can be termed at best nominal. It appears that in terms of rates of growth of foodgrains output, the achievement of the GR has been grossly overrated. The long run trend growth rate improves from 3.05 to 3.26%.⁷²²

And renders it as a clear break marked by phenomenal change, as Norman Borlaug relates in 1970:

Yield increases of 15 to 20 percent will convince no one. Demonstrations showing increases of from 200 to 600 percent, that is, from 10 bushels to 75 bushels per acre, as have been widely demonstrated in Pakistan and India the past two years, have caught the peasant’s imagination, *built a fire or set a bomb under the politician and have triggered off an agricultural revolution of fantastic proportions.*⁷²³

The work of these sample demonstrations had the effect of producing the perception and discourse of a monumental event, a perception that not only remains, but one that performed significant work for decades to come. As Hansra and Shukla explain in 1991:

The *sample surveys* have amply shown that the transformation of the agricultural economy, which has appropriately been termed as the Green Revolution, resulted in phenomenal increase in production of foodgrains and income in the farm sector. It has *saved the country from grave social, economic and political crisis* and helped it to become not only self-sufficient in the food production but enabled it to join the food exporting countries of the world.⁷²⁴

The ideal test plot, or sample survey, comes to capture not only the national and global imaginary, but more, *its seemingly miraculous results come to stand in for the results of national agriculture itself* in the GR success narrative. Conflating these various levels feeds a master narrative of transformation via revolutionary yield increase.

To be very clear: I am not taking issue with the question of, or the representation of, the GR as transformational. It was. My concern is to excavate the nature of how its narrative and policy transformations came to be sedimented, written as natural, inevitable.

2.2.1 | *Quantitative and qualitative change*

Many scholars of the GR have concluded that the revolution was a qualitative phenomenon—not a quantitative change. The inputs (hybrid seeds, chemical fertilizers and pesticides, etc), were changing and re-orienting agriculture, changes which were actively transforming social structures, incentives, and political-economic relations, pushing them to be in line with an emerging regime of development.

This literature reveals many important insights about the historical moment, geopolitical relations, imaginations of modernity, and perceptions of political threats; in fact, they turn many conventional understandings of the GR on their head. However, while I rely on these insights, I do not take their argument as sufficient. Instead I suggest that there is more at stake than this analysis reveals: *first*, there is the question of how the narrative itself came to be; *second*, there is the question of how to account for the significant political and economic changes which the GR era ushered in; and *third*, there is the question of what work this narrative does. I agree with the earlier authors who argue the only apparent conclusion that can be made is that the “revolution” was *not in the quantity* of food produced, but in *the qualitative* aspects of food production. But, while building on their insights, I maintain that the framing of *the story* as a quantitative yield

success narrative itself does indispensable work and must be held onto and interrogated to understand the transformative work of the GR then or now.

The GR narrative is quintessentially a narrative of modernity—it is a narrative of the triumphalism of science over the “natural” and naturalized problems of hunger, population growth, and poverty.⁷²⁵ Framing the problems as “natural” rather than as social and political problems (i.e. a result of nature, rather than a result of inequality, exploitation, agrarian policy neglect, or social repression) constructs the issues at stake as problems that “development’s” interventions can and will solve, not deepen, and serves to define out all else. This narrative functions to produce both the desired image of “development” as well as a path to this “development:” the GR. While this narrative produces the conditions of its own reality, it cannot make them complete; holes remain that threaten to expose its narrative architecture.⁷²⁶

2.3 | Chapter Argument: The work of narrative

Reading the narrative with and against itself, I point to four main insights. First, this *narrative was prescriptive*: it set about to induce change and modernization by revealing tradition’s “price.” Second, it worked to legitimate the realignment of development (producing “higher” and more urgent stakes—immanent famine and the future of the nation—to serve as an imperative for inequality). Third, it functioned to silence the ongoing critiques and controversy (efface the alternatives). Fourth, it functioned to efface the continued effects of the structural and institutional shifts instituted by the GR.

The GR was indeed a revolution—but it was a revolution in *how* food was produced and governed, rather than a revolution in how *much* food was produced.⁷²⁷ The nature of this “revolution” is not that which it is most often represented to be; it was a “revolution” with much more extensive effects than simply increasing yields. *It was, in fact, a revolution* of the type that M.S. Swaminathan claims: “a *revolution in thinking... a totality*”⁷²⁸—but not in the way that it is commonly represented. The narrative representation in the popular imaginary of the GR—as simply a revolution in level of output, or a quantitative leap in production—conceals the significant work that the naturalized interpretation of the GR as “revolution in thinking”⁷²⁹ does.⁷³⁰ While it is tempting to assess the GR as merely a *construction* of success (given that it has been written as a quantitative revolution), to do so is to miss a larger point: the quantitative aspects of the success narrative were fundamental—but again, not in the way commonly represented. Unpacking the ways in which these discourses were produced and what types of changes were envisioned as necessary for this qualitative revolution (marketed as a quantitative

leap) to successfully take hold, I argue that the quantitative aspect (the imaginary which has since come to be dominant) came from *how* this revolution was sold to the people involved (initially administrative decision makers, planners, economists, farmers, and later politicians, bureaucrats, and the population at large). The quantitative narrative was designed to *induce people to adopt the larger qualitative shifts*: shifts in the government of food, and in how development is structured and managed. Though presented as a quantitative shift, the GR was more significantly a qualitative shift—in how food is governed, fundamentally in how development was structured and on whom development focused. These shifts were inaugurated through changing how food is produced, hence necessarily *changing the social relations* of production.

The GR is a project that in the name of securing “food enough” fundamentally reworked the nature of food (and “food security”) itself—via the way that development entitlements were restructured under GR policies. The GR not only re-worked agricultural production itself away from subsistence relations into market relations, but with this, also instilled a separation whereby (access to) food also increasingly came to be subject to *market relations*—a fundamentally biopolitical move (see Ch. 1). The narrative of the GR as a quantitative yield success was introduced to induce change based on both an assumption of resistance to change and actual considerations and rejections of the approach for various other (social, political, and economic) reasons, instilling a fundamental separation with the idea of (what later came to be called) food security: between food production and access to food. This severing—which underwrites the possibility of market relations, and what comes to be understood as “development” itself—continues to produce fundamental disparities, for instance, as manifest in the contemporary “paradox of plenty.” But the idea of *how* subsistence is moved away from: i.e. who is allowed to participate in this migration, on what terms, what their roles in the new market relations are, and what their place is on the path to “development” is crucial in attending to how this severing of food production and food access produce dispossession, hunger, and surplus—all in the name of feeding the poor and securing the nation.

3 | Instigating change: the work of “tradition”

India’s Minister of Food and Agriculture, C. Subramaniam, was one of the New Strategy’s staunchest advocates. He and others writing at the time detail their encounters with, and ongoing efforts to overcome, the stubborn resistance to change and “tradition-bound” thinking that they diagnosed at every level, from farmers, to planners, bureaucrats, other Ministers, scientists,

experts and political leaders. In the narrative he weaves of his protracted battle against “tradition,” the problem, as Subramaniam frames it, was with the *farmer’s* “traditional mentality.” Subramaniam’s strategy was cast as one of how to break farmers and other decision makers out of their attachment to tradition. The “science” of development policy became focused on how to do this—how to create the simple steps to progress and to make people see a value in this progress—when, in the development experts’ view, those people did not want to improve their condition and seemed perfectly content to live at a subsistence level poverty (see Ch. 3).

3.1 | Giving “tradition” a “price”

“I have met farmers all over the world who could not read and write, but I have never met a farmer who could not count.” -Orville Freeman, US Secretary of Agriculture⁷³¹

Tradition, Subramaniam argued, could be overwhelmed through a narrative of a revolutionary quantitative yield increase, which would prompt awareness of the costs of *not* taking action. The only catch was that the promised yield increase must be sufficiently overwhelming enough to inscribe a new logic. As Subramaniam explains:

It is said, particularly in relation to the developing countries, that it is very difficult to persuade illiterate farmers with small farms to adopt new technologies. I agree with this if only a small change is envisaged. For a marginal change in productivity *you cannot make* such a farmer change to new methods and technology. *But if it is of the magnitude of 200 or 300 percent*, and he considers that it is *possible on his own farm*, then even the most traditional man may decide to devote at least a portion, if not his entire area, to a test of the technology. *Why did we not go step by step*, increasing production by 25 per cent ... so as to increase productivity in a phased manner? *It was our view that with such small incremental improvements it would be very difficult to influence the attitude of the farmer to adopt this new technology.*⁷³²

The “experts” had decreed that these massive promises would be sufficient to break “peasants” out of tradition and prompt them to try a new approach. However, the issue was not (re)solved. The appropriate or effective mechanism to make farmers see it this way, to believe in this view, was still not entirely evident. Subramaniam suggests that he presented the missing key: not only must the yield increase be overwhelming enough to inscribe a new logic. More than that, the logic itself was foremost; the introduction of the *logic of calculation* itself was critical, the logic of price and exchange relations. As Subramaniam lays out:

How can the farmer be persuaded to accept this new technology and take the risks involved in it? After much discussion I offered them [the panel of experts—scientists, economists and administrators] an idea for action: ‘If the technology

we were offering the farmer gave only a marginal increase in productivity, of 15 per cent to 25 per cent or even 50 per cent, the farmer might not have sufficient *incentive* to take a risk, to discard their traditional practices and adopt new practices. But if productivity was increased by the order of 200 or 300 per cent, even *tradition could be shown to have its price.* If this scale of increase was demonstrated to him, I thought that even the crust of tradition could be broken and farmers might be prepared to take a risk. The important initial action was to demonstrate to the farmer that productivity increases on this scale were possible...on his own fields.⁷³³

To write this logic and break “tradition” the modernizers had to demonstrate that this was not simply a risk worth taking, but that the larger risk was to *not* pursue the particular path. This was to be done by giving *tradition a clear and calculable “price,”* or showing farmers the price they paid for refusing to modernize. This was meant to demonstrate that it was not merely adopting a new technology that was the decision in question. Rather, it was the choice to *not*-adopt the new technology that was the decision; with the mindset of “scientific” progress, “change” was to become the status quo. In the case of the GR this was demonstrated by showing that the quantifiable yield jump was so significant that they could not *afford to not* take this approach to production (accompanied by the contradictory promise that it was simply using an improved seed, and it would not transform any other aspect of society, or their way of life).

In this re-inscription, the framework of “price” and exchange relations was to enable the reversal of the “traditional mindset:” after placing “traditional” understandings within the logic of exchange relations, peasants would (in the process of understanding this) already enter the terrain of exchange value. From there it was a small step to get them to think about “maximizing” their resources.⁷³⁴ The appeal and transformational power of narrative was to be self-evident.

The leap into “development,” or “big push,” is what the *quantitative yield narrative* was designed to guide—the narrative itself was to perform the essential work of transforming subjects—transforming their “mindset” and their engagement with farming by forcing them to re-interpret each of these through the logic of exchange relations. And, in the narrative this is what happened, as Norman Borlaug summarizes: “Demonstrations showing increases of from 200 to 600 percent ... have caught the peasant’s imagination, built a fire or set a bomb under the politician and have triggered off an agricultural revolution of fantastic proportions.”⁷³⁵ Building on this, Subramaniam explained to aid donors at a conference in New York: “the response of the allegedly tradition-bound Indian farmer to the new agricultural technology is ‘*one of the miracles stories of modern development*’.”⁷³⁶

3.1.1 | *Convincing the Planners*

In Subramaniam's rendition of the policy process, this narrative was invented (or collectively stumbled upon) in a collaborative meeting between a number of administrative officials and himself, together scheming how to pull peasants' strings and animate them into rational action. However, reading on, another story begins to emerge. The nature of how this quantitative yield narrative was formed and solidified had little to nothing to do with "peasants" at all. For, it was not "peasants" that were holding back implementation of the New Strategy. Rather, as Borlaug complains (in a private letter to Glenn Anderson of the RF, India Agriculture Program):

It seems almost unbelievable that after you have nearly broken this program [the New Strategy] out into the open as far as wheat production is concerned, and after you have *so completely captured the imagination of the peasant farmers and broken their resistance to change, that this approach should be opposed by oversophisticated economists.*^{737, 738}

It was not just the Planning Commission that was opposed to the New Strategy; there was widespread opposition and plenty of controversy. As Subramaniam explains:

I came to the conclusion that there was no use trying to rush it [the New Strategy] in time for the 1964-65 season. I told my friends I was sorry to lose one year, but to avoid being confronted with opposition from all sides, I would give more time for this controversy to settle down, and prepare the ground for the introduction of the new strategy in 1965-66.⁷³⁹

However, after waiting a year for the "controversy to settle down,"⁷⁴⁰ the New Strategy was still deeply unpopular and remained caught at the level of the policy implementation and resource allocation.

The narrative of the GR's success came to be forged in the battles around the introduction of the New Strategy.

Deeming it "almost unbelievable" that the Planning Commission could be holding up the New Strategy, Borlaug insists that the Planners have no place in these "*technical decisions.*"⁷⁴¹ Yet, pertinent to the decisions that Borlaug is referencing is the fact that the new HYV test crops were not yielding the desired results. In fact, they were not yielding any better than the local varieties.⁷⁴² The trial data from 1964-65 was "not good:" the Mexican varieties, even with all the inputs, were barely better than local varieties. The Planning Commission was understandably skeptical, questioning the Ministry of Agriculture's policy of "concentration."⁷⁴³

The Planners did not agree with the logic of the New Strategy's central requirement; they did not agree with the argument that all the fertilizer and inputs should be concentrated on only farmers growing the new exotic HYV varieties, especially for such meager improvements in yield.⁷⁴⁴ On behalf of RF IAP, Borlaug is asked for any data he can pass along to RF and Ministry of Agriculture that they could use to convince the Planning Commission of the policy of "concentration" and HYVs, i.e. their ability to increase yield significantly enough that all of the NPK inputs should go to the big HYV farmers alone.⁷⁴⁵

The promise of a several hundred-fold yield increase was to give the seeds—these seeds being the fundamental and driving difference between the NS and the IADP—a much greater weight within the exchange logic that the NS proponents sought to guide the assessment of options and dominate the debates. The promise was meant to influence the Planners and officials in the administration—not the peasants at all. The logic of giving a "price" to the previous path—sidelined under the title "tradition" or "tradition bound thinking"—was to offer administrative decision makers a new framework in which to assess the "costs and benefits" of the HYVs.

While the immediate issue at hand was the necessity of the policy of "concentration," this questioning was deeply worrying to the New Strategy's advocates. For, the policy of "concentration" was the pivot of the GR. Given their failure to yield, the RF IAP deems the Planners "understandably" reluctant to go forward with the New Strategy at all—as it required them to re-allocate a significant portion of India's development resources and to sextuple the foreign exchange allotment. Moreover, this discussion was but one issue. The debate did not hinge on the results of these HYV test crops, but the huge yield increases were the HYV's selling point. The decision to go with HYVs and the NS had a significant "price"—not just the large financial "price" but also, and no less significant, analysts predicted very large societal costs of opting for the NS—namely increased social tensions and the deliberate production of inequity.

There were many significant large-scale policy changes that adopting the "New Strategy" would involve. The New Strategy's staunchest policy advocate, Subramaniam, lays out the context and some of these changes:

The Fourth Plan was under preparation at the time and the full financial implications of the new strategy came to be discussed in this context. The new strategy implied that (a) the agriculture-industry balance of Plan allocation would have to change drastically and (b) because of the finances required, particularly foreign exchange, the Plan would have to change the development strategy, giving it *a new ideological orientation*. A greater role would have to be given to private investment, both domestic and foreign, which would lead to greater reliance on the world market. ... New inputs like fertilizers and plant protection chemicals would

be used in a few areas with assured rainfall and irrigation in order to get the maximum protection. *This would mean favoring areas which were comparatively well developed* with regard to irrigation. This aspect was attacked, saying that it was *against Nehru's strategy to give priority to the development of backward areas*. The foreign exchange requirement of the new strategy also created problems. The requirement was projected to be Rs. 1114 crores over the Plan period. *This was six times more than the Third Plan allocation*. Fertilizers, seeds and pesticides were the main items to be imported.⁷⁴⁶

The Planners consideration of the issue did not stay within the bubble Borlaug wanted. Far from it; the policy was immensely controversial. Its wider social implications and likely socio-economic results (regardless if wheat yields were phenomenal or unimpressive) were predicted—the resultant inequities and social tensions were not “unknown” or a surprise.

3.2 | Debate + objections to the New Strategy

Given the extensive debate at the time, many scholars had carefully documented what they expected would result from the GR policies. Policy makers, government officials, Ministers, scholars, and many others knew very well that the New Strategy was predicted to increase inequality and produce other social tensions (which up to that time agricultural planning had deliberately aimed to avoid). One reason the New Strategy's allocation of resources was facing such sustained opposition was the widely shared assessment that this policy would necessarily increase inequality (even if at the same time boosting production among the best-off farmers). This policy choice was one that many found deeply objectionable and counter to the very idea, and socialist ideals, of development that India had been pursuing. The (more Nehruvian) path of development—defined as “growth with equity” for the aim of promoting social justice—was now seemingly cast aside in favor of the type of growth that it had been meant to counter. This policy choice was thus a clear change from the previous and existing policy approaches; the choice to go with the “New Strategy” signaled a decisive right turn away from the status-quo consensus around a Nehruvian approach. This abandonment of the goals and ideals of Nehruvian planning and development was a key contention of disagreement.

3.2.1 | Debate + objections: favoring those who need it least

Academics, economists, members of the Ministry of Agriculture and the Planning Commission predicted the results and were determinedly opposed to the significant change of policy course. Beyond the issue of land reform, the objection was to the overall approach—what Subramaniam had called the “new ideological orientation.” An orientation, which as Dr.

V.K.R.V. Rao⁷⁴⁷ explained, “amounts to giving benefits to some at the cost of others.”⁷⁴⁸ Rao details:

The selective approach we are following [with the New Strategy] certainly has its logic in production economics, but it is also going to increase inter-personnel [sic] and regional inequalities among our farmers. ... This approach is an extension of the principle of unbalanced growth as against balanced growth to agriculture. Therefore, *it is not justifiable from a welfare point of view*, because *the scarce resources are diverted to the most productive areas at the cost of the benefits which could have accrued to other areas if these resources were distributed equitably*. ... This situation is not such where the share of one is given to the other to save the latter’s life without adversely affecting the health of the former. On the contrary, *it is a case which adversely affects the growth of one in order to add layer of coating to an already healthy face of the other*. ... It seems *unlikely that intensive areas will constitute growing points from which the impulse towards growth will spread to the economy*, on account of scarcities and bottlenecks inherent in our economy. *This approach may decelerate the growth process instead of accelerating it.*⁷⁴⁹

Dandekar further builds on this critique of the NS’s “new ideological orientation,” criticizing the privileging of the already privileged at the expense of the rest—arguing that it is not only neglecting them, but putting them further behind.⁷⁵⁰ This is a policy result which Subramaniam himself acknowledges, explaining that:

Once these new varieties were introduced it would be the big farmers who would take the advantage of this while the *small farmers would be left behind*. This was likely to lead to social tensions within rural areas and it would thus be dangerous to introduce this new strategy unless land reform legislation was fully implemented.⁷⁵¹

Subramaniam echoes the predictions of academics, scholars, planners, and agricultural experts of what the effects of the New Strategy would be. This was a shared diagnosis; they differ not on the outcome of this policy, but in their value judgment of it; that is, to what extent this potential for rapidly increasing inequality and further marginalization of the poorer and smaller farmers was considered to be a problem, versus simply a necessity for development.

This “new ideological orientation” deployed an argument which invoked a framework of knowledge relations that—contradictorily—presumed an absence of power relations, inequities and power differentials. While the justifying rationale for the project was the necessity to focus on the best endowed farmers, the way the policies were created, deployed, and justified was ruptured from the start by conflicting assumptions. The presumption was that favoring the elite was necessary to feed the poor and the nation, and that the elite would provide a “demonstration effect” which was to help the poor to “learn” to become better farmers (see Ch. 3).

3.2.2 | *Debate + objections: it is based on unworkable presumptions*

Another critique that academics and other members of the administration leveled against the New Strategy—and perhaps part of the reason why the HYVs and the approach of the New Strategy were unlikely to produce as much as hoped for—was based on insights they had gained from the IADP.⁷⁵² The proponents assumed that after a few demonstrations among the farmers, knowledge about and practices of “modernization...would flow like water over a dam automatically,”⁷⁵³ however, this did not happen. Critics of the New Strategy indicted the (imaginary of) “knowledge” which the modernizers relied on, pointing out the realities on the ground which complicate the case of agriculture and rural development. Farmers often do not even know about the demonstrations, or are not in contact with other farmers outside their vicinity to know that they are taking a new approach.⁷⁵⁴ Documenting that the “demonstration effect...will not automatically flow to other areas, as is claimed,”⁷⁵⁵ their critique undermined the enabling assumption of the New Strategy’s trickle-down benefits. The assumption that knowledge will simply flow across the fields is a highly detached technicist assumption, and while essential to enabling the New Strategy’s policy approach, it is also an assumption that had already been proven empirically false both in practice and in studies.⁷⁵⁶ For rural development to occur, the program’s approach had to systematically reach out to all, especially to the most disadvantaged—rather than simply assume knowledge of modern technology would reverse course and begin to flow away from power, and towards the marginalized and excluded.

Additionally, critics pointed out that experiences with the IADP showed that “despite strenuous efforts, it has not been possible to step up the rate of application of fertilizers significantly except in a few of the Intensive Agricultural Development Programme districts.”⁷⁵⁷ Since this was the case even among the best-off farmers, there was little reason to think that this plan could succeed at the scale desired. On top of the failure of the HYV new seeds to yield much difference, the consistent failures of the IADP (which never met its production targets) brought into question the demand to reallocate development’s resources to the elite and increase inequality, while spending down the nation’s foreign exchange for these seeds (and some fertilizers). The Planners and the Finance Minister became arch-opponents of the New Strategy’s policy of “concentration.”

3.3 | The New Strategy comes up short

They [the Planning Commission] put forward all facts and figures with regard to the available resources, domestic and foreign, and made it clear that the *new*

*agricultural strategy was unworkable and therefore recommended a return to the Nehruvian Model with the coordinated development of the Community Development Organizations, Panchayati Raj institutions and Cooperatives.*⁷⁵⁸

Subramaniam explains the Planners response to the New Strategy, but as we know, this was not the end of the GR story. But what is of interest is that these long debates have been cleansed from the contemporary version of the GR narrative. How was this insistent opposition to the GR as *bad policy*, bad for India, bad for development, not only overcome (such that the policy was implemented), but more, how was it that this policy came to be renowned, regarded as the most celebrated and successful achievement of India's development trajectory.

The story of the transformation of the GR narrative is indeed one of “*a success in a field where success is relatively rare,*”⁷⁵⁹ as the Rockefeller Foundation book expounds. But, it is a success that echoes through the chambers of Parliament and the media elite, a story of success that has little (if any) relation to conditions in fields across India; for ordinary farmers were not its intended recipients. While the debates have been largely effaced, replaced with a success narrative and the structure of necessity, it is clear that this narrative was written not for peasants but for the elite (administrators and officials in the GoI, academics and policy analysts) whom it was designed to convince with a logic of overwhelming yield increases.

It was in these moments of debate that the success narrative of the GR was solidified. Thus, while Subramaniam explained that “Ultimately many came to the conclusion that perhaps it would be better to raise output in India even though it might create other problems”⁷⁶⁰ and Dowie likewise explains that the GR eventually convinced its many critics that it was necessary, despite its massive costs,⁷⁶¹ the debate and how it was settled—how it closed off the question of agricultural development—has been largely effaced.

3.4 | Framing the question for success

Lamenting that Planners must be appeased, Norman Borlaug replies to the RF IAP, expressing his deep frustration with the Planners who as he sees it know nothing about actually growing food but want to set the terms of how it should be done.

If these economic planners would confine more of their energies to obtaining a rapid expansion in fertilizer production capacity, to establishing and maintaining stimulatory prices for wheat grain, to providing transportation and warehousing facilities, and if they left the *technical decisions* in the hands of capable agronomists, the world would be much better off.⁷⁶²

Borlaug frames the question not as one of how to feed India and ensure development, but rather, elides the question and replacing its urgency with his solution (HYV crops). He declares that technical experts,⁷⁶³ not the Planning Commission, should make development decisions, i.e. the issue is not one of weighing policy options, but carrying out the specifics of one already adopted technical fix. Borlaug ends the letter stating that he is “confident that you are on the threshold of a world startling revolution in wheat production.” He assures the RF IAP that the satisfaction will be even greater when they reflect back and see all the foot dragging, lack of vision, and road blocks that they overcame—he offers consolation and guidance that they just need to “Close your ears to all of this bickering and *get on with the job*. I am sure that you will have the great satisfaction of seeing a real revolution in wheat production materialize before your very eyes.”⁷⁶⁴

In answer to concerns about the failure of the new HYVs to produce the promised “miracle,” the RF IAP is offered a promise—not the requested “data,” but—an approach, a narrative to bring to the Planners: the promise of a history-making revolution in wheat yields. Armed with the promise that even though the field statistics do not show it, a major breakthrough is just around the corner—a promise that it *will* happen if the Planners allocate sufficient resources—they are urged to charge ahead. In a later memo, Borlaug simultaneously credits and panders to the administration—“[t]he dynamic action that has been taken by India during the past two years to greatly expand its wheat production cannot be matched by any other nation”⁷⁶⁵—and then reminds the Planners of their duty to lead development and enlighten the masses. He reiterates their responsibility: “It is *all important* to India’s *economic and agricultural development* that this target is achieved. The Indian *farmer* is rapidly *awakening*.”⁷⁶⁶

3.5 | Building a successful revolution: guaranteeing success to the “tradition” minded

Reviewing the factors that distinguished unlikely development successes from failures, Albert Hirschman argued that decision makers had to be promised that any potential project was *merely* the implementation of a clear program that had already been tested, tried, and *succeeded* in many other places.⁷⁶⁷ Dubbing this phenomenon the “Hiding Hand,” Hirschman explained that the leaders must be assured that in adopting a new approach, they were simply taking their societies one established step up the ladder of progress.⁷⁶⁸ For, *any* uncertainty of results could keep the project from even being considered, much less making it through the process of resource allocation and implementation.

For a development project to succeed, its trajectory (including its eventual success) had to be *written in advance*. In this script the implementation was to be simply a matter of local

technicalities. Hirschman's significance and influence on American development policy overseas was far-reaching. As "John P. Lewis, former head of the India USAID mission, told Congress in 1969 *Hirschman had written the history of the Green Revolution in advance*. 'He taught many of us to realize that this is the way you expect successful development to happen'."⁷⁶⁹

The potential for any uncertainty of results, Hirschman assessed, was why agricultural development lagged behind industrial development—in industry the sequence of steps to modernization was more clearly demarcated and (hence industrial modernization *appeared* to be more) transferrable than agricultural modernization. The difference between the stages of industrial development and agricultural development also was mobilized to serve as evidence demonstrating the successful work of the "Hiding Hand." Hence the necessity to "industrialize" agriculture—to delineate it into a clear sequence of steps toward modernization. As B.P. Pal, the director of ICAR (the Indian Council of Agricultural Research), explained in the lead-up to the New Strategy: "It is *only* through the adoption of science and technology that we would be able to transform agriculture from predominantly a traditional way of life to *an industry*."⁷⁷⁰

3.5.1 | *The necessity of certainty for overcoming "tradition"*

The necessity of certainty and the hesitation to make unknown changes, applied foremost to leaders in "traditional" societies, but not uniquely to them. Such hesitation also marked the decisions of Western politicians and funders. It was equally necessary to convince the latter, as they had the power to make development programs possible or relegate them to being merely untested, unimplemented ideas.

USAID Administrator William Gaud—famous for coining the name "the Green Revolution"—consolidated the emergent agricultural changes under the title "the Green Revolution" in a speech to funders.⁷⁷¹ He was promising that there was a new possibility for the Third World, a possibility which would allow them to revolutionize production, eventually feed themselves, and build a safeguard against the specter of a "Red" revolution.⁷⁷² Pronouncing: "*The story of the Green Revolution is not a story of failure, it is a story of success.*"⁷⁷³ Gaud pleaded that this approach *would work*—the funders just needed the resolve to fund it—if given a chance, this program was certain to transform agriculture in "backward societies."⁷⁷⁴ When Gaud "invented" the Green Revolution in 1968 it had not "succeeded" yet—the promised "success" is yet to come. This declaration of success was a strategic rhetorical device in his plea imploring funders and decision makers to finance foreign agricultural aid, promising that if the support is

continued, India “hopes to achieve self-sufficiency in food grains in another three or four years. She has the capability to do so.”⁷⁷⁵

Likewise, in a speech in New York less than one month later, Subramaniam⁷⁷⁶ assured American funders that what India was achieving under the New Strategy (now known as the “Green Revolution”) was unparalleled: “[a]s a feat of human engineering, this has scarcely an equal in history.”⁷⁷⁷ He implored them that for continued funding for the New Strategy, stating that via the New Strategy, India was changing—no longer to be regarded as “a patient without hope, deserving to be abandoned.”⁷⁷⁸ It was this “New Strategy” that was working—that was finally succeeding in “*changing India from a sick man of world agriculture into a dynamic food producer.*”⁷⁷⁹ Further, he assured his audience that they could not decline to continue funding the project at this late point, just when “the response of the allegedly tradition-bound Indian farmer to the new agricultural technology is [proving to be] ‘*one of the miracles stories of modern development*’”⁷⁸⁰—how could anyone allow the long-awaited miracle to be cut-off before its culmination.

3.5.2 | *Defining risk, Assuring success*

In India the promises Subramaniam had been making over the previous three years of intense debate were of a somewhat different nature. In his battles with the rest of the administration Subramaniam claims that he repeatedly assured the rest of the administration, the Planners,⁷⁸¹ prominent Ministers,⁷⁸² Parliament, and other government agencies, as well as independent academics and scientists, with the argument (the same one that he claimed to use on the peasant) that there was *no risk*—the risk was of not acting. The risk in acting, if any, he insistently maintained, was worth taking, in fact, India could not afford otherwise. As Subramaniam recollects:

...many well meaning friends came to me and asked[:] ‘Why do you take this unnecessary risk? ... we have to take the realities of the situation into account therefore, let us not plunge into these new ideas which have not been fully tested.’ But I told them that Jawaharlal Nehru once said: ‘Success comes to those who dare and act, it seldom goes to the timid.’ This was an area where the risks were two fold—one was a *risk of continuing scarcity*, the other was that in trying to remove scarcity something would go wrong. Thus both choices involved risk. *I thought facing scarcities was the most dangerous and therefore wanted to take this risk and launch the program.*⁷⁸³

In his recollection, Subramaniam clearly turns the argument of his “well meaning friends” on its head: insisting that the “risk” at stake is not the “New Strategy,” but rather the risk lies in doing nothing.

Further trumping Gaud’s promises of success, Subramaniam offered not just a guarantee, but a tangible insurance policy that the GR would succeed: he insisted that if anyone lost any money on the strategy they would be repaid in full and that if even one person died of hunger because of this New Strategy he would immediately resign as Minister of Agriculture.⁷⁸⁴ The flourish of his claims lasts to this day—not because they were carried through⁷⁸⁵—but because they fortify a larger narrative of the GR’s status as an indisputable success for all.

3.5.3 | *Circumventing the Planner’s focus on equity with the “natural law” of efficiency*

Guaranteeing the certainty of success still left unresolved the question at stake in this ongoing debate: how resources should most effectively be allocated. This was the question Borlaug was upset about—not the “yes or no” to the New Strategy itself, but rather—that the New Strategy was caught on the terms of its central “technical” requirement: the question of “resource” allocation (i.e. the policy of “concentration”).

The criterion of assessment was “maximizing the output with limited resources in the shortest possible time.”⁷⁸⁶ It was not this logic that was in question; rather, the debate came to turn on *the means* of maximizing resources: what should this look like, how to most effectively maximize the resources in limited time (i.e. *who to attend to, how, how much, and when*).

The New Strategy’s advocates insisted that given the “scarcity,” the only way for the nation not to starve was if resources were allocated “efficiently”—by which they meant concentrated among only a very limited group of the best endowed farmers. This was a technical rendering that allowed them to invoke necessity as an alibi. That is, they could claim that while this might not be the most equitable—a fact which they could then acknowledge was unfortunate—it simply was not a matter of “choice.” Instead, it became the “nature” of scarcity and efficiency that demanded this sacrifice of the nation, all for its own good. While the NS’s advocates insisted that the NS was the only way for the nation to meet its food targets, opponents insisted that “[o]ur aim is maximizing the output with limited resources in the shortest possible time. The principle of selection of areas runs contrary to this purpose.”⁷⁸⁷ That is, they suggested that the NS’s fundamental premise of selecting only the few best endowed farmers was fundamentally in conflict with the logic as well as the mathematics of how to most efficiently maximize resources.

3.6 | Outside of debate, it comes into being

While the claims that forge the success narrative did important work, it was not these promises that pushed the NS through into policy in the end. Instead of becoming mired in policy debates, Subramaniam narrates, the problem was resolved without the need for debate: when Indira Gandhi became Prime Minister there was a top-down initiated change of Planning Commission leadership. Subramaniam was appointed to the Planning Commission and the Commission's stance changed accordingly—the New Strategy and supporting policies were adopted:

A year later, in August 1966, with me [Subramaniam] in the Planning Commission, a new draft outline of the Fourth Plan was formulated which read as follows:

*'If our dependence on imported foodgrains has to cease, it is necessary to make far greater use of modern methods of production. A new strategy or approach is needed if we are to achieve results over a short span of time. During the last four years, as a result of the trials conducted in several research centers in India on exotic and hybrid varieties of seeds, a breakthrough has become possible. These varieties are highly responsive to a heavy dosage of chemical fertilizers. The long term objective is to organize the use of high-yielding seeds together with a high application of fertilizers over extensive areas where irrigation is assured.'*⁷⁸⁸

But just because the New approach was approved by the Planning Commission and was funded—and despite the fact that “[u]ltimately many came to the conclusion that perhaps it would be better to raise output in India even though it might create other problems”⁷⁸⁹—the issue was far from resolved.

4 | The narrative's form consolidates

It is at this point that the success narrative fully takes form. Subramaniam's appointment to the Planning Commission is not what created the quantitative yield narrative; that narrative had already been put to work. But, while the core issues in contention remained much the same, the work of the narrative shifted towards supporting the tactics or “technical” aspects of achieving this success—in the name of the poor and the nation's in/dependence.

As the debate increasingly shifts to one of technicalities, the narrative also comes to take on a moral righteousness—the invocation that the NS is necessary as the only means for “the nation” to retain its sovereignty. As Subramaniam explains: “Even if ... there was a certain amount of social tension, the new technology provided the prospect of self-sufficiency for the country in

foodgrains.”⁷⁹⁰ Some segments of the administrative elite were still not convinced about the necessity of the NS; the *answer to getting the elite “moving”* was related to, but distinct from, the approach to get the farmers to adopt change. The guaranteeing of success was important as a *pull* factor, but there also had to be a clear necessity, a *push* factor, for the decisions makers and administrative elite. The threat of imminent hunger and the nation’s starvation performs this work. In the discourses constructed to convince decision makers “the nation” itself is harnessed as the imperative for the New Strategy. These claims also come to forge the agrarian elite as a subject. This becomes evident in the discourses of liberal responsibility; the argument that the NS’s approach of privileging the best-endowed farmers is necessary to help the poor becomes more clearly articulated. As Subramaniam maintained: “There has been a cry that it is *only the better-off farmers* who have been using the fertilizer so that *we have been only subsidizing* them. But, you have to strike a balance because if they do not use the fertilizer they will not produce and the *whole nation will have to starve*.”⁷⁹¹

4.1 | Defining the terrain of debate: a moral imperative

Responding to widespread opposition and insistent critiques of the New Strategy, Subramaniam’s answer aims to define the terrain and to raise the stakes of the question of input distribution. His insistence that if the best endowed farmers are not provided the subsidies to increase their production, the poor, and the nation as a whole, will not even eat⁷⁹² relies on a division between the feeders and the fed. In this move, he fortifies the nascent realignment of development as a project of subsidizing the elite in the name of “the nation” and “the poor,” and forges the subject of this development project; further, he creates a moral imperative for this realignment.

Subramaniam acknowledges that the NS would increase inequality only to immediately dismiss this as not the issue of concern; he centers his argument on the necessity of the GR in the *name of the poor*, and on the inequitable approach as mandated by “nature” (as manifest in the *materiality of the seeds and the urgency of famine*.) He is certainly aware of the need to attend to the poorest in society; the question is how this should be done. He answers this question implicitly, by (re)defining who the subject of development action is. This answer has had lasting significance.⁷⁹³ He explains:

Our agricultural programme should be such that it *gives new economic strength to these poorer sections. How to do it is the question*. These are the four aspects which will have to be taken into consideration. It is not as if by a marginal increase of 5 to 10 per cent we would be able to bring about this change. *What is*

*important to realize is that only a massive increase, by 100 or even 200 percent will solve the problem. Is it possible? That is the question. Fortunately today developments have taken place in science which can make this possible.*⁷⁹⁴

Given that Subramaniam had already made clear that the “poorer sections” will not be the ones using this new technology, his answer should elicit pause. He is implicitly arguing that the well-off farmers must be given access to technology to produce more—a lot more—for the poor to gain the trickle down effects of this “new economic strength.” While he claims that the agricultural changes need to be *for* the poor, the question of poverty is left unasked and unaddressed. As is the question of how modern science and agricultural technology will be used to actually aid the poor. The project, enacted *in the name of* the poor, harnesses and exploits their material exclusion to promote projects that then consolidate their marginalization. That said, the purpose of these projects was certainly *not to intentionally* reinforce poverty nor to further entrench or produce marginalization. Rather, the GR proponents argued that this approach was simply the “most efficient.” Given the imperatives of feeding the nation, while the intention was “not to hold some areas back for the benefit of others,” at the same time, the shifts this approach introduced made it clear that “[t]he slogan of balanced regional development should not be taken seriously.”⁷⁹⁵

Hence, while the “New Strategy”⁷⁹⁶ consolidated the marginalization of the poor and produced the elite as the subject of development, the process was more than one of exclusion. It was also, less explicitly, a project of naturalizing the exclusion (and eventual dispossession) of small and marginal farmers—in the name of efficiency and “food enough” for the nation (the language of food security would not emerge for another ten years).

While the NS’s advocates represented it as the most rational project for producing development with the most efficient allocation of resources,⁷⁹⁷ in doing so, they also position the NS and this development process *against the realm of politics*. That is, while the claim is that the NS is only a change from the previous Nehruvian approach of “passing up growth for the goal of equity and social cohesion,”⁷⁹⁸ in producing a new ostensibly objective criteria of maximizing limited development resources, the NS advocates establish a new criteria of assessment. The Nehruvian approach comes to be cast aside, dismissed as “tradition” and resistance to rational progress. The socialist ideals are not rejected, they are still seen as “ideally” good, but “impractical”—an ideological quest for an essentially impossible dream of economic equality—a quest which in the emerging zero-sum logic would come at the expense of the nation’s progress and autonomy.⁷⁹⁹

4.2 | Defining the terrain of debate: invoking nature and the technical

The question of the distribution of resources remained the pivot of the NS. The narrative framed the problem as a “technical matter” of what the seeds required, i.e. an issue best left to “experts” to resolve, but this rendering of the discussion into one of technicalities did not shut down debate or determine what path should be taken. Some of those who had come around to be supporters instead of critics of the GR continued to push for what Subramaniam had promised: adjustments to make agricultural policy and development more equitable. Discussions continued on the issue of intentionally increasing inequality—as a direct result of how the distribution of the scarce resources (e.g. seeds, inputs and support prices) were allocated. Thus even if, or when, the Planning Commission accepted the request for increasing the allocation of government resources to new seeds and inputs, the central question of how (i.e. to whom and in what proportion) these resources should be allocated was still not agreed upon.

In the narrative of the GR’s success, this question was to be understood as a “technical question” of what the nature of new *seeds themselves required*. The question of allocation of resources, Borlaug maintained, should not be in the hands of the Planners at all, but should be based on factors which were clearly not up to the Planners to decide (i.e. the nature of the seeds). Hence, Borlaug’s insistence that all such “technical decisions” should be made only by experts, in this case “capable agronomists.”⁸⁰⁰ This argument was key to the effort at *writing out* resource allocation as a social *choice* (by rendering it simply “technical”). Such a writing effaces the massive social costs of allocating resources in the proposed deeply skewed manner. However, making this case proved difficult. For while the “economics” of “resource maximization” was the terrain of debate and the metric of assessment, the statistics on the most efficient allocation of these resources became hotly debated.⁸⁰¹

4.2.1 | *Debating technicalities—the needs of the seed*

A discussion of “maximizing scarce resources in a limited time” and drawing lines of distinction between questions as both social *and* technical vs. purely technical offers insight into the work of “nature” in the success narrative. The Statistical Institute of India took up the question of input distribution and determined that if the same limited quantity of fertilizers were: (i) equitably distributed or (ii) distributed selectively according to the New Strategy’s criteria, the former would produce higher yields than the latter approach of allocating all of the fertilizer to the “progressive farmers” using the new HYV seeds. As Subramaniam explains:

Among other inputs required for making this programme a success, fertilizer was perhaps the next most important [after the seed]. ...Given our domestic supply situation it was a matter in the first instance of approaching the Finance Minister for the allocation of foreign exchange. At that time, however, the Statistical Institute of India took up this *problem of fertilizer distribution and came out with a devastating paper on my strategy*. The new strategy depended upon intensified fertilizer use at the level of 60 to 100 kilograms of nitrogen. Technical statisticians worked out the utilization pattern of fertilizer which would yield the best results. In particular they examined the *question of whether intensified use in limited and specific areas at the level of 60 to 100 kgs/h* [recommended as necessary for HYVs] or a widely distributed use at 10kgs/h would yield economically better results. *Statistically they proved that if we distributed and applied the available supplies at 10 kg/hectare in an equitable manner or even at a lower level of 5 kg/h, [the] total yield would be higher than using the same quantity, at that time a limited quantity, of fertilizer in a concentrated way in these specific areas.*⁸⁰²

Other academics took up this question as well. For instance, Harpal Singh⁸⁰³ calculated “that the total aggregate return of the scarce resources is maximized by dispersing them over wide areas in small doses rather than by concentrating them in fewer areas in high doses.”⁸⁰⁴ His findings were “If fertilizer returns are to be maximized, it will be [the] *economically rational*” thing—based on the existing science of fertilizer marginal returns—to *spread the same fertilizers over 333% more area, producing a much greater economic benefit.*⁸⁰⁵ This would have greater marginal returns, because:

...the lower the [current] level of total input, the greater would be the marginal physical product with the use of fertilizers, pesticides and improved implements. *Therefore, inputs should be spread over areas with the lowest input levels.* Thus, a much greater area can be benefited and a much larger increase in aggregate output obtained with the same quantity of fertilizers than appears to have so far been visualized.⁸⁰⁶

The interpretation of the question as Singh poses it presents the issue as both a social and a technical question: how to find the best path to maximize output over all.

Subramaniam on the other hand, continues to frame the question as *an issue of technicalities*. Writing out of all social relations (even exchange relations) he appeals instead to a construction of “nature”—manifest in the seed or in “scarcity” and famine—as the final determining criteria. But, the studies on maximizing resources begin to unravel his argument. In response, he mobilizes the new seeds to re-write “maximizing resources” according to a new logic—there is “*no use in analyzing the question in terms of the limited quantities of fertilizer available.*”⁸⁰⁷ He invokes a set of logics outside of the economics and statistics of fertilizer input, explaining away the calculations against allocating resources only to the HYVs: “I think statistically they were

correct, but what they failed to note was the difference between the fertilizer response of traditional varieties and the fertilizer response of the new varieties.”⁸⁰⁸ With the HYVs, the material conditions of [the] modern technology could be framed to provide the needed substance for his argument to set aside equity.

Up to the 10 kg level the yield gain from the new varieties was almost imperceptible, whereas there is a much better response from the traditional varieties up to this level. Once above 10 kgs [of fertilizer], however, the yield response curve for the traditional varieties flattens out and becomes negative beyond a certain point as the crop lodges ...For high-yielding varieties the yield curve above 10kgs slopes upwards steeply to, say 60 kgs, where it too flattens out. If fertilizer applications are considered at the low level of 10kgs, naturally the traditional varieties have the advantage, but at higher dosage levels, production from the new varieties is 200, sometimes 300 percent more. *So there was no use in analyzing the question in terms of the limited quantities of fertilizer available* [as the question had previously been framed].⁸⁰⁹

Without proving that the “natural advantage of 60kgs vs. 10kgs to actually produce more,” he asserts that the question itself is now irrelevant.

The quantitative yield narrative was not just offering a promise, it was rendering the existing science of fertilizer distribution useless, and offering a new logic. “Nature” (the drought and the requirements of the seeds’ inputs) was enlisted as enforcer of the necessity of this controversial New Strategy. The “nature” of these seeds is used to forge an argument for the necessity of the policy of “concentration”—the magic number of 200-300% yield is to render all the analysis of “no use.”⁸¹⁰ The “nature” of the growing requirements of the seed decides which farmers can succeed. Since “success” in the GR policies was a status produced through significant state investment and resources, being relegated outside of this category (i.e. cast as the non-“successful” development subject) as the vast majority were, had significant material effects.

Like “success,” the narrative of “miracle seeds” was also essential to the work of the quantitative success narrative. Not only was the “nature” of the new seeds deployed to nullify questions of whether equitable distribution should be a goal—it also functioned to eradicate the question it could not answer: that the NS could not be shown to be more “efficient” at “maximizing” resources than the other more widely distributed approaches to input allocation.⁸¹¹

While it is acknowledged that this approach will increase inequality and upset the “socialist pattern of society,” the imminent changes are decreed as unavoidable—a status ascribed to “nature” (the nature of the seeds), or perhaps more correctly, to the limits of seed science at this point in time.⁸¹² More accurately, this should be assigned to policy: the policy choice to not incorporate the poor. This strategic exclusion of small farmers—or “the problem of the small

farmer,”⁸¹³ as it was referred to at the time—was part of the social and political questions that were too difficult to tackle directly. The injection of new technologies was to circumvent and, in effect, resolve this difficulty. The work of the narrative of the GR as a quantitative success (numbers and the spectacular yields in a few plots) provides the *material justification* to argue for a shift in development from focusing on all to focusing on the few. After acknowledging why critics were challenging this new strategy and the necessity of social and structural change for effective and equitable development, Subramaniam invokes urgency to further the GR narrative, arguing that regrettably, there simply is no time for this: “Unfortunately we could not wait”⁸¹⁴—the stakes are too great.

4.3 | A push factor: harnessing “the nation” itself as the imperative

This approach, the skeptics and critics are assured, is simply necessary—while it might be undesirable that many lose out, that inequality will increase and that the bulk of the nation’s development funds and foreign exchange subsidize solely the most successful surplus-producing capitalist farmers (who it might appear are the least in need of assistance)—there is no alternative—“because if they do not use the fertilizer they will not produce and the *whole nation will have to starve*.”⁸¹⁵

The New Strategy’s predicted inequalities were not necessary or inherent to development or increasing agricultural production. They were a choice, were *socially produced*: a result of the type of agricultural development, the type of technology, and the type of subject, that the approach selected. While the Planners and others advocated supporting smaller farmers with a more broad-based approach, Subramaniam was insistent that this was not the way to go. The production of increased inequality (and dispossession) could be avoided through a different policy, but that path was not chosen.

Responding to critics, Subramaniam reframes the argument again, taking the focus away from increasing inequality. This is *not* the issue India should be concerned about—that, he dismisses, can be easily managed with proper policy—instead, dependence on US food aid is the most pressing policy concern. In framing and presenting the issue in this way, Subramaniam harnessed Western neo-Malthusian fears and Indian popular resentment of the humiliating strings tied to food aid. He created a dichotomy—between dependence, hunger-starvation-poverty, and stagnation, or outsmarting these via the Western technological way—and presented this zero-sum choice to decision makers. The GR was reframed—for the risk averse. Subramaniam argued that it was either: this approach or dependency on the Americans. And, as he knew that the Americans

were demanding this approach as a precondition for food aid (see Ch. 5), it became this approach or starve:

Again, I posed the option available. I did not agree that we would have to depend upon America for either fertilizers or research, but for argument's sake, granting there might be some dependence on the West (not necessarily on America), what was the better choice between the two? We faced starvation or we had to import and appeal for aid. Accepting the latter, I asked would you rather continue this dependence on American food grains? Was that preferable to raising domestic production? Instead of importing food, was it not better to import fertilizer and plant protection chemicals to help raise production?⁸¹⁶

The zero-sum choice he presents is not a choice at all, but a threat of what will happen (promise of doom) if this policy is not adopted. In constructing the view that the biggest risk is to not act, Subramaniam invokes the specter of hunger and scarcity to construct an imperative for the GR.

Subramaniam did not rely only on threats of doom and guarantees of success. For, the Planners, it seemed, were not content with promises of certain success if they thought it also meant inequity and the certainty of social tension and conflict. He offers the additional promise of redistribution, complementing this promise with a trump card—the detrimental outcomes of other policy options.⁸¹⁷

*I put forward the choice: Would you like to have such high productivity and attain self-sufficiency within the country and face these tensions by distributing these foodgrains on an appropriate welfare basis, or would you prefer to continue dependence on foreign imports indefinitely? Unfortunately we could not wait until land reform legislation was implemented effectively. We had been trying for the last ten years but owing to political and other factors it had not proved possible to implement it properly during this period which would mean we would have to postpone this new strategy indefinitely. Ultimately many came to the conclusion that perhaps it would be better to raise output in India even though it might create other problems.*⁸¹⁸

Subramaniam repeatedly explains that this approach is necessary—he reframes the question at stake, invoking a nationalist cry and a moral imperative for the realignment of development's focus away from the Nehruvian approach⁸¹⁹ He puts India's sovereignty on the line in this question. With the stakes re-weighted, the confines of the debate are accordingly realigned.

5 | Counterfactual: the challenge of the 80% and “the problem of the small farmer”

In the success narrative, scarcity and Malthusian doom are written as natural and the GR as the way to conquer nature—hence the need to concentrate on the best with a “war-like” urgency.⁸²⁰ While the language of wars, battles and the urgency of imminent famine deploys a

weaponized Malthusian imaginary, the question is: what work were these images doing? It is against such a scenario of doom that the GR can be held up as the success.

The success narrative's account of the NS as a quantitative yield leap conceals that the counterfactual at the time was not Malthusian doom, but a more equitable approach. In popular representations today, that alternative cannot even be seen—it was effaced by the work of conflating “the problem” with “the solution.” This conflation functions to write out not only that there were, and are, other ways of addressing the problem, but also any consideration of the problem itself. Instead, the concern is with “managing” something else entirely: the implementation of this one technological response as a stand-in for the larger problem.⁸²¹ Attention to other possible paths is effaced once existing counterfactuals disappear (be they land reform or broad-based agricultural support policies that included all segments of the population). Rather than Malthusian doom, the actual “counterfactual” to the naturalized tale of the GR is evident in the discussions preceding and throughout the GR debates. There were repeated calls for the need to include the vast majority of (small and dry land) farmers and to pursue more equitable policies—either alongside the New Strategy, or in place of it.

The New Strategy's failure to produce expected yields after several years led to renewed demands for reallocating the state's financial resources to include supports for the majority. It is in this context that redistribution and welfare policies step in—as “answers”—to quell the debate about the massively controversial realignment of subsidies to the uppermost layer of rural society. It is also in these discussions that the argument that “the problem of the small farmer” is first and foremost a “cultural problem”⁸²²—and the subsequent logic that thus the small farmers need to learn and benefit from the success of the elite—unravels. These discussions illustrate how the GR success narrative responds to ongoing critiques and covers up the diverse array of alternative and complementary approaches.

5.1 | The GR's Approach is Called into Question and Restated

Recently several newspaper reports have appeared with titles such as “*The Green Revolution Abortive: Critics call for a Fresh Agricultural Strategy*” and “*Fresh strategy on Food Front Vital.*” These stories report that recent downward revisions of estimates of 1968-69 foodgrain production have brought to the surface doubts about the long-term usefulness of a food strategy based mainly on high-yielding varieties. Comparing the differences in foodgrain production in 1964-65 and in 1968-69 (anticipated) with growth in productive inputs such as fertilizer consumption, irrigation, and area under high-yielding varieties leads these critics to conclude either that the yardsticks are wrong or that “*the high yielding varieties have not produced any results.*” They, therefore, argue for a

“fresh strategy” giving *greater focus to the nearly 80% of the cultivatable land now dependent solely on rains and to small farms.*⁸²³

While the RF notes in this discussion paper that their approach is being critiqued and rejected, what they do not note is the enabling role of their portrait of smaller and poorer peasants as inefficient and resistant to change in licensing the IADP and the New Strategy to be enacted as projects that explicitly “*singled out small farmers as one group which may suffer relatively to other economic groups.* In a country which is dedicated to developing a Socialistic Pattern of Society... the implications of inter-personal distribution cannot be ignored.”⁸²⁴ The RF’s internal memo notes this only after, and *in response to*, a resurgent crisis and growing controversy around the failures of the New Strategy.

At this time the GR policies were implemented, but were not meeting their production goals⁸²⁵ nor increasing yields. Calls to abandon the GR approach were mounting across multiple segments of society and gaining prominence. Seeking to put to rest the resurgence of critiques and calls for abandoning the controversial New Strategy, Cummings and Ray (of the RF India office) suggest that the critiques are wrongly focused. They assess that while it is clearly the case that:

...some groups of people and areas of the country have not participated as fully as others from these technological gains. Rather than indict a program for failure to do what it was not intended to do ... the *production and [the] welfare* targets of [the] agricultural program should be explicitly recognized [as separate] and instruments best suited for these *two purposes* should be advocated on their *own merits.* An *accelerated New Strategy*, itself, is the most promising base on which to add these newer [welfare] programs.⁸²⁶

Thus, while the RF India office acknowledges that the small farmers were by design excluded from the original approach of the NS, they suggest that they can now be incorporated back in, not as subjects but as dependents. If this is what is necessary to sustain support for the NS, then welfare programs should be designed for this end. They did not and do not advocate that small farmers should be excluded from all benefits of development. Rather, they advocate for an explicit shift in approach, one based on (implicit but) distinct subject positions in development policy for the feeders and the fed.

The RF response that advocated a continuation of the NS—but coupled with more explicit welfare measures—should not be confused with a response advocating production support for poor or small farmers in the way that the larger GR farmers were supported. Rather, this response advocates a clear *decoupling* of questions of food production versus access to food (food

distribution). The two goals, the RF paper maintains, should not be confused. They argue that if these goals could be understood as entirely separate social and economic projects, then an acceleration of—not the abandonment of—the NS would provide the strongest base upon which programs of social inclusion and redistribution could be built and expanded, so that the poor could be re-included into the nation’s development imaginary. The role, or status, assigned to the poor upon their re-inclusion is not as development’s subjects, but its object.

The logic of this argument rests on two key presumptions: namely, that the poor will be re-included, but first (a topic less interrogated today, but much more controversial at the time) that the GR will actually increase production. It should elicit pause that they invoke this claim *immediately after recognizing* that this very question is at hand only because the field statistics indicate that the GR approach did not increase production. But, there is no pause. Their answer—keep going, there is no problem at all, in fact, this is the “most promising” tactic—reveals the indispensable work of the success narrative in concealing the dispossession of an entire class of “small farmers.” This defense for a “New Strategy”—one that was not producing increases in yield sufficient even to provide for the farmers it was driving out—is a legacy that continues to this day.⁸²⁷

The GR advocates were not oblivious to the effects their policies were to instigate. They simply thought of them as inevitable to modernity, and the problems as par for the course. Such issues were best addressed by moving away from subsistence and into a more diversified economy, including welfare and other redistributive schemes if necessary to make the transition. In essence, the goal was to move away from subsistence agriculture by any means necessary. It is based on the presumption that the peasants’ labor would be absorbed in other sectors of the “economy,” but, this also tautologically means that all are not allowed to sustain themselves. And, if “the economy” cannot (or can *not yet*) support them in other sectors, they are rendered in effect superfluous, unnecessary to development (see Ch. 1). This is, after all, what a success narrative presumes and demands: not everyone can be a success.

In response to their critics, the GR advocates add that the peasants can be helped out, fed, dragged along to take-off. The development project goes *around*—not through—them. It does not even need their labor to produce surplus, if the “economy” is not (yet) ready for them. This is the technocratic approach at work—not wanting to deal with complicated “political” questions, allowing the “nature of the seed” to stand in as the criteria determining development’s path—effacing the political nature of the choices enacted in its name.

5.2 | The narrative functions by writing its counterfactual

Success always has (and is defined by) the trace of failure. Through the narrative of impending doom, the GR's architects seek to confine the ever-present trace of failure so that it can be managed—failure would be clear: famine and starvation. Thus, the actual results of the New Strategy—no improvement in the food situation while the cost of the required inputs uses up all of India's foreign exchange⁸²⁸—is not “failure” on the radar. Likewise, the mounting demands to focus on the 80% of farmers not just the elite—given that the New Strategy produced no increased results—is not a question of “failure” either. Having defined the trace of failure into a Malthusian doom scenario, the “success” they narrate need not be an empirical state, but rather is defined by, and is an effect of, what it is not (i.e. Malthusian doom).

The attempt at defining and containing failure was an attempt at writing the counterfactual, an effort at writing the story of the GR as a success. It allowed the quantitative yield narrative, for all its factual limitations, to be used as an agent of success. The “success” narrative was forged in response to the challenges to, and the failures of, the NS approach. It grants one possible course of events the structure of necessity, buttressed with an assurance of certainty, to avoid impending doom. The narrative was solidified in the continued controversies over, and opposition to, the New Strategy.

But while this narrative reigns today, the actual counterfactual was not Malthusian doom. Rather, at the time there was a healthy debate about alternative options, discussion of which (as the RF records reference) was dominating the headlines.

5.3 | Voices to expand the focus of agriculture policy beyond the New Strategy

In a speech to the Planners in 1968, V.K.R.V. Rao first sings the praises of this New Strategy's approach, but then he reminds the Planners that—despite the well-off visible subjects of the New Strategy—success is not the reality for the vast majority of the agrarian population.⁸²⁹ Rather, summoning another vision, he reminds them that “our agricultural economy today presents an integrated, though tragic, balance between starving peasants, starving bullocks, light ploughing, practically no fertilizers, and a low yield per acre.”⁸³⁰ This is the context in which the vast majority are ignored in favor of attending to the “successful” GR farmers. Rao insists, despite the representation of the dominant GR approach as the solution, that it is not the only path forward. That most small farmers work under harsh realities “*does not* mean however that large farms are needed.”⁸³¹ Rather, better policy for small farmers is what is needed. Rao counters the imaginary of modern agriculture that the Americans have constructed;⁸³² instead, he cites Japan's

highly modern agriculture on small family farms. The notion that all agriculture must be large-scale and highly mechanized is the clear subtext of the Americans' arguments for the "unfortunate necessity" of excluding small farmers from the benefits of targeted agricultural development. It was not just a question of small farmers, but of the vast majority of the farming population, dry-land farmers and those in most areas of the country. Rao lays out in this speech, arguing that the Planning Commission cannot simply abandon the vast majority of India's farmers, that they must also be attentive to the question: "*what are we doing for those whom we cannot provide assured supplies of water?*"⁸³³—"we have to do something for the farmers who work in areas where they do not have either irrigation or any assured supply of rain-fall."⁸³⁴ Reminding the Planners that "[t]hose farmers who have the misfortune of cultivating land in the dry areas and the smaller farmers cultivating 2 or 3 or 4 acres" are not going to see the benefits of this massive and expensive New Strategy, he maintains that it is imperative to also attend to society as a whole, including the small and marginal farmers—rather than only to the well-off farmers. And this is a major issue as:

*these [farmers] constitute the vast majority of India's farming population. I feel strongly therefore that the objective of our agricultural planning should not merely be one of maximizing production in overall national terms, but should also include considerations of rural social stability, which means deliberate minimization of inter-personal and inter-regional production of disparities and equalization of opportunities among our farming population. ... In short, the goal of agricultural planning should be maximization of production along with diminution of rural inequalities and the continued maintenance of rural social stability and not maximization of production at the cost of worsening inequality and eroding social stability in rural India.*⁸³⁵

The vision Rao offers lies in clear contrast to the development prescription of the RF. Here, agriculture and food are not separated from the questions of rural and national development, but constitutive of how development is to be pursued, what it is to look like, and how it is to be achieved.

Agriculture policies, since the New Strategy of the Green Revolution, have abided by the GR maxim of "maximizing resources," pursued through the separation of these development goals. The perspectives voiced in debates, newspapers and speeches of the 1960s, which are still articulated today by a number of NGOs working on agrarian issues in India,⁸³⁶ have long been rendered thoroughly outside of mainstream agricultural policy. The RF and other advocates of the NS argued that the two major goals of food production and access to food should be understood as entirely separate social goals, with GR as the base of production upon which programs of social

inclusion could be built and expanded—and in this manner the poor would be re-included into the development imaginary. Despite many voices advocating that agricultural policy should shift and attend to the vast majority of producers—the 80% of farmers who till without irrigation—agricultural development policy to this day remains largely stuck in the top-down model, where this vast majority of farmers remain effectively invisible. The GR narrative succeeded in assigning the question of allocation—where, to whom, and how these “scarce” resources for production are to be “maximized”—to “nature.”

5.3.1 | *Writing out: producing inevitability*

It took a sustained campaign for the GR promoters to delegitimize the perspective that development must proceed by supporting the (bottom) 80% of farmers, not the (top) 8%. This was the work that the narrative of the GR as a quantitative success performed: authorizing, even mandating, a perspective previously widely regarded as reprehensible, and even appalling, in terms of the outcomes it was predicted to have and processes it would initiate—and after enabling this shift in “mindset” and policy, naturalizing this approach as inevitable.

In telling this narrative it was not “reporting” on an external or already existing (or originary) success, but rather the successful nature of the GR (and the criteria of this success) *were forged in the telling of the narrative itself*. Despite Paarlberg’s justification to the RF that his narrative of the GR as Norman Borlaug’s personal story is because it “comes through better to the reader [or listener] in this form,”⁸³⁷ the “simplifications” were far from innocent. The narrative was not *just* a story, simplified. The narrative of a quantitative yield success deployed the logic of numbers, on the non-debatable terrain of “nature,” to naturalize the idea that technical questions be the only questions and, that decisions best be made by those with the relevant “technical” expertise.

While the process of naturalizing this stance was not as easy, quick, or “inevitable” as the GR proponents had hoped, the quantitative success tale as constituted continues to perform; it casts an egalitarian hue over a fundamentally disparity-producing project. And it does so through the narrative of a quantitative leap and a “miracle seed”—concealing that the seed alone did not perform any better than the traditional seeds, the narrative harnesses the materiality or “nature” of the seed to deliver its “miracle” status. Thus, this technology performed important work: effacing the actual qualitative agricultural revolution (the collaborative work of technologies of government and a project of technicizing) at the same time that its materiality provided the justification for a highly skewed allocation of resources.⁸³⁸ In this context, it is clear that that the declared “success” of the GR was not tied to the amount that was produced as much as it was to

how this food was produced. It was a qualitative, not a quantitative, revolution. But within this project, the predictions of quantity yielded remained of principal importance: its promise was absolutely necessary to instigate this transformation.

5.4 | The work of the seed

In the GR narrative it is the “nature” of the seed which is to decide who is to succeed. The demarcation of these subject positions has clear and lasting effects to this day—90% of rural people in India spend over 90% of their income on food. They were not to be “living examples” or the subjects of “success,” and as was widely predicted by critics at the time, the effects of concentrating all resources on the elite did not trickle down. The subsidies did not trickle down to small farmers, and the policy focus on the upper crust of farmers did not change. The rural poor today, more than ever, are not the subject of “India shining”⁸³⁹—and more significantly, the debate around whether they should be is more muted than it was in the 1960s. But, the reason that 80% of the rural poor are malnourished and chronically food insecure is not only because of the GR production policies—it is the result of pairing those policies with the decoupling of food production and food distribution policies. Yet given the necessity of showing “success,” these effects, while documented in publicly available reports and statistical collections, are not widely recognized. “The GR is not a story of failure—it is a story of success. India hopes to be self-sufficient, and in a few years she will” the vision Gaud had earlier prophesized came to be, even if not in the way originally implied.

This narrative conceals the work that the GR did and that it continues to do: dispossession was dismissed as simply the “efficiencies of maximizing resources,” and the concomitant shift to prioritize development aid to the best-off was cast a collective moral imperative: to save the nation from hunger. *The “success” of the GR was declared before it even began*: those involved sold it as a success, promising that it would work, that it simply needed to be given a chance. That “success” came to be consolidated over time, using narratives that mobilized a counterfactual of doom averted.

The GR-as-success narrative was presented in this form in order to transform society. These transformations focused on creating the modern subject for these development projects, and did so through shifting to prioritize agriculture above all else (see Ch. 3). This was a *prescriptive narrative* (rather than a diagnostic one). The exalted place of technology is itself prescriptive; agricultural technology enabled this top-down social revolution to be written as the “natural” path of “modernity.”

6 | Conclusion: the afterlives of the GR success narrative

To address (and even to condemn) the injustices of today's Paradox of Plenty (as MS Swaminathan, Norman Borlaug, and most other GR advocates very much claim they want to do), larger structures must be attended to, but, the narrative they expound must be interrogated as well. For, this narrative produces the framework of reality in which we operate and determines perceptions of the problem, its causes, and possible solutions.

As this chapter has detailed, this narrative of success was invented before the GR began and continues long after, sustaining the afterlives of the GR. Initially, the narrative ostensibly served to induce farmers to adopt changes in order to make the leap into exchange relations (that is, to adopt the new seeds); it was also to serve to convince deeply skeptical policy makers to follow this new path. Second, at a broader scale, the narrative functioned to provide a justification (to these policy makers) for realigning development (away from a Nehruvian approach) in a way that increased inequality. The narrative was to serve as “natural” evidence of why a development policy that supports only the best-off farmers was necessary (for national sovereignty and food security). Third, throughout the ongoing discussions and debates during implementation, this narrative was deployed to silence critics and snuff out ongoing controversies around the GR's approach, amidst its failure to meet its promises of significantly increased yields. Fourth, this narrative enabled ignoring the structural institutional shifts—then and now—by ascribing these shifts to a discrete event, rather than to an ongoing project of realignment, which determined who development policies attend to, or even acknowledge.

Narrative is not an “innocent story”—it is a fundamental tool of governing liberal capitalist development which allows the constitutive contradictions thereof to be papered, to avoid full examination. Across the board, the GR advocates condemn today's situation: this is *not* where it was supposed to lead, this is not what was supposed to result. But clearly, the condemnation of today's situation is not sufficient (no matter how prominent the speaker) to do what they claim to want: to address and change the situation. The production of more food alone will never change what is fundamentally a political-economic reality. The fact that hunger and the production of food are consistently conflated is not a coincidence, but a sleight of hand—one that has become thoroughly naturalized and has performed, and continues to perform, significant work.

For changes to occur, what is considered to be “the problem” must shift. The step of moving beyond defining a shortage of food as “the problem” is necessary but not sufficient. Acknowledging that people are hungry *because they are poor*, while better than crass

Malthusianism, is still far from understanding or addressing today's paradox of plenty. For almost three decades the World Bank has held this position, arguing that there is plenty of food and the hungry are deprived of food only because they are poor, because they do not have adequate purchasing power.⁸⁴⁰ Their conclusions from this assessment have not redressed the paradox of plenty—if anything, they have exacerbated the crisis (as even their own reports acknowledge (see Ch. 1)). Acknowledging that hunger is an economic and political condition, a direct result of poverty, if taken alone, can lead to simply transferring the responsibility to a different set of “experts”—in this case to the logic of (neo)liberal economists that dominates global economic policy. Handing the task of “solving the problem” to the economists has served to reproduce and further entrench the inequities at the core of the issue. That the policies they have created have failed spectacularly should be evident in the “paradox” itself; that this failure is not glaringly apparent is a testament to the tremendous power of *narrative*. The overarching global capital/ist narrative of development has isolated this paradox of plenty as an anomaly, has anecdotalized it as an “Indian” problem, rather than recognizing that it is a predictable, even banal, result of (neo)liberal economic development policies.

Yet, the ongoing results of the GR policies should not be a surprise. The Nobel Committee's award speech for Norman Borlaug in 1970 recognized that:

Dr. Borlaug realizes, however, that even though the new varieties of grain will involve a considerable increase in the crop harvested by the peasants, *the green revolution may also create social problems of a negative kind. Social injustices may well occur if politicians in the developing countries should fail to ensure the requisite conditions by means of equitable taxation, a system of agricultural credits at reasonable rates of interest, a properly adjusted price policy, and a defensible employment policy.*⁸⁴¹

That these insights accurately predicted much of what was to come is indicative that the restrictions of the technocratic approach have long been evident; but at the same time the limitations of these insights are clear. They did not foresee the degree to which the “politicians *in the developing countries*”⁸⁴² alone cannot set the trajectory and conditions of development policies. While the politicians have varying degrees of authority, the confines in which policies are conceived and made possible, or are declared impossible or impractical and left aside, are set by much broader forces. Ideally in political theory those forces would be the demands of their constituents. But, (as the next chapter addresses), all too often these trajectories are set instead by the larger trends in the epistemic project of liberal capitalist development, which are sold through the power of narrative, and enforced through the structures of aid, loans, and expertise. Reading

the policies of the last six decades, it is evident that the demands of these structures *rarely* align with the demands of the constituents. Instead, these power structures deploy a narrative to sell those constituents a vision, and when that falls short, to silence controversy with claims of inevitability, necessity, national sovereignty, and/or a moral imperative. Narrative is malleable, offering promises of liberal equality even as conditions are structured to produce a different result, and then declaring that result a “paradox” (such as the “paradox of plenty.”) The narrative thus writes over the existing vision, logic, or “facts” of the situation, inserting its own story into public consciousness as the naturalized understanding of history.

Chapter Five

Making Modern Markets: The Work of Food and Agricultural Aid

1 | Introduction

The real goal, therefore, must be to produce more food in the nations that need it. Know-how is not the problem. For the first time in the history of the world we do *know how to produce enough food now to feed every man, woman, and child in the world, enough to eliminate all hunger completely.* Farm production has undergone a *scientific revolution* which is dwarfing the industrial revolution of 150 years ago, but this means that agricultural departments and ministries and governments and citizens must make a greater and more systematic effort to share this knowledge. For the first time to know how to conquer the problem and [to] not conquer it would be a disgrace for this generation. *We need to help transmit all that we know of farm technology to the ends of the earth, to overcome the barriers of ignorance and suspicion. The key to a permanent solution to world hunger is the transfer of technology which we now have to food deficit nations,* and that task, second to -none in importance, is the reason for this Congress.
- US President John F. Kennedy, 1963.⁸⁴³

We do not insist that developing countries imitate the American system ... But progress has been greatest where governments have encouraged private enterprise, released bureaucratic controls, stimulated competition and allowed maximum opportunity for individual initiative. A.I.D.'s mandate will be directed to this end. ... I propose a strong new emphasis on technical assistance ... [i.e.] the adaptation of U.S. technical knowledge to the special needs of poor countries... The main emphases of technical assistance must be in agriculture, education and in family planning. ... One basic lesson is the critical importance of *releasing the brakes on development caused by low agricultural productivity.* A few years ago, mass starvation within a decade seemed clearly possible in many poor nations. Today they stand at least on the threshold of a dramatic breakthrough in food production. The combination of the new "miracle" seeds for wheat and rice, aid-financed fertilizer, improved cultivation practices, and constructive agriculture policies shows what is possible. They also demonstrate the potential for success when foreign aid, foreign private investment and domestic resources in developing countries join together in a concerted attack on poverty.
- US President Richard Nixon, 1969⁸⁴⁴

India's economic reforms must be seen in this light: they may appear slow, but I assure you they are durable and irreversible. ...

To fully exploit potential areas for cooperation between our two countries, we need to make special efforts to bring our private sectors closer together...

The bulk of our population still depends upon agriculture for a living. The United States was an early partner in this area, helping to establish agricultural universities and research institutions in India in the 1960s. ...

This was the start of the Green Revolution in India that lifted countless millions above poverty.

I am very happy to say that President Bush and I have decided to launch a second generation of India-US collaboration in agriculture. ...It seeks to take information and know-how directly to the farming community.

- Indian Prime Minister Manmohan Singh, 2005⁸⁴⁵

Development aid has been a defining aspect of India-US ties, and—as the previous chapters have explored—food and agricultural projects have constituted the bulk of this aid relationship. Development aid projects are not simply projects of humanitarianism, but have been the strategic tool of expanding the geopolitical project of the “free world.”

There has clearly been an evolution in approaches to aid, development, and how its projects are implemented; but, as the speeches spanning more than forty years indicate, there is also a remarkable continuity in the logic of aid. What is less clear is how US agricultural development aid has shaped *the path of agricultural development* in India. To excavate the complex ways that these aid projects (to which the elected leaders refer) have worked to influence the course of India’s *agricultural policies* as well as its *economic development policies* more broadly, it is necessary to draw out both the continuities and the changes, and in doing so to unpack the relation between these aid projects and the contours of today’s seemingly “paradoxical” realities. *The naturalized assumptions* of contemporary agricultural policy underwrite today’s hunger amidst plenty, making it is necessary to understand the lineages of these policy approaches. For, agricultural policy remains deeply informed by vestiges of earlier defining aid projects and relationships. In order to understand how our contemporary *assumptions* about food, agriculture, and hunger, and their material structures, have come about (and how these can be addressed or un-done), I trace the logic, terms, and conditions of US food and agricultural aid to India spanning the last 60 years. This chapter excavates how aid programs have come to be, how “problems” were cast, and how “solutions” were naturalized.

Through an examination of texts and archival materials I show that the project of aid was one of teaching *the way* (to development)—and in the process eliminating alternatives. This project’s lessons harnessed the visible and symbolic power of science and technology to create a “modern” agricultural sector—industrializing agriculture in the name of teaching India to “feed herself.”

Perhaps the most significant event in this relationship—and certainly the most significant for food and agriculture—was securing the “New Strategy in Agriculture,” which came to be known as “the Green Revolution”. The agricultural production methods, inputs, and knowledge relations laid out in the “New Strategy” quickly became the dominant approach to agricultural development policy and were part of an early push toward significant economic liberalizing reforms. In popular memory, the Green Revolution (GR) operated under the rubric of aiding the hungry, increasing food production, and accelerating development in India. Its projects operated through implementing “modern” agricultural techniques and expanding the reach of “the market” into agriculture, displacing subsistence farming with industrial food production.

Aid projects (including food aid, technology assistance and transfer, and educational programs) have been the key drivers behind the introduction and use of new agricultural technologies. Likewise, aid programs have been a primary means through which the transfer of not just commodities (such as new seeds and inputs) has occurred, but also knowledge—manifest in policies, practices, and technicalities. It is these knowledge practices together with the inputs that constitute the “Long Green Revolution.”

US agricultural aid to India is a uniquely relevant case because it is generally considered to (be among the very few aid projects to) have accomplished its goals and “successfully”⁸⁴⁶ (re)directed India’s path of development in accordance with US interests and aims.⁸⁴⁷

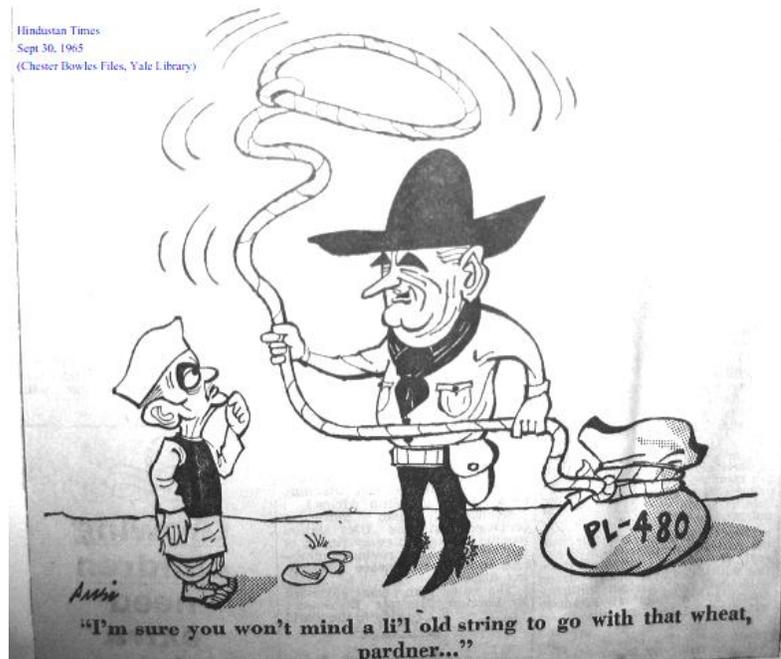
While literature recounting the US side of the tale celebrates the success of this as an aid venture, literature from the Indian side is quick to critique the terms of these US aid projects and to take credit for the realignment of development priorities and its resulting project—the Green Revolution—as an Indian *initiative* and effort (a path that the US simply assisted—as Singh notes). There are many volumes accounting the details of the case and offering each side’s (unofficial) perspective. My concern is not to account for initiative or tally points, but rather to unpack the ways in which knowledge and development practices are produced and circulate to create a singular, self-evident path to (agricultural) modernity. Aid was not centrally about the disbursement of goods, but rather, the dissemination of an ideology in the form of a development path. The New Strategy would not have come to be in the form that we know it without American aid. But, the political machinations behind the scenes were not transparent to critical or enthusiastic observers at the time.

1.1| The Political Work of Agricultural Aid and Technology

It had been widely believed that private industry, relying on the profit motive, would be an impediment to economic development; government, it was thought, must supply the needed goods and services. *But the green revolution advanced at a rate more rapid than government could readily service.* The pressure for fertilizer and insecticide became so great as to weaken and overcome the ideological commitment to government-run industry. Much more is underway in Asia than the adoption of new wheat varieties.

The green revolution has a profound influence on established institutions. ... There is no economic or social change more profound than the change from self-sufficiency to an exchange system.⁸⁴⁸
-Paarlberg⁸⁴⁹

Johnson dispatched one fifth of the U.S. grain harvest to Calcutta in the largest flotilla “since the allied forces crossed the English Channel on D-Day.” He ... used PL480 food aid, doled out in monthly increments, to place a “short tether” on India... compelling them to divert national resources into the agricultural sector and adopt Green Revolution protocols.
-Cullather⁸⁵⁰



“I’m sure you won’t mind a li’l old string to go with that wheat, pardner...”
printed in The *Hindustan Times* 1965

The transition “from self-sufficiency [or subsistence] to an exchange system”⁸⁵² was the aim of the GR era aid projects (see Ch. 3). What these efforts were trying to demonstrate is summed

up succinctly by Paarlberg of the Foreign Economic Development Service, USDA (in a publication co-produced with USAID). Paarlberg here is not describing what happened, rather he is *prescribing how to interpret* what the GR supposedly did. His narrative does this by rendering the meticulous technical and policy changes into changes something that just naturally happened, and by their inherent nature overwhelmed policy commitments, disproving older theories of development. This narrative of transformation that the US aid agencies sought to instill as the lasting legacy of the GR (the GR as the natural, inevitable path joining India's period of "take off" with a state of modernity), is belied by the tedious and belabored aid negotiations micro-managing the Indian government's development policy.

As historian Nicholas Cullather hints, there were exacting negotiations that enabled this "natural" path to transpire. While the details of these conditions were (largely) confidential, the blatantly political use of food aid as a "tether" for significant policy change was deeply unpopular in India—a 1965 cartoon in the *Hindustan Times* represents commentary on the stringent terms of American food and agricultural aid. More stingingly, a Bombay newspaper *the Blitz* leaked the terms of the confidential agreement placing a "short tether" on food aid under the headline "Text of Yankee Moghul's Fatwa."⁸⁵³

As Paarlberg explicates, the role of the GR was to bring modernity to supposedly backward areas. In doing so, the GR was to make the way to approach development clear before observers' eyes (see Ch. 3). Paarlberg's account is not just a simplified misreading. His text (published by the US government for the USDA and USAID pamphleting purposes) is not to wash the US's hands of the GR, not by any stretch; rather, it seeks to construct a particular economic configuration as "natural": when it takes hold, things grow. That is in contrast with other ways of approaching development, which stagnate or fail, because they are not the "natural" path—and hence despite how strongly they may be forced by government policy, these other paths cannot take root, or ultimately succeed.

1.2 | The "Terms" of Aid and the "Logic "of Aid: My Approach

Agricultural development assistance and agricultural technology transfer are generally presented (along with medicine) as archetypical realms that are "outside of politics" and implicitly free of even the politics of knowledge. Expertise in the disciplines of agricultural modernization and economic development is portrayed as not just apolitical, but as above the fray. Likewise, the use of such expertise to aid others in need is presented as transparently humanitarian, advancing progress and improving basic living conditions. In international

development over the 1950s and 1960s, agriculture and economics came to replace medicine as the primary realm of philanthropic need and foremost in the development toolkit, to help people help themselves.⁸⁵⁴ Thus, the presumptions within these realms of expertise and their operation need to be interrogated as they continue to underwrite international development aid projects.

The project of US food and agricultural aid to India has been written on extensively. Most of the “critical” accounts published in India critique the uses of food aid as a leveraging tool for American aims, or critique the terms of the aid (e.g. that the food had to be shipped on expensive American flag carriers, etc). Although there is much worthy of examination in the *terms of aid*, to focus on the terms alone is to miss the lasting significance of the project of aid. The significance and even the “point” of the aid projects are not revealed by most celebratory, critical, or documentary accounts. It is to confuse a geopolitical strategy with the many bags of grain delivered. The details may offer insight, but to attend to the larger and long-lasting significance and work of aid, it is necessary to understand aid as a *knowledge project*, and to understand the *ideology at its base*.

1.2.1 | Aid as a knowledge project: the work of ideology in the GR narrative

While Indians were critical of the role of U.S. aid conditions involved in initiating the Green Revolution, the overall narrative of the GR in India is laudatory. Far from being viewed as a US geopolitical project of consolidating its own legitimacy through tinkering in India, the Green Revolution in India is and was (told as) a revolution with important effects not only on food production, but also, for (perceptions of) national autonomy. In this rendering, the GR was not only locally made, it was cast as in explicit opposition to reliance on American aid and on international aid more generally. The GR was *the event* that finally broke India out of the micro-managed shackles of US food-aid dependency through demonstrating that India could “feed itself,” or ensure its own food self-sufficiency. Moreover, the ideas behind this effort were characterized as a “purely Indian initiative from top to bottom.”⁸⁵⁵

The significant aspect of this account of the GR is how its logic became the dominant approach; that is, how this logic came to take on the status of “common sense”—or, in short, *how it came to be an ideology to anchor this problematic*. To unpack this ideology, or the problematic that anchors this understanding, it is necessary to attend to the distinction between the *terms* and the *logic* of aid projects. For aid’s “logic” (or ideology) to be understood, aid’s function as a

knowledge project must be excavated and addressed. As I attend to aid practices and the terms of specific aid projects I also unpack the conceptual lineages behind these aid efforts.

The Long GR must be read as a power-knowledge project— which disseminated a very explicit logic, with terms that were meant to facilitate this logic. Both the “terms” of aid projects (e.g. the leveraging or tethering of aid disbursements to particular ends) and the “logic” behind aid projects and practices aimed to instill this vision. The two (terms and logic) were deeply entwined. Hence, while it is the *logic of aid* that is my foremost concern, to excavate the logic it is necessary to attend to the *terms of aid* projects to highlight the discrete efforts through which this logic was deployed, disseminated, and implemented. Together the logic and terms can reveal the guiding ideology. This is a dialectical relationship—the terms and the logic of aid projects reinforce each other. But, the point is that over time what remains is the logic; not a specific project. Ideology helps unpack this logic (and how it has played out over time).

1.2.2 | Ideology: The Making of Subjects

Taking the understanding of ideology as itself a “material practice” of “subject making,” I read the shift in India’s approach to development as part of a larger ideological project; this was a knowledge project that US aid was key in expanding (both official US government aid and private US Foundations, namely Ford and Rockefeller). To read how aid operates as a power-knowledge project, I first address its grounding in ideology.

A classic US social science understanding approaches ideology as something “that it is as easy to step-into as it is to step-out-of.”⁸⁵⁶ I do not adopt this understanding; not only because it deploys a gods-eye-view of the world, but also because it is enabled by, reliant on, and reinforces an understanding of objective knowledge within the very modernist ideology it ostensibly seeks to critique.⁸⁵⁷ Instead, I suggest that ideology cannot be easily contained—one cannot simply extricate oneself from ideology as if it were a complicated costume. Rather, it is the work of ideology itself that defines this simplistic, extricable view of ideology. This is not a circular argument; rather, it is to take ideology seriously: it is not easy for subjects within it to see the scaffolding of their ideology—for, *ideology functions through the process of making them as subjects*. Subjects are constituted by ideology, and as such, cannot shed and step outside of ideologies in the way that social scientists often imply;⁸⁵⁸ ideology is far more pervasive and pernicious than the standard social science view of it allows. *Ideology is a practice and a practice cannot exist without its object*. In this case, the object is the subject itself⁸⁵⁹—“the subject is the

constitutive category of ideology.”⁸⁶⁰ Ideology must be understood as functioning *in and through its practices and mechanisms*; the relation between ideology and acts/action is regulated through material practice. *All* practice is ideological (for ideology is necessarily practiced through making subjects).

Given that ideology is a process that operates *through* subject-creation, we can unpack the work of aid as an ideological project (in and since the GR), to understand how *subject-creation* was constitutive to how the GR operated (as explained in the previous chapter). It is clear that the creation of the development subject in the GR processes was not superfluous, but integral to its success as a “development” project; it underwrote the GR as a coherent (ideological) project. In so doing it created a world-view and an understanding of what development is and how it is to be pursued. The devotion to modernization, technology, and economic liberalization are the tools through which development itself came to be defined. The agent that renders the vision of development coherent is technology, not just any technology: specifically, it is the operation of technology as a commodity (i.e. as a private good to be traded in a market). The exchange relations are key; technology is the vehicle.

1.3 | My Approach: Navigating the Logic Underlying Aid Projects

My approach moves between aid’s day-to-day operations and its broader geopolitical structures. The logic of aid (or “ideology”) is embodied and visible in “*the lived relation* between men [*sic*] and their world.”⁸⁶¹ I examine *first*, the ways aid projects have portrayed and affected the relationship between the state and the market (i.e. their respective structuring); *second*, the teaching that science (and with it implicitly “modernity”) will conquer will conquer “backward” agricultural practice to render India independent from food aid; and finally, the practices that are emphasized in these projects, and what these can tell us about the forms of knowledge which these programs operationalize.⁸⁶²

1.3.1 | A Note on Materials and Methods

I examine these projects and their narratives through (i) archival material from these programs—files, records, letters and diaries of aid workers, internal reports, speeches, and unpublished media (from the Rockefeller Foundation and the Ford Foundation’s India office President, from the US government (USDA, USAID) at NARA and the GoI (largely the ministry of economic affairs) archives in the NAI); (ii) the published (promotional) literature of the various programs themselves; (iii) secondary literature about aid (academic and popular, written

by bureaucrats involved, academics and activists, this literature varies from documenting, to critiquing, to celebrating US food and agricultural aid programs and their effects on India); and (iv) interviews with people working in agriculture and in the aid industry or on issues around agricultural development.

1.3.2 | *Examining Specific Aid Projects*

I navigate these questions through an examination of two themes of aid: first, the case of food aid commodities and their leveraging power and second, the case of agricultural development aid; specifically, the role of agricultural technologies and aid as a form of power-knowledge. I explore these cases through four specific historical instances over the era of the “long Green Revolution to draw out how knowledge was produced and disseminated.

1.3.3 | *Chapter outline*

I explore how these aid projects functioned through tracing the linkages of four cases. Section 2 addresses US PL 480 (Food for Peace) aid in the 1960s which laid the groundwork for the “big push.” Section 3 indicates how this aid manifest in the “New Strategy” which came to be the Green Revolution. I suggest that these aid efforts also operated as projects of liberalization. In Section 4, I trace the continuities and disjunctures in contemporary calls for a “second Green Revolution” as they manifest in the USDA and USAID food security and agricultural development programs (2005-2010). I suggest that this logic continues in the two contemporary bilateral aid projects, indicating areas of continuity as well as new emphases. I conclude that the project of the “Long Green Revolution” as a project of accumulation continues to push forward, using the inequalities it produces (manifest most visibly in increased hunger) as the justification for expanding this development regime and further liberalizing India’s economy, from food production to food retail outlets.

2 | Food for Peace

US foreign policy and Indian development policy objectives initially converged on the issue of food and hunger. The US had vast grain surpluses, and India was facing grain shortages and offered a large market that could absorb the extra US grain.⁸⁶³ These coinciding concerns first congealed in 1949⁸⁶⁴ and then formed into a sustained agreement from 1954-1970 under Public Law (PL) 480, Food for Peace.⁸⁶⁵

Initially PL 480⁸⁶⁶ functioned as a means of disposing of the massive US foodgrain surpluses, and securing their “value” by keeping the surplus grain out of official trade, all while extending the US sphere of influence in Europe, and then beyond. The offer of food was seen as a material means of security against Communism in nations of the “free world.” When post-War Europe no longer wanted the US’s massive surpluses, India was one of the first nations to receive this food aid and quickly became the largest recipient.⁸⁶⁷

2.1 | Food for industry, food for rupees

US food exports to India grew steadily over the next decade⁸⁶⁸—a relationship that the political elite of both nations saw as broadly favorable. It alleviated the US’s record surpluses (which helped justify farm subsidies domestically) and enabled a focus on prioritizing industrial development in India.⁸⁶⁹ Much more than food alone secured this relationship. The food aid was one component of a larger vision and project that sought to guide India’s development path. From the Government of India’s side, PL 480 food offered a development convenience and a strategic alliance but was also out of necessity a financial arrangement. The primary reason why India imported such vast quantities of foodgrain from the US in the 1950s and 1960 was not (as is popularly held) because the US was the only nation with surplus foodgrains, nor because US food aid the cheapest foodgrain available.⁸⁷⁰ India became so heavily reliant on the US and PL 480 food aid because other food exporting nations required either barter or the expending of foreign exchange. There were not enough countries willing to barter for the quantities of food India needed,⁸⁷¹ and India did not have sufficient foreign exchange to be able to afford to buy food to meet its needs. The US provided a perfect development solution—guarantees of vast surplus food at a reasonable price,⁸⁷² but even more importantly⁸⁷³—the US accepted the Indian Rupee as payment.⁸⁷⁴ This seemed to offer an ideal solution, for while the GoI simply could not afford to buy enough food on the international market with its extremely limited foreign exchange, the Government could print as many Rupees as needed (which was considered to be sound monetary policy).⁸⁷⁵

2.1.1 | Food aid as a development tool

The massive imports of cheap foreign wheat, however, had the undesirable (if predictable) effect of depressing domestic foodgrain prices in India. As grain prices fell, domestic production declined and imports increased—by 10% a year over the 1960s.⁸⁷⁶ Thus, while PL 480 temporarily filled a need (in that it provided sufficient food stocks) US food aid comprised 60%

of India's wheat by 1965, and the decline in domestic production that resulted was increasingly unsustainable. This was not necessarily unexpected: the choice to rely on imported food aid was an important part of the government's balancing act in pursuing development. Since the administration and Planners prioritized industrial production, the allocation of limited resources, foreign exchange, and capital was heavily skewed to industry. Further, relatively lower food prices were instrumental to enabling low wages in industry for development in all realms (other than food production).⁸⁷⁷

The GOI's main route of trying to increase India's food yields had been by addressing rural issues, promoting community development, and taking on the highly uneven distribution of land. This was in line with most approaches in the 1950s. There was a widespread obsession among experts—around the world and across the political spectrum—with changing the mindset of peasants (see Ch. 3). Likewise, (some degree of) land reform was held to be necessary for political stability and to increase food production in nations coming out of colonial rule.⁸⁷⁸ Comparing India's slow agricultural improvements with China's apparent 30% increase in agricultural production (induced through reworking rural social relations) the GoI aimed to achieve 15%—just half as much—through similar rural development programming.⁸⁷⁹ The proposed fifteen percent increase proved difficult; village development programs were not as successful in modernizing rural mindsets or agricultural methods as planned. On top of this, land reform—the necessary ingredient for any real rural change—was proving deeply unpopular with India's landed elites and thus faced staunch challenges in Parliament. The political mechanisms for increasing agricultural production were coming up short.

2.1.2 | *Fostering Dependence, Signaling a Shift*

Food aid as a development tool had initially seemed like an ideal solution to the American leadership as well. In the geopolitical shadow of the rise of Communism in China, it was helpful for spreading US power⁸⁸⁰ whilst ensuring the “value” of the massive grain surpluses. However, this means of enacting aid did not continue in the same form. Mainstream understandings of how to enact development, the geopolitical context in which development projects were to intervene, and the domestic politics of “aid” in the US were all shifting.

By the mid-1960s, US agricultural subsidies had shifted, and as a result grain surpluses were decreasing. Development aid, even food aid, was becoming increasingly unpopular in the US Congress.⁸⁸¹ Beyond this, given the lack of tangible “success” stories in food and development

aid projects in advancing Cold War aims, the theory of how to approach development and the terms of aid disbursements were shifting. The emerging changes were several years in the making.

2.2 | Poverty as an issue of national security

... whether additional millions ... become Communists will depend partly on whether the Communist world or the free world fulfils its promises. Hungry people are lured by promises, but they may be won by deeds. Communism makes attractive promises to underfed peoples. Democracy must not only promise as much, but must deliver more.
- RAC, Weaver et al 1951a⁸⁸²

Democracy alone can supply the vitalizing force to stir the peoples of the world into Triumphant action, not only against their human oppressors, but also against their ancient enemies—hunger, misery and despair.
-Nelson Rockefeller, 1951⁸⁸³

In a Rockefeller Foundation paper “World Food Problems,” Warren Weaver and his Rockefeller colleagues muse how to ensure against Communism. Hunger was widely considered to be the most urgent threat.⁸⁸⁴ A strategic paper of the Rockefeller Foundation attended in particular to the threat of hunger in instigating revolution and concluded that “Americans... must, in their own enlightened self-interest⁸⁸⁵ and not motivated merely by generosity or sentimental humanitarianism, do everything within their power to raise the living standards of their neighbors.”⁸⁸⁶ Emphasizing the central role that the modernization of agricultural science could play in guarding against communism, it was recommended that the Rockefeller Foundation expand the reach of its agricultural programs to Asia, and specifically to India (see Ch. 3).⁸⁸⁷ This understanding was to form the backbone that underwrote the Rockefeller Foundation’s international development efforts for at least the next two decades.⁸⁸⁸

The means of incorporating the “neighbors” whose poverty America saw as a security threat was not simply through aid. Aid could be a stepping stone, but, as Nelson Rockefeller explained, the necessary incorporation occurs through trade. The first step to conquering ancient and new oppressions and bringing “development,” he argued, is to integrate places into a “trading system.” Eliding “democracy” into those “peoples who elect to belong to the free-world trading system,”⁸⁸⁹ Nelson Rockefeller positioned this “free-world trading system” as both the key to “democracy” and as the most important safeguard against its antithesis, “communism.” Diagnosing that “the policy of Soviet Russia and her dominated satellites is to organize a tightly-contained economic

area *having the least possible trade with free-world areas,*⁸⁹⁰ Rockefeller argued that the threatening appeal of Soviet Communism could be neutralized by ensuring that “ancient oppressors” and basic human needs were met through securing “underdeveloped” poor nations a place in the free world trading system.⁸⁹¹ The continued prosperity of the US was integrally tied with the fate of the poor, and trade was to serve a crucial geopolitical function—not just because a nation’s involvement in this system was deeply important in establishing Cold War alliances, but also because market logic was viewed as having inherently transformative powers. The expansionary *logic* of “the market” comprised both a solution, via incorporating peoples into the “free world,” and a tool within this geopolitical project. The form of “trade” being promoted is not specific; rather, it is the utility of “trade” as the thread suturing a political alliance.

Nelson Rockefeller⁸⁹² and others argued that development could win the battle against conditions of “instability” (i.e. hunger and want) far more efficiently than military intervention could.⁸⁹³ Similarly, arguing that communism could not be simply “contained” forever, Millikan⁸⁹⁴ and Rostow⁸⁹⁵ appealed to “modernization” as the crucial solution to America’s Cold War strategy.

US President Truman’s “Point Four Program” famously articulated what has since come to be regarded as the post-war/Cold War US development agenda. But, it was not until the late 1950s that the “science” of implementing this vision gained significant emphasis. This approach became codified in policy to fight a “soft war.” Through this approach, the conditions in which people lived had to be changed to make communism irrelevant to them; the most concerning and threatening of these conditions was hunger. The unquestioning faith in this path, and in the universal power of technology to drive it, underwrote the production of knowledge relevant to these new nations.

2.3 | Creating Policy Science, Making Knowledge

In the late 1950s, highly aware of the US role as the leader of the “free world” and its trading system, “modernization experts” were deeply concerned with establishing the proper steps to effectively transform subsistence sectors into market economies. To oversee this process American “modernization experts” sought to create a new form of science: a “policy science” that would deduce the exact procedures necessary to remedy the problems of underdevelopment. This new science was premised on the view that for their transformations to be effective, the procedures (or steps to modernization) needed to be identified, enumerated, and made into a codified science.⁸⁹⁶

The new “social” science focused on “decision making processes” it was to be applied around the world in the project of transforming “subsistence societies” into market economies and integrating them into the “free world” via its “trading system.” In this new social science, knowledge was objective, complete, and existed entirely outside of its application (in specific places); questions were reduced to formulas.

Examining the conditions in these “new nations,” modernization theorists argued that in these places, “we” were essentially looking into “our” own past, lived as another’s present.⁸⁹⁷ Delineating the steps to modernization, they suggested the US was to provide the model. The procedures for *how* to ensure that the newly independent countries’ development was successful were to be drawn from the (historical fiction of the) US progress narrative.⁸⁹⁸ The US represented the original “new nation,” and as such could offer a template for the new nations emerging from Europe’s recently independent colonies in Asia.⁸⁹⁹ The imaginary of American history as they crafted it offered a template of an anti-colonial revolution leading peacefully to capitalist development. On this universal trajectory, the US was not only “more advanced,” but was also the most obvious “success story.” The goal of their project was clear: the path out of poverty was to become a consumption society made in the image of mid-century America. The project was one of codifying US expansion into discrete *policy steps* to be uniformly implemented around the world through development aid. Technology was the means, as it offered a transparent reflection of knowledge. Technology could bring development, and when integrated with “market” mechanisms, could also be used as the metric to assess and accelerate places’ level of development.

2.4| Cold Warriors: Navigating Technology’s Contradiction

According to this model, to promote development and ensure stability, poor countries were to be thrust out of their age old “stagnation.” The US development experts’ task was to make sure the changes went in the “right” direction: toward “free market integration.” There was no question that *technology was to drive this development*,⁹⁰⁰ but there was also a deep tension inherent in this faith in technology: while the “right” path was to follow in the image of the US (not the USSR), the persistent problem with this lay in the fact that the USSR was clearly demonstrating very rapid modernization, and was also doing so through the use of codified development steps, harnessing modern technology. As such, it seemed the USSR was doing essentially what the US was advocating, but more quickly than the US model could.

Indicative of the worry the US felt in the Cold War context, the widespread consensus was: “It is now accepted ... that economic planning in the USSR ... has led to a far *more rapid rate of industrialization* than had been achieved in Western Europe and the United States in the past,” as Indian Planner Mahalanobis noted.⁹⁰¹ This consensus on the rapid rates of growth was a point which the Americans were increasingly also having to concede. This assessment threatened the US’s reigning explanatory framework.

On top of that, over this period the USSR was directly aiding India in its industrialization. The situation this Soviet aid produced was later summarized by the US Ambassador to India, Chester Bowles. Bowles relayed to Washington his deep concern about India’s future and the vital importance of not allowing anything “to reverse the present trend [in India] toward a dynamic, market-oriented economic operation within a free society.”⁹⁰² But, he continued, the USSR’s generous aid programs and the West’s “stinginess” were threatening to do just that.⁹⁰³ Reviewing the situation he suggested that “there is a gradually increasing affinity with the USSR which has many worrisome aspects.”⁹⁰⁴ Beyond economic aid, he suggests, the Soviets are winning the cultural war as well:

The USSR has somehow managed to emerge in the minds of millions of Indians as the world’s most peace-loving, responsible, middle-of-the-road great power, striving patiently in the face of great difficulties to hold in check the extremist Chinese to their left and the ‘extremist’ Americans to their right.⁹⁰⁵

The US clearly had its work cut out, as Bowles repeatedly insists: to give up on India would be to give up on the third world at large.⁹⁰⁶ India is one battleground that cannot be lost—“If Indian democracy fails there is very little chance that democratic methods will succeed elsewhere in the developing the ‘third world’.”⁹⁰⁷ Success in India is not only in “America’s long-range national interest;”⁹⁰⁸ it is the right thing to do for a “measure of social justice.”⁹⁰⁹ More than that, India could be *the model*—through American aid, India could “also provide a persuasive demonstration that developing nations do not need to follow in the bloody, totalitarian steps of Communist China to achieve political stability and rapid economic growth.”⁹¹⁰

US development success in India had a significant symbolic role and could serve as a model for poor nations across the world—“On the positive side, India’s success in achieving political stability with an adequate rate of growth will be enormously encouraging to similar efforts elsewhere. The contrast between a viable Indian democracy and the angry confused Communist dictatorship in China will have a major and perhaps decisive effect in the worldwide balance of power.”⁹¹¹ Development aid to India was unquestionably necessary for the US’s project of

democracy and a “free world trading system.” However, Bowles continues, alarmingly, the USSR also realizes that “India is not just another nation like Kenya or Peru; it is a strategically placed continent with a population greater than Africa and Latin America combined.”⁹¹² And as such, “*the Soviets are not only helping India to build factories but are guaranteeing a ready market for total output.*”⁹¹³ To counter the Soviets’ approach—of helping India to build (state-owned and run) factories (including subsidizing the factories and guaranteeing a market for the goods the factories produced)—and in direct contrast to that path, the Americans offered a different path to development success.

2.4.1 | *Constructing a path via agriculture*

Reflecting on the clarity of the USSR’s model at fostering greater and more rapid success in industrializing poor nations, confounded American experts located an alternative path. As Rostow explicates:

The most important conclusion at which I have arrived from three years’ immersion in the study of Communism is this: *it lies within the capabilities of the United States and the Free World to shatter the belief in Communism as the unique method for rapid development.* And we can do this over the next decade—by, say, 1965. ...

In short, the fact that *Marx was a city boy* gives the *Free World* the chance to destroy in the next decade the myth that only Communist brutality *can raise an underdeveloped area into self-sustaining growth.* And if that myth is dissipated, the chance that Communism will gain power in the underdeveloped areas, whose destiny will determine the long-run balance in the world’s power, will be much reduced, if not once and for all eliminated.⁹¹⁴

The secret weakness that the American experts’ careful study had located lay in agricultural production. Rostow explains:

The faith and judgment which lie behind this conclusion stem not only from knowledge of how the peasant’s human response to Communist methods has [adversely] affected agricultural output. This conclusion is supported by results already achieved in the Free World, notably in India, by the techniques of freedom, the method of individual consent [in agricultural production].⁹¹⁵

He argued that Communism’s focus on industrialization came with an *inability* to feed its people.

Rostow hyperbolically offered China and India as representatives of opposite paths to development. Explaining that “India has begun its attempt to industrialize in a way exactly the opposite of Communist China,”⁹¹⁶ Rostow was not describing, but rather prescribing, the path that

the US would come to argue as necessary. He continued: “China is investing in heavy industry. India has plowed its scarce capital for the first five year plan primarily into agriculture.”⁹¹⁷

Despite the fact that agriculture received little resource allocation in India’s development vision, and that its meager allocation was consistently cut in the Second and the Third Plan, Rostow proposes that the US *should* see in India an opportunity for the methods of the “free world” to demonstrate greater success and outpace communism by producing more food. He emphasizes the contrast, explaining that while:

China is forcing its peasants into collectives, by threat and force. India is trying to induce the peasant to improve his methods, to increase the use of chemical fertilizers, to double-crop his land. All this is done painstakingly by education and example. The results thus far are remarkably hopeful. The substantial increase in agricultural output planned in India for the First Five Year Plan has been achieved in three years; and evidence is that a constructive chain reaction is sweeping the Indian countryside, far beyond the demonstration villages. ...the method of consent is *not only morally right, it is right technically as well.*⁹¹⁸

The emphasis on the agricultural sector, and the application of modern technology to agriculture specifically, offered a clear distinction from the USSR’s path and from India’s status quo, both of which emphasized the industrial sector first and foremost.⁹¹⁹ Thus, while India was pouring its resources into prioritizing industrialization, this allocation of capital was not that which the US experts thought would best demonstrate the strengths of joining the path of the “Free World.” While Soviet development aid to India was helping to foster industrialization, the US sought to transform India’s fields into factories.

The Rockefeller Foundation, Ford Foundation, and US Government shared this mission and established complimentary agricultural development programs in India (see Ch. 3); George Harrar, then President of the Rockefeller Foundation, considered by some to be the “father” of “industrial agriculture”⁹²⁰—and who better to lead India’s agricultural industrialization than the US Foundations. They did not intend these to be simply “buying” a place against the threat of communism,⁹²¹ but more, to be *teaching development*, or guiding India’s development path along a specifically “non-communist” trajectory.

The central lesson they reiterated was that the key to successful change could only take place through the use of technology and be guided by the eventual expansion of private capital.⁹²² As US Ambassador to India John Kenneth Galbraith explained the lineage of this assessment:⁹²³

What we had decided were the *causes of poverty* with which the Indians and we sought to contend was [were] *derived ... from convenience*. There were, broadly speaking, only two things we could provide to lessen the deprivation—we could supply *capital* and, in principle, useful *technical knowledge*. The causes of

poverty were then derived from these possibilities—poverty was seen to be the result of a shortage of capital, and an absence of technical skills. The remedy included the diagnosis. Having [the] vaccine, we identified smallpox.⁹²⁴

While in retrospect, the assessment of the primary means to expand the market and the reach of private capital in the “free world” were as much out of lack of ready options as anything else,⁹²⁵ this perspective was a continued theme across the Kennedy, Johnson, and Nixon Administrations, but the means of procuring these technologies shifted.

The Americans pushed forward in the field of agriculture, in which the American method could better feed hungry people than the Soviet method. If the ability to feed people was the terrain of assessment, the US’s “free world” model could outpace the Soviets. If industrialization was the metric, the “free world” could not “succeed.” Thus, the terrain of development needed to move to the realm in which the US could demonstrate the superiority of “democratic” and “trading” methods to enact development in poor nations. A USDA Foreign Agricultural Service promotional booklet declared:

The image the US is building among the hungry people of the world is tangible. It cannot be blotted out with propaganda. *By using food as a major instrument of foreign policy we are doing what the communists would like to but can't.*

Our agricultural science is superior to Russia's. Our system of agricultural knowledge is better. Our farmers have more overall know-how than their Russian counterparts...Most important, private ownership—which brings with it the profit motive and freedom of decision gives our farmers a much stronger incentive to increase production.⁹²⁶

The US plan sought to use technology to inject exchange value into agriculture as a means to rework the relationship between food, the state, and the market in order to spur “take-off.” As more significantly, it sought to outpace the Soviet model of technology-driven industrialization. Injecting technology was to be the key to speed up “time” and also offered an effective way to spread market foundations throughout more segments of society than industrialization alone (particularly state-run industry).

The understanding of *history as universal and stagist* became key to this theory of modernization. Like European imperialisms before it, a race for territory was on, but the US explicitly contrast itself to its European predecessors, reiterating that Americans did not seek to directly control or “rule” these foreign lands. The project was something far more ambitious: to transform these places in the image of the US and enable this transformation simply through the superiority of US knowledge, approach, and the universal validity of this method of development

itself. Success in their projects was nothing less than the confirmation of the universality and inevitability of this path.

The focus on agricultural technology as the solution came to be a defining aspect of official US Government aid. This resonated with the Ford and Rockefeller⁹²⁷ Foundations, which pushed “a ‘technology first’ approach to transform India’s fields into factories. This view was marked by ‘the firm belief that new technology is the leading factor in the process of desired social change *because technology is also the locomotive of economic growth*,’” as an American agronomist working for the Ford Foundation during the GR explained/recalled.⁹²⁸

2.5 | The project: Reorienting India’s development priorities

As Americans on the ground in India quickly discovered, for modern technology to become a reality on any scale, the Indian government would have to allocate significantly more resources to agriculture. The push for the (re)allocation of development resources to agriculture was initially a significant aspect of aid’s “leveraging” work—both publicly and behind the scenes.

The first public report explicitly advocating this shift was the Ford Foundation’s 1959 “*Report on India’s Food Crisis and Steps to Meet It*.” The Report insisted “that ‘food enough’ [must] become a *central objective in the crusade for the new India* visualized by its leaders.”⁹²⁹ “Hunger” was used as the primary threat to push through the codification of the steps the American experts enumerated as necessary for change. The seminal “*Report*” advocated a top-down technology-driven approach and the restructuring of India’s economy—away from a prioritization of industry to favor agriculture—to meet the goal of increasing food production. The prioritization of the agricultural sector alone was not sufficient; they insisted that such efforts to produce more food had to be organized on an efficient “war footing.”⁹³⁰

Mobilizing the threat of imminent hunger, and their own self-evident expertise in solving hunger (as non-hungry Americans), Ford’s consultants insisted that a “far-reaching, centralized authority with a clear line of command and execution, alone can meet the challenge of growing more food.”⁹³¹ The modernization theorists promised that if this project failed, the threat of mass hunger and instability was a live wire.

The approach justified the necessity of the significant restructuring of India’s development path by appealing to a food crisis to come (predicted for 1966, seven years in the future). This diagnosis—of the need to restructure development priorities, or even that there were any impending food shortages, much less a food crisis—was not a common view and was not agreed upon. For instance, denouncing Ford’s *Report* as creating a “strategy of Terror” by producing an

imagined and false crisis to manufacture the urgency to push their drastic change of agenda, Daniel Thorner argued that:

Proponents of so drastic and unpalatable a measure could scarcely expect their suggestions to be seriously entertained in the normal course of affairs. Only in a setting of *panic* might such counsels conceivably prevail. The function of the Ford Team's statistically *contrived food crisis is to shatter public confidence. Unless demoralized by a hobgoblin of hunger, India could hardly be persuaded to plough under the Second Plan.*⁹³²

Thorner points to a key aspect of Ford's proposed "agricultural revolution:" it pivoted on the re-prioritization of their comprehensive national economic plans (in which they enumerated their detailed objectives and outlay for agriculture and industry), to emphasize agriculture. The enormous pressure from Ford and others to "plow the plan under," as Thorner put it, stemmed from their geopolitical assessment more than from any objective evidence of a food shortage. For, as Rostow notes, India seemed to be an agricultural success at the time. In 1955 the nation was declared to be food "self-sufficient" and it seemed that the hunger problem had been fixed once and for all.⁹³³ Thus, when Ford revived this problem just a few years later—with promises of impending shortages—it seemed anachronistic at best, or simply coercive. This time the "hobgoblin of hunger" did not (yet) prevail.

2.5.1 | Enacting Liberal Responsibility: Agro-Technology as Mechanism

The 1959 Ford Foundation plan for India, while not initially embraced, outlined the direction in which the US would come to increasingly push India. In 1963 US President Kennedy extended the reach of the approach underlying Ford's prescriptions at a global level.

Laying out America's role in promoting a global "agricultural revolution," Kennedy unequivocally pronounced that the problem of hunger could be solved and prescribed how: through the transfer of knowledge and technology produced by America's recent "scientific revolution" in agriculture and "[f]arm production," a revolution which Kennedy hyperbolically characterized as "dwarfing the industrial revolution of 150 years ago."⁹³⁴ In his speech to the 1963 World Food Congress, Kennedy mobilized the moral imperative of addressing hunger to create a geopolitical and "security" imperative for the increased dissemination of agricultural technology.⁹³⁵ Constructing a manifest destiny for American agricultural technology, he argued that "We need to help *transmit* all that we know of *farm technology to the ends of the earth, to overcome the barriers of ignorance and suspicion.*"⁹³⁶ In this paradigm, technology was to introduce the requisite spark to remake subjects and society.⁹³⁷ The year 1963 was also the first

year that “high yielding varieties” (HYVs)—which would come to define the GR—were used to increase yields in any developing country.⁹³⁸

But, the focus on *agricultural* technology as the driver of development or the most effective means of addressing hunger was not self-evident. At this time the US government’s primary means of assisting India was, after all, via massive quantities of PL 480 food aid—so that more resources would be available for industrialization.⁹³⁹ Further, only a few years before, US policy had been to discourage India from growing more wheat—as to not export it and depress global grain prices.⁹⁴⁰ The focus on technology and modernization in the *realm of agriculture* and as part of economic development represented a marked shift from the US government’s previous stance encouraging India’s prioritization of the expansion of its industrial base to create the conditions for uplift of all.

2.5.2 | *Increasing conditionalities*

As the PL 480 food aid program continued, the conditionalities placed on sending the food grew⁹⁴¹—in the name of “self-help.”⁹⁴² Food aid came to be tied to specific terms, crafted to produce national food “self-sufficiency.”⁹⁴³ The increasingly stringent conditions on aid served as a justification for continued aid in an embattled and unpopular US political context; these conditions also came to serve as metrics of aid’s “success.”

3 | The short tether: muscular paternalism

As India grew to become dependent on US food aid in the 1950s and 60s (for as much as 60% of its wheat supply),⁹⁴⁴ food aid was used as a stick, *both to write out other possible avenues* of increasing food production (e.g. via political change) and to force India out of what US politicians characterized as an “ungrateful and lazy” reliance on the US for food.⁹⁴⁵ They characterized India as “ungrateful” because despite “feeding India,” as they saw it, US policies still were not taken on wholeheartedly,⁹⁴⁶ and as “lazy” based on the belief that without US enforcement of stringent “modernization” requirements, India would not take its own “best interest” into consideration, and would not bother to institute policies to improve agricultural production. Thus, Johnson argued, the US must use the stick for “the Indians’ own good.”⁹⁴⁷

The question is how this project was understood and enacted.⁹⁴⁸ Johnson insisted the requisite food production increases would come only from heavy-handed enforcement of the step-by-step

route to progress as laid out by the US. By all accounts, Johnson became personally obsessed with the quest to modernize Indian agriculture and eliminate hunger. Driven by a sense of “personal responsibility” both for “millions of hungry and starving people” and for the effectiveness of development policies of foreign governments, Johnson saw India as the chance for the US to test a new policy model. Convinced that success could come only through very specific changes, Johnson aimed to create a model in India to replicate around the “Third World.”⁹⁴⁹ At the same time, to Johnson the issue also had far more importance than as a universal principal—he became deeply personally involved in monitoring India’s steps toward “self help.”

What was unusual was not so much Johnson's support for a change in Indian farm policy as his intense, obsessive personal involvement. *For the next two years, Lyndon Johnson, in effect, became the US government's "desk officer" for PL 480 food aid to India.* According to Walt Rostow, “It is hard to recapture how deeply Johnson felt about getting the Indians to do a better job in producing food. The India food question went right to where he lived. It was part of Johnson's fundamental concern for human beings and his hatred of poverty.”⁹⁵⁰

Evoking a liberal responsibility for the poor and malnourished, the US’s dual edged role was justified as both a bold paternalism and a means of advancing US interests, ensuring “stability,” and expanding markets for US capital.⁹⁵¹ This dual-edged approach manifest in policies aiming to teach *the* method of increasing food output and attaining food security: by increasing the use of the new agricultural chemicals—via forced compliance based on leveraging food aid.⁹⁵²

3.1 | “Self-Help:” From Food Aid to the New Strategy

A November 1965 confidential agreement, between US secretary of Agriculture Orville Freeman and India’s Minister of Food and Agriculture C. Subramaniam, laid out in more detail a program along the lines of what the Ford Foundation had suggested in 1959.⁹⁵³ This time, the threat was not just a statistical promise of impending hunger. The demand to implement agricultural modernization had teeth: the continued disbursement of US food aid was directly linked to measured steps of agricultural “modernization.”

Freeman and Subramaniam’s agreement, popularly called the “Treaty of Rome” (as it was written at a meeting of the Food and Agricultural Organization (FAO) in Rome), detailed the exact steps that India would take to increase its food production. The requirements stated that food aid disbursement was contingent upon terms which were specified down to: the amount of fertilizer to be used per hectare per year, how much would be imported and domestically

produced, what the minimum support prices for farmers using these inputs and the new HYV seeds were to be, and India's liberalization of its agro-input production sector to allow increased foreign investment (specifically, changing the policies regulating fertilizer companies owned by foreign private interests—now, the private companies, not the Indian government, were to be given full control over pricing and distribution, so that production could be reoriented on a “profitable basis”). The measured enforcement of these steps, it was argued, was necessary for production to take off. In the name of “*self-help*” and promoting economic development,⁹⁵⁴ the agreement directed how much money the GoI would allocate to the measured steps⁹⁵⁵ as the condition to continue to receive the (now absolutely essential⁹⁵⁶) US food aid disbursements.⁹⁵⁷

3.1.1 | *The “Big Push”*

The “New Strategy” in agriculture, a program that was to become known as the “Green Revolution,”⁹⁵⁸ was the substance of the “Big Push.”

This agreement subsequently referred to as the “Treaty of Rome,” was hailed by John P. Lewis, Minister of Embassy in New Delhi and Director of the AID program in India, in a December 28 memorandum to Komer [Johnson's aid] *as more solid in content and promise “than any comparable program since Independence.”* Lewis' assessment was that *the United States “has helped engineer what could be a breakthrough for Indian agricultural expansion.”* Lewis saw that expansion as an important part of an effort to speed up Indian economic growth, *an effort being described by AID and the World Bank as “the Big Push.”*⁹⁵⁹

The “Big Push” for “take-off” was to be the moment of ignition,⁹⁶⁰ where vestiges of past beliefs and “old blocks to and resistances to steady growth”⁹⁶¹ were finally to be shed, giving way to a new forward-looking mentality, driven by the rational development subject, whose new rationality was communicated first and foremost by responsive engagement with “market” signals. The US's goal was nothing less than speeding up history (and its stagist advancement) to create the fundamental changes necessary to restructure society in accordance with the principles of this model—and in so doing to outpace the Soviets.

The significance of the conditional terms of food aid went far beyond geopolitical tools in the US's fight for moral legitimacy and developmental success against communist models. They also explicitly *(re)defined India's approach to agricultural development along the path of increasing yields via modern technology.* The leveraging power of food-aid⁹⁶² (via the conditionalities of PL 480) and the shifting frameworks of international development (towards a focus on “self-sufficiency”) were key to instigating the Green Revolution.⁹⁶³

3.2 | The singular work of food in extending aid's logic

The shift in the geopolitics of food and agriculture from strategic commodity goods to components of a larger knowledge project was integrally tied in with the US's modality of power and the liberal paternalism in which the US⁹⁶⁴ packaged its food aid.⁹⁶⁵ The geopolitical imperatives which ushered in the Green Revolution can be read as operating within food's dual functions—as the use value of food is singular, food's role in geopolitics is never based solely in food's materiality nor simply in food's exchange value. Food is also always strategic; the use value of food can exceed the materiality of food. That is, the use value lies not only in the fact that it can be eaten, but also in the many other purposes and metrics which food serves—in this case, for instance, as a way of teaching a development path. Food becomes a product of success on this path, an indicator of a government's abilities and/or worthiness.

The geopolitical rearrangements ushering in the Green Revolution harnessed this material and strategic split in food's use value. Food-aid was used (offered and tethered to conditions) in a way that reinforced the role of food in geopolitics and reproduced its dual functions. This “aid” policy harnessed the materiality and the singularity of food to produce a regime of development, writing how food would be produced from then on and securing US hegemony over food and agricultural production. This power was secured even without the trade of actual food stocks—but rather, agricultural inputs and a trade in knowledge of modern production techniques. *Hence, the use of food in geopolitics cannot be approached within the realm of the economic alone. The ways in which epistemic and economic power co-articulated are necessary to understand this.* What is the knowledge to produce, what is the knowledge project?—it is more than simply how to increase agricultural production, it seeks to provide definitive and naturalized answers to questions of what constitutes economic development and how to pursue it: through trade and the expansion of private capital. “Take-off” was to arrive via the shift in India's approach to agriculture—resulting from the tethering of food-aid disbursements to India's steps toward industrial (chemical-based) agriculture.

The above mandatory changes, enforced by the “short tether” policy, or the “strings” on aid, were certainly contentious, but since the exact terms of the “strings” were confidential, the “New Strategy” itself was not *as* deeply controversial with the general public and Parliament as it likely would have been.⁹⁶⁶ The contention and debate (in Parliament and society more broadly) focused on the idea of “strings”⁹⁶⁷ in the abstract (i.e. the fact that there were implicit and unclear strings on food aid) but significantly, not agricultural modernization itself as a “string.”⁹⁶⁸

3.3 | Technology-driven approach aligned with the interests of elite in India

While the conditions on aid deployed food as a “political sanction” to guarantee compliance with the US agenda, the emphasis on pursuing national food “self-sufficiency” through an “injection of technology”⁹⁶⁹ to increase production aligned with the interests of political and landed elite in India.⁹⁷⁰ The New Strategy offered a technical alternative to the redistribution of land, which was tremendously unpopular with landed elites and thus with Parliament. At this juncture, when the low rates of agricultural growth had “convinced the [restructured] Planning Commission that the continuation of shortfall in agriculture would jeopardize the entire program of industrial development” and the future of India’s development, agriculture was reborn.⁹⁷¹ With food aid directly linked to how much India spent on fertilizer and agricultural-technology imports or domestic manufacturing, India largely abandoned its fledgling land reform efforts and instead opened its fields to the Green Revolution and US agri-business.⁹⁷² The “Treaty of Rome” and the “short tether” were only the beginning of this technological approach to becoming “self sufficient”—a much longer and larger knowledge project that as enacted through the terms on aid projects.

3.3.1 | Consolidating “Self-help” into nascent economic liberalization

The logic of the push for “self-help” to achieve “self-sufficiency” can be read in the texts of, and letters regarding, loan agreements and negotiations. These loan negotiations provide the bulk of the records on the nature and understandings of aid during this time. A significant portion of the USAID loans were designated for the construction and operation of plants to produce the necessary new “modern” inputs—agricultural-technologies from fertilizer to pesticides. These inputs, together with irrigation, were fundamental to make the new HYV “miracle” seeds work. The loan documents also *reveal a persistent tension that manifests in negotiating how the fertilizer plants should be managed and under what ownership model* (i.e. the GoI, the private sector, or a collaboration of the two). The role of and the relation between the private sector and the state was a constant tension and defining aspect throughout aid negotiations; while each party subscribed to a schematic view of development, the views of how “take-off” should be efficiently managed had distinct roles for the state.

In the loan negotiations the US was particularly concerned that the new and rapidly growing ag-input sector provide ample opportunities for the *private sector to grow*. Justifying this, USAID argued that the GoI could not possibly expand its operations fast enough to meet the demand for

agricultural inputs. What is at stake is not just who *owns* the factories, but what model of state-market interaction underwrites the GR as a development model. The aim is for this to demonstrate “the green revolution [as a project that] advanced at a rate more rapid than government could readily service. The pressure for fertilizer and insecticide became so great as to weaken and overcome the ideological commitment to government-run industry,” as Paarlberg narrated.⁹⁷³

The GoI’s finance ministry, however, insisted that publicly owned plants could ensure the goals of national development and the rapid increase in food production if the GoI could oversee and direct the production in accordance with national goals and economic plans. But, they walked a fine line, as USAID financed the fertilizer plants and had significant leverage over whether any more plants could be built. As Guhan of the Ministry of Finance, Aid Division, explains in a memo to his colleagues:

*[US] ‘Aid would prefer that these two fertilizer projects should be built with private capital.’ AID’s stand appears to be compounded of (a) basic disinclination to finance public sector fertilizer projects in India. To my [Guhan; Ministry of Finance] query whether this was an *ideological inhibition*, I was told that it was on the “*sound practical experience: of our public sector fertilizer plants not being notable success and* (b) the anxiety that in any event we should fully explore the possibility of working out a joint venture with private foreign investors before going ahead with these two projects as 100% public sector plants. In other words, AID would want us to bear the onus of convincing them as to why we desire to have these two projects in the public sector. In view of the importance and priority of these two fertilizer projects, it is necessary that we should avoid any possibility of delay arising from GoI and AID not being on the same wavelength.^{974, 975}*

While USAID sought to have the GR demonstrate the “natural” growth of private capital as the most rapid development path, the reality that all the plants still needed state financing complicated this narrative.

3.3.2 | *Negotiating the means of “self help”*

John Lewis, USAID’s India country director, related the importance of the US approach for achieving aid and development to S. Bhoothalingam, the Secretary of the Department of Economic Affairs in India’s Ministry of Finance.⁹⁷⁶ In a private letter, Lewis offered the US government’s appreciation of India’s concerted efforts at promoting the expansion and deregulation of private sector functioning. Continuing, Lewis explained that the USG still needed commitment from the GOI on several concrete steps, implemented on a stricter timeline. He

assured the Secretary that the Americans were seeking these terms not in an effort to single out India, or even South Asia, but as part of a broader move to ensure the conditions are in place for development and private enterprise, by requiring nations to actively demonstrate their own level of commitment to private sector development to receive continued aid disbursements. He explained that the move “illustrates our increased concern, worldwide, that A.I.D. financing be associated with *maximum self-help efforts by the borrowers*. ... Our intent is to assure...the most rapid progress possible will be made toward *our mutual objective of self-sufficiency*.”⁹⁷⁷

Continuing, he asked for specific actions and dates:

The [Indian] Governments’ recent statements and actions indicate a determination actively to encourage foreign private firms to invest in fertilizer production in India appear to us eminently sound. ...would you be able to give me your assurance that it is the Government’s intention to do whatever it reasonably can to reach agreements by next July 1 [1966] with foreign private companies for the establishment of 1 million tons (nitrogen equivalent) of new fertilizer production capacity?⁹⁷⁸

The success of India’s development, in USAID’s view, rested on not just increased use of agro-inputs; the means by which the inputs were produced and attained was an integral part of this. The increase in supply of inputs was to support “the rapid and vigorous expansion of the reach of private enterprise.”⁹⁷⁹ The US stance maintained that the agro-input sector was growing rapidly, and that expediting its deregulation and privatization was essential to ensuring that development kept apace. Lewis expressed particular concern with one of the first plants, the Coromandel fertilizer project—which was to be a model and would serve as an indicator of these policies’ success. He repeatedly asked India for committed assurance that the plant “make good progress and, in particular, be able to engage the kind of seeding program originally provided—especially because of that project’s bellwether significance for other private investment in fertilizer.”⁹⁸⁰

3.4 | Food production as a knowledge project

The perspective articulated in these exchanges reflects an emergent shift in the role of food and agriculture in geopolitics. This is a dual move. It moves away from food being *a tool* in itself—where food itself *is* development *aid* by meeting basic needs and hence allowing for “higher” level concerns, like industrialization. It moves toward food *production*, and the “know-how” transferred with it, as the focus, constituting a knowledge project integral to the geopolitics of “development.”

While food, hunger, and the desire to control the agro-food system have long been driving forces in imperialism,⁹⁸¹ with the Green Revolution, food and the inputs for (industrial) agricultural production became more than strategic commodities. They were also a *means of deploying knowledge*.⁹⁸²

The USAID stance maintained that the only way that India could ensure that the necessary technologies were procured was through economic liberalization and the nourishing of private enterprise.⁹⁸³ Explicit from the 1960s on, this push continued, expanding the realm of what is to be moved outside of the state's control and, into the "market."⁹⁸⁴ In the 1960s, the focus was on agricultural inputs; by the 1980s, on food itself; in the 1990s, on any state involvement in food/distribution at all. That USAID credits the ideological differences articulated to the empirical proof of "sound practical experience" offers a concise take on the functioning of this ideology—a functioning that was solidified during the GR and continues to be understood in much the same way today. As Brian Atwood former USAID Administrator (during the Clinton Administration from 1992-1998) explained:

I don't think this is ideological, I think there is some empirical evidence to show that if you privatize your land and give people incentives and privatize the inputs that aren't state and broaden seed and fertilizer and everything else and create a market, that then you are going to generate a lot more activity and higher yields for food security and everything else.⁹⁸⁵

That is to say, in explicitly naming "ideology" only to then insist that this is not ideological, whether in the 1960s or today, is to say that it is not a "dupe," or that there is no hidden agenda, but this is actually the way to achieve development "take-off" and the affiliated gains—from food security to tackling hunger. This understanding continues through aid and development projects until the present.

The politics of this knowledge project are markedly absent from these narratives, swapped for a reverence of technology. This reverence is shared by the nationalist and developmentalist narratives of the era. The faith in "Science for Economic Development"⁹⁸⁶ binds the two, and the absence of the *politics of knowledge* (not to be confused with "technical know-how," which is very much discussed) cements the tale. It is not simply knowledge, but contingency, possibility, and conjuncture that are written out: the GR was undoubtedly controversial at the time, with other paths under consideration, and its existence owes to fairly significant political shuffling (see Ch. 4).

3.5 | Self-help's Lessons and Legacies

The terms of continued aid for the Fourth Plan required changes not only to agriculture but other realms as well. For, the GR was not just instilling an “economic” mindset in farmers. This revolution was at heart an “economic revolution,” both in the policies that it sought to implement and in the conditions it put on aid. As Bowles assessed: “No observer who has recently visited the *rural areas of India will question the assertion that an economic revolution of major proportions is underway.*”⁹⁸⁷ He credited these significant changes to “the positive response of millions of farmers to the prospect of higher prices, and their willingness to adopt new techniques which sharply increase their yield per acre.”⁹⁸⁸ But, while the revolution was promoted under the name of farmer self-help, the stipulations on aid (by this time) were of a very different nature, including changing monetary policy.⁹⁸⁹

By this time, to pay for the PL 480 food aid, the Rupee had been inflated; additionally, with subsequent the requirements of the “New Strategy,” India had drawn down almost all of its foreign exchange to pay for the massive the import of agricultural inputs.⁹⁹⁰ Together, these realities put India’s economy on a course that was increasingly leveraged to aid.⁹⁹¹ In this context, it became increasingly significant that India’s development path still was not what the US development “experts” deemed it *should* be—especially “to attract foreign private investment. This set the course for monetary policy to come.

The “self-help” policies of the 1960s covered vast swaths of development, economic, and social policy. They could be considered to be intellectual predecessors of the IMF’s “structural adjustment policies” (SAPs) of the 1980s and 90s. The premise was that once India removed “the breaks” causing stagnation, economic development would finally “take-off.” USAID, the WB, and others saw their role in this process as to monitor, to steer, and to keep India on the most effective path forward.

The self-help package was an effort to realign the goals of state development planning—away from a focus on publicly run enterprises towards “unshackling” the generative potential of the “free market.” By this time, in development policy, trade had come to mean more than simply the incorporation into a global alliance (i.e. the earlier era’s free world’s trading system). India’s balance of trade was excessively lopsided. As the next necessary step in “self-help,” India had to increase its exports. A major component of the discussion came to focus on locating “the most expeditious and efficient manner to exploit India’s comparative advantages in international trade.”⁹⁹²

The lopsided balance of trade (leveraged to pay for inputs⁹⁹³) was damaging India's economic growth potential and was now what was decreed to be preventing takeoff. India needed to increase exports to bring the balance necessary for more rapid growth; as USAID administrator for India, John Lewis explained in his newsletter:

India is not new to the planning process. Indeed it was a trail blazer in adopting economic planning techniques to a democratic society. Much of its development plans have reflected the kind of careful analytic work for preparing a development strategy. The same kinds of techniques are applicable to the preparation of an *export strategy*.⁹⁹⁴

Arguing that this is simply a new kind of development strategy, the understanding of “development,” as much as the path to it, were in the process of changing.

3.5.1 | *Promoting trade: bringing the Rupee in line*

The Fourth Plan required significant foreign funding; as laid out, it was almost twenty-five percent aid and loan funded.⁹⁹⁵ This meant that the international aid committees held significant, and disproportionate, leverage. Concerned with the pace and direction of India's development, the US and World Bank had jointly dispatched a Committee (The Bell Mission) in 1964 to assess India's overarching development strategy, and specifically its fiscal policies, before agreeing to an aid package.⁹⁹⁶ This leverage was explicitly used to steer India's development path.⁹⁹⁷ It also ushered in changes in fiscal policy.

In a 1966 *Memorandum from the President's Special Assistant (Komer) to President Johnson* the logic of this project of “self-help” is laid out. The project extended beyond food and agriculture—into broader regulatory and financial indicators of economic progress/takeoff—it equated roughly to economic liberalization policies. The keystone of the policies in the “self-help” package was declared to be the devaluation of the Rupee. The justification that the US, World Bank, and Consortium of funders provided for the necessity of devaluation was that it would make India's exports cheaper and thus spur economic growth.

George Woods is eager to start working over the Indians on a *self-help and aid package* as soon as he knows where we stand. Therefore, if you are satisfied as a result of your talks that Mrs. Gandhi *intends to adopt the major economic reforms* that we and the World Bank *have been seeking*, the best way to move ahead might be for me to tell Woods on your behalf. State, AID and I suggest we tell him the following, which protects us with plenty of caveats:

1. You have concluded from your talks that she is prepared to *liberalize India's import control policies* as well as internal price, marketing and other business controls *which have been inhibiting economic growth*, provided the necessary financial support is forthcoming. Additionally, she is prepared to *adjust exchange rates and tax policies to support liberalization*.

2. In order to move more rapidly toward self-sufficiency in food production, Mrs. Gandhi has assured you that India will follow through in *emphasizing agricultural development, making adequate fertilizer available to the farmers and vigorously seeking to attract foreign private investment in fertilizer production*. ...

This package is the real McCoy—much more so than emergency food. If George Woods, with our backing can drive the tough bargain which he contemplates, we will *have accomplished more in moving India via our aid leverage than in the last six years combined. And we will have done so at little if any greater out-of-pocket cost than in 1963 or 1964*. I stress again that this is a *self-enforcing bargain*—if India doesn't make the reforms we and the Bank want, it doesn't get most of the dough. This puts the choice squarely up to them. I may be over-enthusiastic, but I see this as a major foreign policy stroke, affecting 500 million people in the largest country in the Free World.² [A handwritten postscript by Komer reads: “We'd keep all of this very quiet for the time being, leaving it to the Indians to make the first move.”]⁹⁹⁸

When Bowles addressed the nation, praising these liberalization reforms, India had already complied with international conditions and devalued the rupee by a staggering 57 percent.⁹⁹⁹ The terms clearly went much further than agricultural policy deregulations; as USAID had been pushing, the reforms also included changes to monetary policy to “expedite rapid progress” on trade liberalization schemes. He applauded the changes as sure to expedite economic growth:

In recent weeks the Indian Government has made particularly bold vigorous efforts to speed its economic development.

Imports have been liberalized, the *value of the rupee brought into line with world values*, farming techniques further improved, industry encouraged, badly needed schools and hospitals constructed and the population problem attacked on a massive scale. ...

The US hopes that this assistance will enable Indian industry to operate at a much higher rate in the coming months. It should also increase both imports and exports and enable India to further advance its agricultural and industrial production while expanding its family planning programs, *building a strong, free, and self-sufficient India*.¹⁰⁰⁰

However, the stated goals and intended benefits did not result. Instead, despite the economic rationale that the devaluation and policy liberalization would promote exports and boost foreign

exchange, the massive devaluation had no effect on exports. However, predictably, the cost of importing goods into the country increased dramatically.

Given the other US demands that India had agreed to—including allocating almost all of its foreign exchange to inputs for agricultural modernization in a few small districts¹⁰⁰¹—the GR project took on increasingly high costs for the average person, making it increasingly contentious. Further, the decision to “revalue” the rupee had dramatic political and economic effects. The confidential nature of the terms of aid heightened the effects and greatly escalated objections to them—for the 57% devaluation was kept secret until *after* the devaluation was the official exchange rate. Even some Cabinet Members, the Planning Commission, and Parliament learned of the change in the newspaper headlines. As Nath Pai complained in Parliament:

Shri Nath Pai: Three times during the last budget session, the question of devaluation was raised in this house and on one occasion the present Planning Minister *categorically assured that Government did not contemplate devaluation.* I had raised this issue on three different occasions and this thunderbolt was delivered to an unsuspecting nation when Parliament was not in session. In the official communiqué issued on devaluation it was stated that *all future prospects of aid hinged on devaluation*[,] that was the word used in the communiqué by your worthy predecessor. Has this expectation at least been fulfilled? What is the Bell Commission’s recommendation with regard to the Fourth Plan? I have these two simple questions.

Shri Morarji Desai: the questions maybe simple but the replies cannot be simple. The Bell Commission’s recommendations are confidential and cannot be given out. That is the arrangement between the World Bank and the Government and therefore, I cannot make a breach of that arrangement.¹⁰⁰²

But, having leveraged the economy and popularity of the government to increasingly controversial and unsuccessful liberalization projects, the Finance Minister, Morarji Desai, simply explained to Parliament—implicitly articulating India’s highly constrained bargaining position—“I can only say that devaluation has not done the good that it was supposed to do.”¹⁰⁰³

3.5.2 | *Owning the controversy, Convergent interests*

Despite—or, perhaps, in part due to—the nature and cost of USAID and WB demands, and the growing controversy over the results of their policies, its Indian officiators repeatedly insisted that the GR, was “only our own idea” and its terms “not at the behest of any outside party.”¹⁰⁰⁴ As Minister of Food and Agriculture C. Subramaniam explained to the Lok Sabha (the lower house of Parliament):

What I want to impress upon the House is that there is no question of pressure from anybody. We have voice enough *and we have intelligence enough to see*

what is in the best interest of the country. I do not think we are going to take any policy decision through any pressure from any quarter, which is likely to be against the interest of the country. That much bona fides at least should be granted to the Government and to those who are in charge of the Government today. ... There is no question of pleasing this country or that country. It is a question of safeguarding our own interests, particularly safeguarding the interests of agricultural production which alone would give us the capacity to feed the millions of our people.¹⁰⁰⁵

To Subramaniam this was not a “lie” in that it not intended to “mis-lead” or simply placate. He consistently maintained that the terms of the “Treaty of Rome” were *his own terms*, terms that US Agriculture Secretary Freeman agreed to, but that they were suggested by Subramaniam. In his eyes this was the surest route to successful modernization of the agricultural sector and a bit of motivation to make it happen wouldn’t be turned down. Freeman’s memory corroborates this story to some degree. He explained:

We had them over a barrel and we squeezed them, but he didn’t object very much to being squeezed. And I found this true with other ministers of agriculture who in the last analysis had had such a difficult time getting any resources from the Finance Minister that they welcomed the fact that there was pressure from outside to help them get some of the resources they needed ... He had a pretty wide mandate [i.e. Subramaniam], and seemed fairly confident that if this [i.e. US demands] did not leak that he could get it through the Cabinet and through the Parliament.¹⁰⁰⁶

The concern here is not to determine whose idea the New Strategy with all its stipulations “actually” was, but rather to attend to the way that a singular idea of modernity and development is produced in these interactions. For, while it is obviously impossible to definitively assess motivations, Subramaniam and Finance Minister Desai both present themselves as resolute “modernizers,” and enforcers of attendant modernizing commitments; and, the US leadership specifically pointed to these two men as allies among a larger hostile Indian administration, more sympathetic and more inclined toward “market-oriented” policies.

The US demands, by Subramaniam’s account, operated more as a force by which he could leverage the GoI to do what he had already laid out.¹⁰⁰⁷ Subramaniam further explains that the New Strategy was his idea, not the idea of anyone in the United States:

But unfortunately Johnson always had a sense of self-importance. *If anything good or important was happening in the world, it should be a Johnson initiative.* Therefore, he thought the Indian farmer, the Indian minister and the Indian scientist were not adequate, *and that he should take a hand in the initiation of this strategy.* He reiterated in speeches that India should adopt this new technology, which, as a matter of fact, created problems for me in India. The speeches gave ammunition to those who were attacking me on the grounds that I

was following American advice and American technology. We had already announced and taken all these steps and *I had to tell people that President Johnson was telling us nothing new, and that we had already launched a programme of this kind, he was only emphasizing that this should be done effectively. But still it created problems.*¹⁰⁰⁸

In seeking to account for how development paths have evolved and been defined, it is essential to understand how particular perspectives come to be adopted—not only through explicit leverage and coercion, but also how they come to be owned and regarded as “local” ideas and/or as policies that ensure against outside influence (regardless of the initial policy conditions). Aid was not simply a coercive project; while there certainly was a component of “geopolitical arm-twisting” and leverage,¹⁰⁰⁹ far more significantly, aid is a knowledge project: the production of an understanding of what development is and how to achieve it. As Subramaniam explains:

Unfortunately it must be recognized that *America gives generously but does not know how to give.* I reached the conclusion that they would *give and still create a feeling of enmity* even through the process of giving. It still happens in many areas, *for they do not know the psychology of the people of developing countries.* We were able to get over the [political] difficulties at home [of Communists charging that they were simply following US dictates] because we were able to demonstrate that *it was not an American initiative but purely Indian initiative from top to bottom.*¹⁰¹⁰

An understanding of the events that came to secure the GR’s inevitability through ideology leads to a more nuanced reading—one that takes the constitution of the ideas and its claims seriously (i.e. rather than dismissing them as false consciousness or concealing a larger plan). An example is the nationalist claim that the Green Revolution project was an Indian project of ensuring and safeguarding independence. To take seriously what such a perspective means—for “agricultural modernity,” for “independence,” and the way that “development” has been (re)defined—it is necessary to recognize the certainty with which this path was seen (by some) as the only way to independence. However, it is also important to ask what is at stake in one’s vision of “dependence” and “independence.”

The knowledge project of agricultural development comes to be solidified in the repeated insistence, the ownership and the laying out the terms of how this path was arrived at and assessed. As Subramaniam testified in Parliament:

This is the new strategy which we have evolved and I can assure this House that *this has been decided upon not by politicians but by technicians,* by the scientists, by the agricultural economists, by the agricultural administrators. It has been reviewed and then decided upon on a pilot scale and I am *assured by the*

technicians and by the scientists—and I have confined myself not only to our own scientists and technicians but I have consulted others also from foreign countries and *everybody has assured me—that this is a worth while programme and this agricultural development programme will assure us success in our quest for self-sufficiency.*¹⁰¹¹

3.6 | Revealing Ideology

Ideology is difficult to excavate. But, to address the work of aid as a knowledge project it is necessary to unpack the workings of ideology. One way that the work of ideology can be seen is in the reaction to an articulation that is against or outside of, or that unsettles, our *naturalized* ideology. Such an articulation can be unsettling because its referent is not the expected referent, and the discrepancy jolts the subject. The reaction that even a simple switch can prompt, for example, on the relationship between poverty and economic growth, is illustrative: “We were wrongly taught that we should take care of GDP and it will automatically take care of poverty. Let us reverse it. *We need to take care of poverty and it will automatically take care of GDP.*”¹⁰¹² The response of finding this “unsettling” (or simply dismissing it as “political”) can begin to expose ideology at work. A logic is so engrained that we do not see it as ideology—until we notice that if one of the rungs is removed, or if two are switched, there is an unsettling effect. In that moment, we can glimpse the work of ideology. Such a simple inversion can reveal the ideology that 60 years of development projects have instilled: that there is only one path along which India can “move rapidly toward *self-sufficiency* in food production,” and that is to increase agricultural production, “to liberalize its import control policies and its internal price, marketing and other business controls and to adjust its exchange rate and tax policies to support such liberalization.”¹⁰¹³ In this understanding, food self-sufficiency is naturally a market relation, as are production and distribution. However, when success requires more than a simple commitment to “market relations,”—i.e. a level of demonstrated commitment able to inspire “confidence on our [USAID’s] part that India will *press forward aggressively to accelerate its economic development* through liberal economic policies and emphasis on agriculture”¹⁰¹⁴—it reveals that achieving food self-sufficiency is not *only* a matter of a market relation, nor only a production relation. Rather, it is a development project that requires navigating geopolitical imperatives—the most obvious of which is the definition of “self-sufficiency.”¹⁰¹⁵

To explain the evolution of aid and its demands, I characterize *aid as a “power-knowledge project,”* and I understand the changes it produced through *the lens of ideology and knowledge production.* A framework of simple “coercion” is vastly insufficient to understand aid’s

continuing effects decades on. Ideology and knowledge production are indispensable to understand this policy evolution, for the approach pushed by the US was not vastly different from what some segments of the Indian administrative and landed elite and capitalist class already supported. That said, the confidential US ultimatums, followed by continued steady pressure for liberalization, solidified this approach to agriculture into the planning and policy-making processes more rapidly, thoroughly, and with less room for negotiation, than would have otherwise been possible—given the tremendous political opposition among some other Ministers and some Parliamentarians.

The consolidation of this approach and definition of “self sufficiency” confined the policy options and produced a more widely accepted understanding of the nature of agricultural development. These understandings have continued to function today (see Ch 2), in the context of repeated calls for expediting the approval of GM crops in the name of increasing production, raising farmers’ income via the market, and ensuring India’s food security. The power of these claims, and the appeal to GM crops as providing the answer, cannot be understood without the context of US agricultural technology aid over time.

4 | Harnessing liberalization’s (self-evident) success for a second GR

The economic liberalization reforms were condemned in Parliament in the 1960s, and some were reversed, with the result that liberalization stagnated until the 1980s. Today, these reforms have been thoroughly revived. The GR era’s nascent liberalization is celebrated by the contemporary cadre of transnational liberalizing elite in quite a different light: these reforms, or “strings,” on aid, are regarded as the cause of GR’s self-evident success. The reforms petered out, but they introduced an understanding of “what works;” what this narrative maintains must be revived today for progress on the food and agricultural front. As former US Commerce Official Raymond Vickery¹⁰¹⁶ explained.

Whether the impetus of this change was wholly Indian or benefited from the strong-arm tactics of President Johnson is now irrelevant. The essential point is that the *needed economic reforms took place*. Nowhere is this more evident than in the reforms that provided agricultural nutrients during the 1965-71 period. Unfortunately, *the agricultural economic reforms that were so much a part of the first Green Revolution largely did not continue to evolve*. In fact...after the immediate goal of food self-sufficiency was obtained, there was a politically motivated economic regression.¹⁰¹⁷

The revival of the view of the GR as essentially an “economic revolution”¹⁰¹⁸ is not out of innocent historical interest. This story serves a renewed project of global economic restructuring, again in the name of democracy and development, again featuring agriculture, and again putting the “liberalization” of India’s national economy at the fore, as the lynchpin of this “development” project. As Prime Minister Manmohan Singh made clear to the US Congress in July 2005:

India and the United States have much in common that is very important to both countries. You are the world’s oldest democracy, we are its largest. Our shared commitment to democratic values and processes has been a bond that has helped us transcend differences. ...

Democracy is one part of our national endeavour. *Development* is the other. Openness will not gain popular support if an open society is not a prosperous society. This is especially so in developing countries, where a large number of people *have legitimate material expectations which must be met*. That is why we must transform India’s economy, to raise the standard of living of all our people and in the process eliminate poverty. ...

The economic policy changes that have been made in India have far-reaching implications. They have liberated Indian enterprise from government control and made the economy much more open to global flows of trade, capital and technology. ...enabling India to participate in the global economy as an equal partner. ...

*India’s economic reforms must be seen in this light: they may appear slow, but I assure you they are durable and irreversible.*¹⁰¹⁹

The understanding of the proper relationship between the state, the market, and technology has evolved over the decades of development projects. During the New Strategy, the Nehruvian approach of state-led management of technology and development for equitable growth was eroded and slowly came to be replaced by nascent liberalization in the name of modernity and independence, tethered to a natural disaster (drought) fuelled food-shortage. The framing of this “crisis” had been in careful production for almost a decade before the drought and before HYVs were developed.¹⁰²⁰ The drought and development of these new agricultural technologies provided the perfect storm for restructuring agriculture.¹⁰²¹ Likewise, today, the conditions of what India needs to change, and how, have been framed since the 1980s and 90s (see Ch. 1). Thus, Prime Minister Singh’s assurance that “India’s economic reforms... may appear slow, but... are durable and irreversible.”¹⁰²²

A commitment to “the market” as the most efficient mechanism of growth is claimed to be the underpinning assumption of the GR. Operating on this understanding, the projects to be enacted in the name of a “second Green Revolution”¹⁰²³ invoke the “original,” or “first,” GR and the US-India (liberalization) relationship as central to India’s progress. As Singh continued, explaining:

To fully exploit potential areas for cooperation between our two countries, we need to make special efforts to bring our private sectors closer together...

The bulk of our population still depends upon agriculture for a living. The United States was an early partner in this area, helping to establish agricultural universities and research institutions in India in the 1960s. ...

This was the start of the Green Revolution in India that lifted countless millions above poverty.

I am very happy to say that President Bush and I have decided to launch a *second generation of India-US collaboration in agriculture*. ...It seeks to take information and know-how directly to the farming community.¹⁰²⁴

Similarly, addressing the public in 2006 on the progress of the first meeting of the well-publicized Indo-U.S. Civil Nuclear Cooperation Initiative, Singh's counterpart, President George W. Bush, announced a confidential agreement they had reached in the nuclear negotiation meetings. This was the "second generation of India-US collaboration in agriculture" that Singh had referred to: the 2005 *Indo-US Agricultural Knowledge Initiative* (henceforth, the AKI). As President Bush stated:

America welcomes India's economic rise... In a free economy ... trade is such a powerful engine of prosperity and upward mobility. When markets are opened and the poor are given a chance to develop their talents and abilities, they can create a better life for their families, they add to the wealth of the world, and they can begin to afford goods and services from other nations. Free and fair trade is good for India, it's good for America, and it is good for the world. ...

The United States worked with India to help meet its food needs in the 1960s, when pioneering American scientists like Norman Borlaug shared agriculture technology with Indian farmers. Thanks to your hard work, you have nearly tripled your food production over the past half-century. To build on this progress, Prime Minister Singh and I are launching a new Agricultural Knowledge Initiative. This initiative will invest \$100 million to encourage exchanges between American and Indian scientists and promote joint research to improve farming technology. By working together the United States and India will develop better ways to grow crops and get them to market, and lead a *second Green Revolution*.¹⁰²⁵

This agreement was to instigate India's "second Green Revolution;" like India's "first" Green Revolution, the terms of the agreement to "improve and modernize" Indian agriculture were adopted as part of a confidential bilateral project tangled with the geopolitics of "national security."

4.1 | Confidential Agreements: Treaty of Rome, forty years on?

Signed alongside the well-publicized nuclear deal, the confidential agricultural agreement received relatively little mainstream press. Its confidentiality belies the repeated invocations of

democracy, freedom and an “open” society in both President Bush and Prime Minister Singh’s speeches and clearly harkens back to the “first” GR. Like the “Treaty of Rome,” the secrecy in which the terms of the AKI were shrouded indicates the depoliticizing work of the project. The secrecy, and the plain justification that disclosing the terms of the agreement would “disrupt Parliament,”¹⁰²⁶ produced significant speculation among some circles of policy experts and watch-dog groups about the nature and terms of the agreement.

The unclear terms and confidentiality also prompted widespread critique of the agreement from across the political spectrum, with skeptics and critics charging that the secrecy of the AKI made it “apparent that India has agreed to pay in the agricultural sector for the concession that it has sought from the US in the nuclear field.”¹⁰²⁷ Observers and critics argued that the “second” aspect of the AKI’s “second GR” was secretive nature of the agricultural agreements.¹⁰²⁸

4.2 | Changing forms of governance

Promoted as a means of targeting rural poverty, increasing Indian agricultural output, addressing the ecological havoc of the [first] Green Revolution, and forging a new step in both rural and in corporate bilateralism, the AKI promised to continue the GR project of ensuring the “welfare” of the citizenry and the nation itself.¹⁰²⁹ But the “security” and food situations are very different from the 1950s and 60s’ shortages of food-grain production and heavy reliance on US imports of food aid. The AKI did not refute the Indian government’s claims that the nation *is* food secure, yet it mobilized a staple political device in India’s colonial and postcolonial history—development interventions in the name of managing and thwarting the specter of hunger¹⁰³⁰—to justify forms of privatization in the name of transforming India’s agricultural sector.¹⁰³¹ The new improved approach the AKI’s public private partnership (PPP) was to usher in—dubbed “environmentally sustainable, market-oriented agriculture”¹⁰³²—aimed to boost the “knowledge economy” of Indian agriculture through reducing barriers on American biotechnology corporations.¹⁰³³ The (initially undisclosed) board featured major American corporations including Walmart and Archer Daniels Midland.¹⁰³⁴

Though the methods and terms of agricultural production have been a recurring theme in bilateral Indo-US relations for over 40 years, the AKI promoted itself as distinct from other bilateral agreements on agriculture and national security.¹⁰³⁵ It had a unique governing structure: as a *bilateral* agreement crafted by Heads of State, enacted through corporations, universities, and governmental agencies, it signaled a new stage in [neoliberal] national “development” policy.¹⁰³⁶

No longer about state-to-state development “aid” or transfer of technology, this was proposed

as an initiative funded largely by those it was supposed to “aid” (Indian taxpayers), while the priorities and agenda were to be driven largely by corporate interests—in the name of the “expertise” they were offering in modernizing India’s agricultural sector and improving its “competitiveness.”¹⁰³⁷ Its critics argued that this “second Green Revolution” was not a continuation of bilateral or international development aid and transfers of technology of the first “Green Revolution.” Instead, they characterized it as simply a commercial project, defrayed largely by Indian taxpayers and driven by multinational and domestic corporate interests. But, it cannot be dismissed so simply. It must be understood as a new model of governing and read for its knowledge dissemination and ideology of how “growth” and “modernization” happen. While some of the players were different than four decades earlier, and the technology promoted was new, the stated aims bear a surprising similarity. The US Department of Agriculture (USDA), for example, was clear that “the US goal [in this initiative] is to make sure that Indian biotechnology markets remain open—”¹⁰³⁸specifically, open to American agri-business corporations’ products and to American technology and grain exports, a goal that has changed little in four decades.

By either representation (its own or that of its critics), the AKI can be read as a project that was to be at the “forefront” of neoliberal shifts in governing access to food, agriculture, and agricultural technology.¹⁰³⁹ With the stated goal of promoting agricultural development through corporate-academic PPPs (public-private partnerships), the AKI invoked concerns about the recently increasing prevalence of hunger, and summoned the comfortable assurance of names and personalities from the “original” GR (the committee’s co-chairs were M.S. Swaminathan and Norman Borlaug).

The AKI was a polity marked not by the withdrawal of the state, but rather by the increasing withdrawal of policy initiatives—in this instance, agricultural policy—from the realm of electoral control and public accountability.¹⁰⁴⁰ As proposed, this configuration could be read as a form of “transnational governmentality”¹⁰⁴¹—power relations which are forged of corporate, state, and non-governmental alliances that re-spatialize the way power is deployed.

The AKI was not fully implemented as planned, but it is still significant in that it offers a location from which to read the intended *logic* of agricultural development policies today. While there are various explanations as to why it didn’t flourish, the question of concern is not whether, or why, the AKI “failed” to implement the projects it initially laid out. Rather, the question is whether (and if so, how) the AKI changed understandings of the terms of agriculture, “development,” or bilateral relations. What is seen as successful agricultural development? How is agricultural development differently imagined and enacted in this era of the “paradox of

plenty” than it was during the scarcities of the GR era? What is the role of the state in relation to the private sector in pursuing the goals of development? Is there a place in these projects for addressing poverty directly or only via the elusive promises of “economic growth”?

4.2.1 | *Rostow’s moment of arrival: consumption as development*

Explaining what would instigate this second revolution, Bush offered:

India needs to continue to lift its caps on foreign investment, to make its rules and regulations more transparent, and to continue to lower its tariffs and open its markets to American agricultural products, industrial goods and services. ... By enforcing its laws and educating its people and continuing to open up its economy, India can assure that prosperity and opportunity of a growing economy reaches all segments of India's population.¹⁰⁴²

Filling in some additional details, Bush explained what this vision would look like: India will buy our “McCurry Meals from McDonald's, home appliances from Whirlpool ... planes ... from Boeing. Also ... [goods from] businesses like General Electric and Microsoft and Intel ... America will trade with confidence”—and we, in the US, will get to buy their mangoes.¹⁰⁴³

In hindsight, Lester Brown (the USDA’s Administrator of International Agricultural Development Service during the Green Revolution) seems to have predicted the far-reaching powers of aid as a knowledge project and the work of ideology in transforming development. As Brown characterized it in 1968:

We should not overlook the role of the agricultural revolution in developing viable economies in the less developed world or the significance of this, in turn, for U.S. farm exports. It is difficult to give away farm products to people living at the subsistence level, much less sell them anything. Only as they enter the marketplace and develop some purchasing power can they be expected to buy our products. As Dorothy Jacobson, Assistant Secretary of Agriculture for International Affairs once put it:

*That market is a sleeping giant, with an almost endless capacity to consume. But this sleeping giant will awaken, and this market will come to life, only when economic growth brings higher incomes and greater buying power.*¹⁰⁴⁴

The captivating allure of the “almost endless capacity to consume”¹⁰⁴⁵ has played out over the decades, from vast (dumping) of food aid, to the deployment of this food to pry open markets for US capital (from agro-inputs on).

The logic of “competitiveness” (see Ch. 1), when coupled with a Rostovian imaginary of development’s arrival point as “high mass consumption” leaves us with this question: what does the logic of consumerism as the end-state of development mean for people who are marginalized

by, and excluded from, participation in these systems? What roles do they play in an economy that does not have a place for them as producers or consumers, at least “not yet”? What work does their marginalization, and effacement, do?

4.2.2 | *Harnessing Poverty, Anew: technology and markets for poor farmers*

In the policy documents of the Gene Revolution addressing food *insecurity*,¹⁰⁴⁶ the exclusion and hunger of this large sector of the population are naturalized as *before the fact*, as a pre-existing condition. And, technology again offers the answer.

As the AKI wrapped up in 2008, USAID introduced the ABSP II, the Agricultural Biotechnology Support Project II (the ABSPII). This project takes an even more targeted approach, explicitly defining how the second GR should come into being and which technologies it should use:

ABSP II focuses on the safe and effective development and *commercialization of bio-engineered crops* as a complement to traditional and organic agricultural approaches *in developing countries*. The project helps boost food security, economic growth, nutrition and environmental quality.¹⁰⁴⁷

Just as the World Bank articulated 23 years earlier—market access is to raise income. With the ABSPII, the “lessons” of the GR come together with the “lessons” of economic liberalization: as necessary as markets are, an effective new technology is key to ensuring the desired transformations. HYVs allowed the stringent terms of economic reforms to be credited to “nature,” or to scientific progress and advancement (see Ch. 4). GM technology is cast as the heir of this legacy, another natural “miracle” which will allow small holders to revolutionize their production methods and thus earn more for their crops in the global market. ABSPII proclaims this prosperity for the poor to be the mission of its development work.

The small farmers “natural” status as “outside of the market” is summoned to provide the justification for continued market expansion. Just like the large GR farmers before them, marginal and small farmers need to be reached and encompassed within the embrace of the market, so that they too can be uplifted.

Helping Reduce Poverty and Hunger: The increase in crop yields during the first Green Revolution relied heavily on... Large-scale farmers, however... *Today, agricultural bioengineering allows for genetic improvement of seeds and has the potential to benefit all types of farmers and consumers, including those who are resource poor.* ... ABSPII expects to secure...increased farm productivity and improved market opportunities [to] also expand rural economies.¹⁰⁴⁸

In the development story that ABSP II weaves, GM crops will provide the market access that will lift the small farmer out of poverty, up into the ranks of the developed.

“ABSP II-supported projects are conceived and executed to ensure sustainable impacts to resource-constrained farmers.”¹⁰⁴⁹ The logic promoting Bt brinjal—ABSP II’s flagship project—as a technology of development and food security rests on the idea that it enables the *small farmer* to harness the unlimited potential of “the market” to secure a larger profit (see Ch. 2). As the ABSP II newsletter explains, laying out—the thoroughly naturalized connection underwriting the non-sequitur logic—the project is that this: “*help[s] reduce poverty and hunger through agricultural biotechnology.*”¹⁰⁵⁰

The view that is harnessed to propel the argument to secure a second GR is this: the “lesson” of the first GR is that economic liberalization and market access coupled with technology *constitutes* development.

4.3 | Harnessing the (“first”) Green Revolution

The most significant effects of the long GR are not increasing food output, but engineering this shift: to food as simply a commodity available in “the market”—like plastic buckets, or any other. Its implicit metric is that if there is enough food in the market, there is not a shortage. The shortage of purchasing power, or the prevalence of poverty, that renders the majority unable to *afford* to acquire or consume the abundance they see in the market, is not part of the new GR’s equation.

Dr. Balasubramiam, lead researcher and director of the ABSP II Bt brinjal project at TNAU (Tamil Nadu Agriculture University), drew the line of continuity between the GR of the 1960s and today’s projects. Balasubramiam repeatedly invoked his own life as evidence—from growing up with lines for food, common shortages, and rationing (as did most middle class Indians at the time) to the unlimited plenty he finds every time he goes to the market today.¹⁰⁵¹ In this story, the edifice housing a local food market and the abstract concept of a “global market” are conflated.

This story makes one point as a *personal anecdote* of a plant scientist, related in a one-on-one conversation (as it was). The same story serves quite a different purpose when such anecdotes come to stand in for policy. The two are not to be conflated. For, when coupled with a technocratic progress narrative, this story serves to efface the very purpose the ABSPII is ostensibly created to serve: eradicating poverty. “Food enough” becomes simply enough food to fill the shelves, enough food for sale. Access is rendered invisible. Policy makers invoke such anecdotes to sidestep responsibility for creating actual policies related to their stated goals—at

least when invoking poverty—seeming to prefer anecdotes and non-sequitur logic. . Instead of addressing poverty directly, the various projects enacted in the name of a second GR have thoroughly digested and rendered permanent the RF’s solution—of separating food production and distribution goals (see Ch 4).

The projects claiming the mantle of being the “second” GR do not address food security except through indirect (and often non-sequitur) invocations of productionist logic and economic growth. The ABSP II framework, for example, is inserted with an international knowledge project, the latest technology as the object that will finally enable the poor to successfully bring the fruits of their labor to “the market,” trading in their poverty for plenty. That this is *not* a common result for small farmers is so clear it even has a familiar name—the paradox of plenty.

4.3.1 | *Projects deepening, not resolving, the paradox*

The AKI sought to initiate significant changes in both the production and distribution arenas. On the *production side*, the project promised to launch (yet another¹⁰⁵²) “second GR,” via markets and the latest technologies and updated inputs. On the *distribution and food resale side*, the AKI liberalized regulations, including laying the groundwork for FDI (foreign direct investment) in retail (the entry of Walmart a few years later, etc.). Proponents claim this project will increase efficiency in supply chains and lower the cost of food to consumers, while critics insist it will realize any possible savings at the cost of tens of millions of jobs and the loss of millions of locally owned small businesses.

The fact that the project misses the basic nature of the problem it claims to address—poverty—is clear in its casting of retail liberalization as equivalent with addressing “the distribution problem” itself. Despite this glaring gap in logic in the era of the “paradox of plenty,” this liberalization continues to be strongly pushed as the next necessary step toward development via an efficient economy and distribution system. As Vickery argued:

*Systemic economic change for the agricultural production and food distribution sector is now needed as the primary support for a second Green Revolution. ... Achieving food security cannot mean simply self-sufficiency... [and] cannot [be] achieve[d]...if agriculture and food remain fenced off from market disciplines that have increased prosperity in other sectors.*¹⁰⁵³

What he means by the “*food distribution sector*” is not the PDS and not the government at all, as he clarifies:

Although the economic reforms...in 1991 have continued to evolve the economy at large, the economic system governing Indian agricultural production and food

distribution has not kept pace. ... Systemic economic change for the agricultural production and food distribution sector is now needed as the primary support for a second Green Revolution. ... *economic reform must start with the consumer and the retail systems*. The full participation of the United States and other foreign retailers will provide the needed capital and know-how that will support immediate upgrades in the entire system.¹⁰⁵⁴

Vickery takes a somewhat different lesson from the GR than TNAU plant biotechnologist Balasubramiam. Vickery argues that the one indicator of whether such projects will succeed is the degree of “market integration.” Echoing Nelson Rockefeller’s “free world trading system,” of sixty years earlier, he argues that: “The immediate goal of using international trade to support a second Green Revolution must be in the liberalization of trade for the inputs that are necessary for increased production.”¹⁰⁵⁵ Vickery sees the market itself as unleashing production and prosperity.

4.3.2 | *The work of depoliticizing*

Postcolonial and development scholars have argued for examining the state through its conjunctures and reconfigurations.¹⁰⁵⁶ Following Gupta and Sharma’s conception of the neoliberal state as a “conjunctural phenomenon”¹⁰⁵⁷ of political, economic, socio-structural, institutional, and everyday practices necessarily situated in transnational contexts, I argue that the ways that food and agriculture interweave with development and governance in these convergences (re)produce the deep divisions that underlie food “security” and vulnerability. The workings of the AKI and ABSPII, as condensation nodes of the geo/domestic politics of hunger and agricultural trade, provide an entry into the shifting logics and governing practices of agricultural development in India’s two Green Revolutions, and questions of the production of hunger and vulnerability. As with the earlier work of the HYV, agro-inputs today work to depoliticize questions of access to food, land, agriculture, labor, and markets, closing off political discussion about necessary societal choices by reducing them to “technical” issues (and hence to areas of expertise), rather than viewing them as fundamental to and productive of the terms of power.

4.4 | Technocratic Faith as the commonality, the continuity is ideological

While there is a certain ideological continuity between the GR era and today, there are significant differences in how the projects and policies of the two eras are enacted, particularly in regard to the technologies, the terms of control over them, and who is seen as the target beneficiaries. Probably the most commonly cited distinctions are that the HYVs [high yielding

varieties] were non-proprietary crop technologies, and the Green Revolution was a project facilitated through public sector institutions and private “philanthropic” foundations operating through engagements and partnerships with the GoI. In the international consensus at the time, the state was the agent of development, and had a significant role in enacting, overseeing and directing development projects. There has been a clear shift. Today’s technologies are by and large privately owned, and the focus promoted by the agriculture-for-development “experts” has shifted to emphasize growing high value or “affluent” crops—not staple crops for the masses (see Ch 1).¹⁰⁵⁸ Moreover, inputs are today the most profitable part of the agricultural commodity chain.¹⁰⁵⁹ The commonality between the two eras thus lies neither in the food and agrarian situations, nor in the projects designed to address these crises;¹⁰⁶⁰ rather, it lies in the legacy of agricultural development initiatives as power-knowledge projects.

The *thread of continuity is ideological*. The eras’ shared faith in a development narrative resting on the power of technology to solve social, economic, and development problems, an authority it marshals by wielding the specter of hunger on the one hand and the promise of development on the other.¹⁰⁶¹ As scholars have widely noted, this confidence in the promise of science and technology has defined India’s modernity and path of development.¹⁰⁶² Their promise is part of the sustaining power of the “passive revolution” (see Preface) as itself a knowledge project.

4.5 | Navigating development’s contradictions

The GRs have redefined development and have (re)oriented India’s approach to development, food production, and food distribution; today, GM agriculture is painted as the way to renew the GR. As Prime Minister Singh explained after the moratorium on Mahyco’s Bt brinjal: “Biotechnology has enormous potential, and in due course of time we must make use of genetic engineering technologies to increase the productivity of our agriculture. But there are controversies. ...[and] *we are a democracy*, we are not like China.”¹⁰⁶³ That is, our growth cannot be as fast because *we* must worry about appeasing our constituents as well. In this vision democracy is necessary but is also, once again, the problem, slowing everything down, just as it did with economic liberalization after the GR era reforms. Likewise, Vickery characterized “democracy” not as integral to, but rather as often *hindering*, almost inimical, this process of growth—as it did after the GR and as it threatens to prevent another GR today:

The political difficulty of achieving further *liberalization of the agricultural production and food distribution systems in democracies* like India and the United

States should not be underestimated. However, any strategy for a second GR in India that does not take into account the critical role of such reforms will not succeed.¹⁰⁶⁴

The question he seeks to leave in his readers is how to (re)create the sought-after situation of a “self-enforcing bargain” that initiated the “Big Push.” This is a place where segments of the administrative elite have also been pushing India, and the place where the corporate class maintains is necessary for “progress.” The “passive revolution” is maintained by this belief—marked by feelings of “widespread resentment in the cities of ... *gaining votes at the cost of ensuring the conditions of rapid economic growth*. There is no doubt that this reflects the hegemony of the logic of corporate capital among the urban middle classes.”¹⁰⁶⁵ The necessity of abiding by democracy, as Singh and Vickery note, also offers an opening. Thus, Vickery’s diagnosis could also be read as foreshadowing—for, as with Bt Brinjal (see Ch. 2), GM proponents came to blame “democracy,” not the crop, not its property rights regime, not the allegations of mismanaged regulatory and approval processes, or any of the other shortcomings of the product itself, but rather “democracy” that was not behaving properly technocratic as hindering progress. In this vision of exclusion as progress, democracy can perhaps hold potential, at least for questioning the nature of the growth being promoted and what interests it serves.

The agricultural development projects of the first and second GRs can be read as attending to and working through the contradictions of development. Agricultural development policy (as manifest in these two periods) is formed at the crux of the conflicting imperatives of ensuring food security for the nation and managing the specter of hunger, on the one hand, and abiding by principles of an increasingly globalized ‘free-market,’ on the other. I suggest that in the legacy of the two GRs, *hunger has become neoliberalism’s enabling exclusion*. The prescription offered for addressing poverty and the specter of hunger is one of increasing agricultural competitiveness and specialty production for export.

5 | Conclusion

The myth of “the market” does such significant work for American Modernization theory and contemporary mainstream approaches to development in both the US and in India in part because it deploys a myth of abstract egalitarianism where advancement is mediated through a metric that we understand to be transparent and self-evidently meritocratic (i.e. that hard work leads to success and reward for all who try). This ideology (premised upon the “universal” subject) underwrites claims of the market’s liberatory powers —as Nelson Rockefeller argued—to

unshackle people from ancient hierarchies and oppressions (e.g. feudalism, family ties) with its constructive leveling powers. But, the GR project itself was not premised upon the universal subject. It was premised upon a top-down conception of development, with the elite running development and the gains and knowledge supposed to “trickle down” to the smaller farmer and common person. Today’s aid projects aim to engineer this trickle down. As the GR and its legacies clearly demonstrate, existing socio-economic hierarchies cannot simply be ignored or circumvented; instead, they are built upon and solidified.

In the case of the GR such positioning provided the sole basis of eligibility for participation in the program. As privilege was compounded, inequality increased. This was not an accident nor was it an unexpected result. The disparities and the social tensions that were expected to result from a program fostering such inequality were the primary initial objections to the “New Strategy” of the GR. These debates may have briefly stalled its implementation, but more than that, they also make plainly evident that this exclusion was a deliberate policy choice. Since that time markets have become increasingly liberalized: policies which have resulted in increased inequality and decreased access to food and basic necessities for the poor.

Taking on the larger logic behind these projects is essential because this logic underwrites and perpetuates the myth that these are inherently egalitarian spaces, places where access is transparent—conditions such that liberalization would necessarily increase access and equality. The fact that this has not been the case has been exhaustively demonstrated. But, the idea of “the market” as an imagined egalitarian realm that abolishes previous hierarchies remains powerfully captivating—in part by mobilizing the exemplary anecdotes as evidence of its universal teleology. The GR story is not told as a story of privileging the most well endowed while increasingly neglecting the majority of the producers. If the GR story were told in this way, both the market logic of the “free world trading system” into which the small and marginal peasants are being woven, and their role in subsidizing others’ tremendous gains, would appear quite differently.

The production of inevitability, of a singular modernity propelled by forward and upward progress, is the promise and the ultimatum of this economic liberalization and market integration. The framework of this logic is so convincing that when things do not go this way—when, as is the case in India for example, hunger and malnutrition skyrocket during the exact same time as the highest economic growth rates, and this dynamic is most pronounced in the states and regions with the highest economic growth rates¹⁰⁶⁶—we are assured that this is a puzzling or “paradoxical” situation, rather than a result of the necessary exclusions on which this system is

premised. Referencing Rostovian universal stagism, it is because something *locally* is lacking or broken—that *India's* economic integration with the rest of the world is not yet sufficient, or a mechanism is faulty (whether corruption, or callous disregard, or an inadequate social welfare net)—but there is no recognized correlation between these trends. What it cannot be, we are assured, is causal; economic growth cannot cause hunger—for that violates the unidirectionality and universality of capitalism's and modernization's historical narrative. It violates the very rationale of market integration itself.

The era of the “second” GR, the Gene Revolution, is defined by “surplus” food, increasing inequality, and “superfluous” hungry populations. As many point out, at no time has the world produced as much food as it does today, nor have there ever been as many people malnourished or in chronic hunger. Farmers and agricultural laborers are more than twice as likely to be hungry than any other segment of the population. In the market-centric logic propelling GM crops in India, this paradox of hunger amidst plenty is indeed taken up—to serve to justify and enable “market competitiveness” as underpinning development. While it is the functioning of food as a commodity which produces exclusion (i.e. hunger), the manifestation of this exclusion: hunger, is neoliberalism's enabling denial. That is, hunger is the enabling exclusion of the neoliberal gene revolution: the prescription offered for addressing the specter of hunger is one of increasing agricultural competitiveness and specialty crop production for export. In this iatrogenic project perhaps biotechnology can, at best, offer the potential to expose the constitutive contradictions of this market logic, pushing its exclusions beyond its own ability to suture them.

Chapter 6

Conclusion: Tracing Policy Foreclosures

1 | Introduction: the path is known, the question is how is it foreclosed

The world needs a paradigm shift in agricultural development: from a ‘green revolution’ to an ‘ecological intensification’ approach. This implies a rapid and significant shift from conventional, monoculture-based and high-external-input-dependent industrial production towards mosaics of sustainable, regenerative production systems that also considerably improve the productivity of small-scale farmers. We need to see a move from a linear to a holistic approach in agricultural management, which recognizes that the farmer is not only a producer of agricultural goods, but also a manager of an agro-ecological system that provides quite a number of public goods and services (e.g. water, soil, landscape, energy, biodiversity, and recreation).

–UNCTAD (United Nations Conference on Trade and Development) 2013¹⁰⁶⁷

The 2013 UNCTAD *Trade and Environment Review*, titled “*Wake Up Before It Is Too Late: Make Agriculture Truly Sustainable Now for Food Security in a Changing Climate*” focuses on agriculture; its recommendations break with decades of conventional mainstream wisdom as promoted by international development and financial institutions about how to achieve food security. Instead, its argument rests on the premise that to address poverty and food security (in the context of a changing climate), agriculture, food, and the needs of small farmers must be addressed as ends in themselves, not simply the means to “take-off” to a higher state of development.

In 2009 the World Bank and partners released the IAASTD (International Assessment of Agricultural Knowledge, Science and Technology for Development), a massive undertaking that came together in a published report: *Agriculture at a Crossroads*. The report, compiled by over 400 scientists¹⁰⁶⁸ asked the question how we are going to feed the world in 2050.¹⁰⁶⁹ Despite its funders, the researchers came to the conclusion that the way forward is not via large farms, or the heavy use of technology; rather, small scale, agro-ecological methods need to play a much more prominent role, in a restructured system where, importantly, farmers have autonomy and control.

1.1 | Policy foreclosure

These reports gained little attention in the mainstream media. If their results had been that we need to have large-scale monoculture industrial farms across developing nations, and/or to drastically increase the use of GM crops, one could have predicted a very different (celebratory) reception from the established media. But that was not the conclusion that the natural and social scientists were able to reach on the basis of evidence. So, while these reports made headlines in sites of agro-food discussion, the findings and recommendations of these reports did not penetrate far outside of these circles.

The reports and their findings are important. The results they came to were not unknown. They are important *not* because they offer a scientific breakthrough in understandings of sustainable food production for all. Rather, they are significant because they point to the deep fractures in the mold of current policies of “Feeding the World” through which we ask and understand questions of agriculture, hunger, and food. The findings of these and related reports pose the question: if this “alternative” path provided the best answer, and still provides it, why do official “development” bodies and development polices pursue such a different approach to agricultural development and food security? That is, if “what works” is established (as it has been for decades), the question to proceed with is not what approaches will succeed in ensuring access to adequate food for all. But rather, the *questions are*: Why do we not implement these policies? And, how is it that the policy approaches that are more likely to actually bring change and meaningful access to food for the majority of the world’s people consistently come to be foreclosed?

While telling us how to proceed to “feed the world,” the reports do not tell us how we got here, nor do they address how to build the political structures that would allow these policies to actually be implemented. Such options (i.e. supporting the majority of farmers) have been articulated throughout previous policy debates. Hence, an understanding of what has blocked this route in the past is necessary to understand how to enable requisite changes today.

I have sought to provide such an account, one useful for diagnosing the history behind the situation we inhabit today. As has become evident, finding a way to “feed the world” and ensure that the poor have some degree of autonomy (and are allowed to support themselves) is not the most difficult aspect of this equation—the politics of enabling such a policy approach is. Not only must the claims that this is “impossible” and “impractical” (i.e. that only large scale monocultures and modern technology can “feed the world”) be countered—much more than that, it

requires challenging the naturalized, “common sense” stories of agricultural development and hunger that the GR success narrative deploys, by examining how these stories operate and what work they do.

1.1.1 | *Rethinking policy foreclosures*

As I stood at the library check-out counter with the November 1965 issue of the journal “*Indian Farming*”—the cover features a picture of a man walking through a vibrantly green field wearing a power sprayer of liquid pesticides on his back, barely clad and completely without any protection against the chemicals he is using—a university librarian working at the circulation desk said to me: “Wow. This *used* to be such a *good* thing.” He paused to stare at the image again, and then continued, more quickly: “Now it’s a *bad* thing.” The September 2013 UNCTAD “Trade and Environment Review” bears a similarly striking and vibrant photo of another Indian farmer. A young man walks through fields, behind two oxen which bear a yoke made of split wood wrapped with rope, tilling the soil (see endnote¹⁰⁷⁰ for both images). The picture, not meant to be clearly “good,” (i.e. showing obvious “progress”) nor “bad” (i.e. showing what was *once* thought to be obvious “progress”), instead aims to represent the reality of hundreds of millions of small farmers around the world—who till without mechanization. It is such conditions and farmers that the report addresses. The stark and often brutal economic realities of such small farms have for decades been discussed by “experts” only in the context of the need to get these farmers “on the rails” for the “take-off process” where they can reap its “train of natural consequences.” The authors of this UN report—which argues that this dominant approach of the last 60 plus years is inadequate—provide a different vision of development. The findings and conclusions of scientists and social scientists are important: advocating policies that address the “multi-functionality of agriculture [and], its pivotal importance for pro-poor rural development,”¹⁰⁷¹ the take-away message emphasizes “pursuing a fundamental transformation of agriculture”—one which “take[s] into account systemic considerations.”¹⁰⁷²

The world needs a paradigm shift in agricultural development: from a ‘green revolution’ to an ‘ecological intensification’ approach. ...towards mosaics of sustainable, regenerative production systems ... a move from a linear to a holistic approach in agricultural management, which recognizes that the farmer is not only a producer of agricultural goods, but also a manager of an agro-ecological system.¹⁰⁷³

The approach which the UNCTAD summary endorses sounds eerily similar to the image of India’s villages as “complex ecological systems” hindering development in their “orientation to

self-sufficiency” that the American Foundations encountered in India in the early 1950s (Ch. 3).¹⁰⁷⁴ Does the fact that the UN has published a “Trade and Development Review” recognizing such an about-face from the last sixty years of dominant approach mean the knowledge of such small scale agriculturalists is to be validated, or that they are to have a greater autonomy? The articulation of such stance is deeply important, just as the debates during the GR were important, with their insistence that agricultural policy shift to focus on the 80% not the 8%, and that the state seek ways to support small and marginal dry-land farmers. These demands regarding the most appropriate policy approach are still alive in India today. In fact, the Ford Foundation today supports civil society groups working toward this end and has a very different vision of what agricultural development should look like than it did in the 1950s, 60s, and 70s.¹⁰⁷⁵

The alternative perspectives and challenges to the dominant view have been pushing back, pushing for a more equitable, efficient, productive, autonomous system—with a continuity that may seem surprising—over this time. But, the dominant power’s view still wins out far too often—operating not just to close off alternatives, but to efface them, write out their story. As if they did not and do not exist. The workings of these processes—how a policy consensus is formed, and how a path is determined—are political questions. This makes it all the more important to attend to how policy possibilities become foreclosed, written off, shut down, often before they even begin. Such policy foreclosures also foreclose the livelihood possibilities of billions of people, and are enacted all too often in the name of food security, in the name of addressing hunger, and in the name of helping the poor, while servicing the interests of capital.

It is this closing off, effacement of some paths, and (re)writing of a favored path as inevitable, which I have sought to address. I do not attend to the alternatives or answers—there are thousands of pages (well researched, substantiated, and written by those better qualified than I) enumerating factors and policies important to actually ensuring access to food for the majority of the people. The question that remains is *not* why are people hungry, not why people do not have access to the over-abundance of food, not why people are deprived of basic entitlements, not why they are excluded, or poor. We know the answers to these questions. The question is how and why this continues to be the policy choice that we elect—a policy of fundamental exclusion from the most basic necessities of life itself—and how this policy of exclusion wields (or has come to be wielded) as a moral imperative and battering ram in the name of the very possibilities which it repeatedly forecloses.

What path will we follow? Will we seek to “feed the world” within the framework of industrial agriculture or will we seek to finally allow for autonomy—to grow and access food—

not on the terms of corporate agri-business and empires of moral responsibility, but on terms entirely outside of this techno-political logic. The prospects might not seem promising; indeed, in a context of land-grabs, contract farming, biofuels, and a debt cycle of agricultural technology, where the World Bank offers governments “exit loans” to get their small farmers out of agriculture entirely¹⁰⁷⁶—rather than to build a sustainable means of supporting themselves and their community—the prospects in many ways are bleak. This is the naturalized “progress” narrative that we are told to push for—in the name of development and ending poverty. But, this narrative is only one side of the story.

On the other side, the array of voices that insist, demonstrate, and report that the above path is not the road to progress at all—it is not the road anywhere but to greater immiseration of the majority of the world’s people, increasing hunger amidst increasing plenty and increasing inequity—is growing. These reports, like the discussions of Bt Brinjal, and Minister Ramesh’s move to actually allow a moment of “pause” to enable a discussion to take place (Ch. 2), add important weight to these alternatives.

2 | Hunger amidst plenty and the production of common sense

The oft-repeated proverb about India is ‘*Scarcity Amidst Abundance.*’ The proverb is self-explanatory and needs no elucidation. It is a *paradox*, nevertheless true, that India predominantly being an agricultural country should face the dire shortage of food supply. -Dayal 1968¹⁰⁷⁷

Scarcity, it would seem, is responsible for a crisis greater than any the world has recorded in its collective memory. Nearly 500 million persons, most of them children, are close to starvation. Tens of thousands will die this week. Before the [global food] crisis resolves itself, countless millions—perhaps as many as 1 billion persons—will perish.

Yet there is no scarcity. Food is plentiful. Whether it will be shared depends upon how successful we are in penetrating the myths of development strategies that have failed in the recent past—and how effectively we counter the masters of triage.

-Simon 1975¹⁰⁷⁸

Despite significant increases in agricultural productivity and the fact that the world currently already produces sufficient calories to feed a global population of 12-14 billion, hunger has remained a key challenge. Around one billion people chronically suffer from starvation and another billion are mal-nourished. *Some 70 per cent of these people are themselves small farmers or agricultural laborers.* Therefore, hunger and malnutrition are not phenomena of insufficient supply, but results of prevailing poverty, and above all problems of access to food. Enabling

people to become self-sufficient or earn an appropriate income through agriculture to buy food needs to take center stage in future agricultural transformation.

-UNCTAD 2013¹⁰⁷⁹

The nature of the “food problem” of India (and much of the world) has changed over the last 60 years. If quantity produced was the problem, it no longer is. Though the nature of “Scarcity Amidst Abundance”¹⁰⁸⁰ has shifted over the decades, today this “paradox”¹⁰⁸¹ is manifest more than ever: in the highest hunger rates since India became independent, alongside the highest food production levels and massive food surpluses. Today, the majority of the world’s hungry and food insecure are agriculturalists.¹⁰⁸² That agriculturalists are twice as likely to be hungry and food insecure can seem surprising,¹⁰⁸³ as hunger and inadequate access to food are sometimes thought to be greater issues for the urban poor. To understand the structures producing agriculturalists as disproportionately poor, malnourished, and in chronic hunger, it is necessary to examine the processes of exclusion that write people out of economic structures of access and visibility (outside of the subject position of development and its structure of entitlements).

In the preceding chapters I have established why simply acknowledging that people are hungry because they are poor is insufficient. I have argued that to understand the contemporary situation of hunger amidst plenty (and today’s agriculturalist bias of hunger), it is necessary to understand the GR: how the GR reworked food, and the ways that food is produced and governed. To draw this out, I have asked how this has come to be—and more, how our explanatory narratives and “common sense” ideas of what to do about it have come to be. I explored this through systematically pulling at strands of this narrative, via a genealogy and a symptomatic reading—not to show its origin, but rather to call its self-professed origin story into question and to expose the work of that story.

I have sought to draw out the constitutive relationship of hunger in modern agriculture, specifically how the moral unacceptability of hunger is harnessed to projects which—in the name of “development,” “responsibility,” and “growth,” under the slogan of “Feeding the World”—enact exclusionary economic structures and processes that produce the very conditions of deprivation and exclusion (in this case, from basic adequate food) that they claim to redress. This is to provide an account of: how and what we understand as the history of agricultural development in India came to be. I have offered an account, a genealogy, not of the GR itself, but of how our common-sense story of the GR has come to be.

I have indicated that this understanding is consequential not only because of what has since transpired in India. While India does house more hungry and malnourished people than anywhere else in the world, while the malnutrition rates in India are almost double what they are in Sub-Saharan Africa—despite these facts, India is seen as a “model” because it has something that most Sub-Saharan African nations do not have: vast food surpluses, more widespread use of agricultural technology, and a greater penetration of “market” logic in the agricultural sector. India has as much as a third to a quarter of the world’s surplus food grain—and it has one-quarter to one-third of the world’s hungry people. The production of surplus food and superfluous populations can be traced to the policy strategies of the 1960s, though the effects were muted at the time—redressed with redistributive welfare measures—but later were ratcheted up under neo-liberal policies.

This account as a genealogy can offer insight into how our “commonsense” understanding of the GR came to be. Unlike history, which tells an origin story, a genealogy seeks to shatter that “origin.” I have indicated that there is no single origin, but many forces at play, some contingent and idiosyncratic. While the GR narrative tale, as written, has a sense of inevitability, of being a natural progression, as I have documented, a lot of work went into making it (appear) that way. Further, I have asked *what work* does our “commonsense” understanding of the GR continue to do today? I have approached this question with a symptomatic reading of an array of texts. I maintain that addressing this question is necessary because this narrative allowed for a common path to emerge, at the intersection of many different interests.

Through a symptomatic reading and a genealogy I have sought to expose the contradictions and defenses of the texts (e.g. understandings, theory, policies, speeches, and memos, and reports)—fissures it must paper over in order for it to have a meaning that is self-present; I have attempted to open the breach with a genealogy and then, with a symptomatic reading, to trace the making of the text that resolved contingency into necessity. I have maintained that these methods offer a different insight into the nature of the problem of hunger amidst plenty and how we understand its relationship to what is commonly accepted as the history of agricultural modernization in India.

In this, I have sought to take on an account that is stratified, settled, a history that is “known,” written, and even iconic, and to unsettle the dominant account of this history—not on my terms, but on its own terms, through its texts, files, and according to the logic of its narrative. I have sought not to dismiss it, not to indict it from the outside, but to tug methodically at strands of this narrative, pulling apart its weave, and as it unravels, to show how it was formed in uncertainty,

how it was formed out of, and in response to, that which it sought to exile and silence: the dissenting opinions, the inclination for an array of different policies, policies structuring the development process in favor of broad equality. This narrative was formed out of the very options which it declared not possible—options which were cleansed from the map of possibilities. There was nothing inevitable about it. It is in the telling.

Each chapter has sought to expose this work in a particular vein to build a larger case for the necessity of interrogating how these projects create (an implicit) subject of development and how the structures (of exclusion) are built around this subject. As such, simply acknowledging that people are hungry because they are poor is deeply insufficient. For, (as discussed in Ch. 1) this is simply to put the question into the dominant framework of the “expertise” of “development economics” and agricultural technology—a framework, which over the last thirty years has produced these very structures of exclusion (for the ideology of (neoliberal and neoclassical) “economics” has its own set of questions and calculations). The framework within which economics disciplines the questions that can even be asked effaces what it cannot address and elides that what is necessary is structural change—as the UN Review and the IAASTD, for example, indicate—changes to the structures which produce surplus food and superfluous populations as simultaneous processes. To recognize this is to recognize that *these processes are a policy choice*, one that mobilizes a moral imperative in the name of conquering hunger to make a case for the very choices which have produced increased hunger. It is necessary to move beyond the moral imperative of a productionist paradigm, and to do so it is necessary to address how this approach has come to be. I have adopted the perspective that to understand today’s realities it is necessary to understand how the GR forged food and agriculture in new ways—both how it created a framework of agricultural policy that continues to define the trajectory of agricultural development to this day as well as the subject of this policy.

3 | Feeding the World: Industrial Agriculture

Named “*The World’s Greatest Fix*”¹⁰⁸⁴ and “*The World’s Worst Idea*”¹⁰⁸⁵ the development and industrialization of modern agriculture and agricultural technologies is without question one of the foundational keystones of the “modern” world. Every aspect of life as we know it would be unthinkable without “modern” agriculture. The essential role that agriculture plays in making possible all other “modern” realities is clear. We all depend on and are enabled by “modern” industrial agriculture, but we rarely stop to ask: who is *the subject* of this modern agriculture?

How did one particular approach come to be so universally accepted, defined, and spread around the world, and what are the implications of this?

Though agriculture has developed over the course of millennia, in the last sixty years the world has seen a profound transformation in food production. The industrial revolution, itself enabled by the agricultural revolution ~10,000 years prior, was in turn to be brought to bear on agriculture. Agriculture in the West began to be transformed by the Industrial Revolution's effects about 100 years ago; these practices were spread to the rest of the world in the last sixty years. Dissemination of a particular set of practices, which came to be known as the "Green Revolution," has come to stand in as shorthand for many of the transformations brought by modern agriculture. Agriculture was revolutionized; but the industrialization of agriculture—or agriculture's "green revolution"—means much more than modern implements and chemicals introduced to fundamentally transform the way that agriculture is practiced. Just as the industrial revolution completely transformed social relations, relations of production, relations of ownership, and relations of hierarchy and influence at all levels in society, so has the industrialization of agriculture.

3.1 | Industrial Agriculture for Development: The Long Green Revolution

To examine the long GR project and its many continuing legacies, I have drawn upon literature addressing the political economy of food and hunger, pulling it together with development studies and insights of postcolonial studies. While agro-food studies (based largely in political economy) has carefully documented the ways the global food system has been produced, these insights can be deepened with the incorporation of the careful attentiveness postcolonial theory offers to textuality and questions of representation. Likewise, this coupling can be substantially enriched with insights from development studies; development studies has established that the nature of geopolitical and power relations in the "post"-colonial era, and the legitimation of particular ways of ordering the "progress" that "post"-colonial nations could not not want,¹⁰⁸⁶ exceed both the framework of political economy as well as that of representation and knowledge production. Together, these bodies of thought offer complementary ways of approaching the workings of international economic relations, of ties between nation-states, of the workings of power and knowledge, and of the ways that policies get caught up in particular conjunctures and matrices thereof. In addition to broaching a conversation between these trans-disciplinary literatures, through a genealogy and symptomatic reading I have staged an encounter between these literatures that is absent in each of them, and that deepens the insights that each

body of literature offers. I have not set aside the many important insights that agro-foods literature and political economy offer and have accomplished, but have taken on these questions in a different manner, tracing more deeply sedimented histories and pursuing the logic behind these policies.

Postcolonial studies and development studies, each in their own way, attend to the reality that the afterlives of colonialism reside in the ways that forms of knowledge are taken up and come to be organized around certain subjects, the “economy” being predominant among these.¹⁰⁸⁷ Despite thorough attention to these long-lived and widely circulating afterlives and the forms of knowledge production that have emerged over time, the deeply evocative power of food, the affective call of invocations of hunger, and the work of agricultural development as a site of subject production and knowledge legitimation has been largely overlooked. As I have indicated, the invocation of hunger has served as a device for world making—this geopolitical project and the global denomination of responsibility produce specific sites with particular subjects. To understand this production it is necessary to trace the ways that these affective connections have played into the hand of (now) established social science concepts. This is the task of the postcolonial critic. Yet, postcolonial studies has not adequately interrogated these social-science concepts, their formation or continuing salience. And, the important work that has been done on social-science concepts—such as that on our political imagination, the subject, and the economy—has not pushed these inquiries into agricultural and development science and/or other applied sciences that navigate between social science and the natural sciences. Reams have been written on agricultural development policy in India. But, while documenting many important facts, trends, and perceptions, these accounts do not offer a reading—of these processes and the ways that its legacies carry over into contemporary debates. I have documented how the affective power (and political threat) of hunger comes to be articulated in a development agenda centering on productionism; and, how while these categories have contingent origins, once deposited, they function as a force-field to organize objects within their universe.

My focus in the above chapters has been to trace the workings of power, and in doing so to interrogate the work and sedimentation of the “social science” concepts at work therein—including in the realm of discourse, the production of “the economy” as an object to be managed, development policy and its creation of subjects to be managed, and (the conceptualization and implementation of) social and agricultural policies governing technologies and food. While each of these realms has a specific focus, they are co-produced. In particular, I have explored how effacements happen and the effects such moments of closing-off of possibilities have had on our

current dominant conceptions of how to address problems. For, in closing-off alternative routes, favored paths have come to be rendered “common sense.”

The Green Revolution was a global project, but an effort spearheaded (and named) by American “development” institutions. The GR had a number of “successes” (well-remembered and celebrated—Mexico, Turkey, and India) and a number of unsuccessful ventures (failures largely effaced—Africa, the Philippines). I have focused on the case that is today the most internationally celebrated success: the transformation of Indian agriculture. The story that we are told of India’s GR is of a nation transformed: on the brink of famine, with political stability held hostage to chronic food shortages, India solved its problems, became able to “feed itself,” stabilized the government, and retained its status as the world’s largest democratic nation. Food shortages did not topple the government, we are told, because the application of modern scientific expertise was able to intervene just in time, and India was saved—narrowly escaping the clutches of Malthusian disaster and the clutches of Communism.¹⁰⁸⁸ The narrative of this global success story differs in India and in the US in the details, but the overarching narrative of independence being attained through the production of food is shared.

The deep threat that a shortage of food poses to the stability of governments and the “security” of the elite is not new. The need to secure sufficient food was a driving rationale behind imperialism;¹⁰⁸⁹ England’s colonies were used as a critical source of food staples and agricultural goods.¹⁰⁹⁰ While the out-sourcing of food production to its colonies underwrote England’s Industrial Revolution, by the time Asian and African nations were becoming independent the global flow of food was no longer so lopsided. By the mid-twentieth century, these newly independent nations were embedded in regional and global relations of production and trade, overseen by colonial empires. Despite decades of neglect and a punitive tax structure, British India produced more than enough food to “feed itself.” The terrible famines that occurred were not due to food shortages¹⁰⁹¹—vast grain surpluses were locked away from people during the massive 1943 Bengal famine; price speculation drove prices so high that it put this food out of people’s reach.¹⁰⁹² The British Government of India was adamant that they could not intervene in the market to stabilize prices; to do so would violate the principles of *laissez-faire* and free trade.¹⁰⁹³

Today, in India more people experience hunger and chronic malnutrition than at any time since that Famine of 1943, and the ideologies of *laissez-faire* are ascendant once again. India today produces far more food than its citizens actually consume. Newspaper headlines over the last decade and again during 2012 and 2013 have pointed to the profound “paradox,” a tired one

by now, of hunger amidst plenty. Yet, global institutions of power, operating in the name of “development” ask not how to create effective policies to target poverty, or the most basic issues of deprivation, but rather acknowledge the poverty and deprivation and use it to reiterate the urgency of their case to rapidly reduce regulations on FDI, MNCs, or to increase state subsidies—not to the poor but to international capital. This complete non-sequitur is so naturalized, made to seem so self-evident, that it does not even stand out as lacking the most basic logic, or without a link between cause and effect.¹⁰⁹⁴

It is necessary to dismantle this logic, for the reach of this ideology and the paradox is more complex—the Indian Government today does not abide by the laissez-faire non-interventionist principles as fully as the British Raj. Rather, even while partially dismantled (as the TPDS), and partially re-instated (with the NFSM), India still has one of the most extensive food distribution networks in the world.

3.1.1 | *The Long Green Revolution: subject production + exclusion*

To understand the situation of widespread food insecurity in India today, it is necessary to understand how the Green Revolution reworked *the nature of* food itself and hence how the Green Revolution reworked *access to* food (i.e. relations of the market, and food as a commodity within these social structures). The Green Revolution’s principal achievement was not that it increased agricultural production, but that it changed how the agricultural sector is structured in relation to the state, the market, and industry, and as such, how development is organized. I have suggested that in these processes it was not only agriculture and food that were affected, but more, that the *subject of development* was (re)defined as a market subject.

The Green Revolution was more than an agricultural initiative; it was a state-run project that initiated economic liberalization as part of geopolitical demands to prevent a “red revolution.” The (first) Green Revolution’s agricultural development policies emphasized increasing production through technology-intensive methods to achieve (what has since come to be called) national food security. At the time, the increased emphasis on output was complemented with social programs aimed at increasing the population’s access to food. These were part of broader development policies aimed at attaining sufficient food for both the nation and the population through increasing production and building national reserve stocks alongside expanding welfare and food distribution programs.¹⁰⁹⁵ The second Green Revolution—while like the first in that it is also entangled with national security and geopolitical imperatives—differs in its structure and in

the explicitness of who the policies are meant to attend to and are accountable to.¹⁰⁹⁶ As a neoliberal era revolution, the second Green Revolution promotes privatization and centers around “the market” as the catalyst of development and the agent of efficient allocation of resources.¹⁰⁹⁷

The Cold War era problematic which provided the context for the Green Revolution—concerns with de-escalating the political threats of the disenfranchised and preventing the threat of Communism—has arguably given way to a lack of political will to even address or govern “superfluous” populations, which has led to their increasing dispensability and invisibility. To return to the food “surpluses” that haunt this situation, it is clear (even to neoliberal institutions such as the WB) that the food supplies are not in “surplus” to the *needs* of the population—only to their financial means. Consistent access to sufficient food exceeds the purchasing power not of a minority, but of the vast majority of the population (between 50% and 90% of the population are food insecure and between 30% and 50% are malnourished or experience chronic hunger). With neoliberalism still in full swing, this “paradox” of mounting hunger alongside mounting state food surpluses became a defining theme of the first “long” decade of this century. This situation raises questions of: *how the functioning of the liberal state and governmentality are to be understood when so much of the population is excluded even from being subsumed within the functioning of the market—as consumers or producers?*

I have suggested that the seemingly “paradoxical” realities of contemporary postcolonial neoliberal development can be more fully understood by a return to the Green Revolution era to trace the roots of processes of exclusion that today manifest in forms that are anecdotalized as “paradoxes.” I have argued that these conditions are not “ironies” at all, but rather, are the constitutive contradictions of liberalism and its project of development.¹⁰⁹⁸ That is, when the contradictions which form the foundation of agricultural development policies manifest in material conditions, these conditions are asserted, and simultaneously dismissed, as simply “paradoxes.” This dismissal allows a level of comfort and serves as alibi, implicitly testifying for naturalized progress narratives and against the need to interrogate the deeper processes at work.

3.2 | Feeding the World

This deteriorating [food] situation poses *a dilemma* for the wealthy, food-surfeited citizen of the developed world. He must decide whether he has a *moral obligation to feed* those who are starving even if the food shortage in the poorest countries could have been prevented by population control. Morals aside, *out of sheer self-interest he must ponder whether the hungry half-billion will allow him to live peacefully, enjoying his wealth.* He must realize that there is the chance that the impoverished might resort to war to

take his wealth and food. Economist Robert Heilbroner notes that even hungry, poor states might soon get the nuclear arms with which to terrorize wealthy countries. Finally, *Western man* must decide whether his own sense of human dignity—which is the basis for democratic institutions—can survive as he witnesses so many people starving around the globe.
—Time Magazine, Editors 1974¹⁰⁹⁹

The crux of the problem of the last food crisis, as *Time Magazine*'s editorial staff opined with somewhat less subtlety than commentaries on the contemporary food crisis, offers us insights into the project of “feeding the world.” The subject of anxious concern in an increasingly dire food situation, where hundreds of millions risk starvation, is surfeited “Western man.” The driving question of how does “Western Man” assuage “his troubled conscience?” reveals: he does so by relying on two primary narratives. The first, a discourse of liberal “responsibility for,” hitched to the second, the logic of “economics” as the guiding metric for how to enact this responsibility, or moral obligation. I have traced how these two narratives operate (as alibi) in the construction of the contemporary geo-political economy regarding—and in the production of—food. The primary form this project has taken is the expansion of food as a commodity in the name of combating hunger and “feeding the world.” These projects hold such tremendous power because they are always also moral projects—and thus wield a moral authority to enforce their ends.

3.2.1 | *Question of liberalism*

The agricultural development projects of the first and second Green Revolutions can be read as attending to and working through the tensions between the imperatives of governmentality (as manifest in managing hunger) and the imperatives of the free-market—navigating the contradictions of development. While the *navigation of the contradictions* between the imperatives of governmentality and the “market” is arguably *constitutive of the project of “development” itself*, food plays a distinct role in ensuring these projects because of the unique demands on governing—as more than “managing” the relation between people and things, but, between its populace and the basics of life itself—food places a moral call upon the logics of governing as much more than managing.

I have sought to excavate the functioning of the framework of development through the ways that food has operated (i.e. access to food, food security, hunger, and food as a commodity to be sold, given, withheld, and speculated on). I suggested that the operation of food in projects of “development” and the “nation” can be broached through understanding how food’s dual functions—as both (i) a fundamental necessity of life, and (ii) a commodity that is bought, sold,

and hence unequally accessible—are harnessed and deployed in agricultural development policies. To address the “paradox” of pervasive food insecurity amidst plenty and the work done in the name of “development” in negotiating these relations and contradictions, it is helpful to trace how these dual functions (and the tensions between them) operated in the Green Revolution. Both the first Green Revolution and its nascent projects for a second GR were formed as development projects in and by the contradictions that liberal[capital]ism navigates, where national food security operates by moving between the tensions of governmentality and the “free-market.” That is, I understand the two Green Revolutions as development projects that operate by shuttling between, and attending to: on the one hand, hunger and national food security as sites where the singularity of food’s use value is invoked, and on the other hand, agro-technology as a site that has functioned to further subsume food within the logic of its exchange value. It is in this gap (i.e. the navigation of these two roles) that national security operates; clearly, both “national food security” and “hunger” are sites where food cannot be fully subsumed within a market logic, within exchange value. As national food security serves a strategic purpose—it is an issue of sovereignty and maintaining (an imagination of) the nation’s status—food tautologically exceeds its exchange value. The strategic nature of security is why even (or especially) the most “free marketeer” states seek to avoid simply being dependent on the international market for food—for the food necessary to secure their population.¹¹⁰⁰ The catch, so to speak, seems to be that the strategic importance of national food security is in procuring food for the population; but when the nation is food secure and the population is not, the food which underpins national security serves a different purpose. When it is not the population that the food is for, who or what is the food for? In the neoliberal reshuffling, food stocks themselves have another use value unrelated to the population. It is no longer a Communist threat, but now the imaginary of “the nation” itself that the food surpluses sustain, and it is the “value” of the nation’s geopolitical security that is maintained by the food stocks (regardless of whether they are distributed to the needy). Thus, even while sufficient food for the population is what needs to be secured, in the register of national food security, the concern is not about the food (in)security of individuals. Rather, the food stocks that render the nation secure are not actually meant to feed the whole population. These stocks guarantee (the presence of) sufficient food for food’s dual roles to function—at least for those to whom the government answers.

3.2.2 | *The GRs as projects of “Governing Food”*

As economists have thoroughly documented, India's national agricultural development policies after Independence emphasized the centrality of ensuring food security and nutrition.¹¹⁰¹ The accumulated food stocks in the last decade and a half resulted from restructuring aspects of these policies: cuts in distribution and social programs, but not in minimum price supports (the mechanism supporting prices for farmers).¹¹⁰² As a result, the massive "accumulation of foodgrain in government stocks did not result from a growth in foodgrain production but [from]...the increase in real prices [which] *forced consumers to consume less foodgrains.*"¹¹⁰³ The stocks grew to record levels largely due to economic liberalization policies and cutbacks in social programs. "During the 1990s, the rate of decline in cereal consumption accelerated by about 70%."¹¹⁰⁴ State policies—under World Bank imperatives and the encouragement of domestic pressure groups—prioritized *maintaining the price of grain at the expense of people's access to the grain.*¹¹⁰⁵

Such neoliberal policies are widely acknowledged to have profoundly shifted the accessibility of basic necessities and the state's role in mediating their availability. But more, within the context of the contradictions of food security (i.e. an environment of pervasive individual food *insecurity* in a food secure nation), policy reforms regarding who has access to this food arguably restructure the nature of *citizenship and governmentality* itself. These shifts did not begin with neoliberal reforms and cannot be understood within the context of neoliberalism alone; I have maintained that to understand these shifts we must return to the (first) Green Revolution. The Green Revolution governed food production in a way integrally related to producing the subject of development.

The Green Revolution was fundamentally a *knowledge project*, deploying governmental technologies in agriculture in a way that served to subsume food increasingly within exchange value. However, it was also a development project that was driven by different imperatives than those of today. The concern with stability—which was threatened by the dual specters of hunger and Communism—articulated in a particular governmentality and broader social welfare programs designed to ensure the widespread food security of the population. As such, during this period, the increasing commodification of food was mitigated by social programs which offered food "below price" to the poor. Hence, when these programs were targeted by neoliberalism in the 1990s, the conditions were such that hunger rates almost could not but skyrocket.¹¹⁰⁶ This is the context of the second Green Revolution, where the nation's food security is invoked as a driving need for agri-biotechnology.¹¹⁰⁷ While the second Green Revolution can also be read as shuttling between food's two roles, it does not attend to the same imperatives of governmentality

(or, certainly not in the same way). Rather, I suggest that it invokes these imperatives as justification, but the concerns it is shuttling between are *national* food security and the market. Operating in the tensions between the two functions of food, the second Green Revolution invokes cases of exclusion from access to food (that result from policies which subsume food within its exchange value) as “exceptions,” mobilizing these to solidify food’s role as a commodity for a regime of market centric-governance (i.e. those who cannot afford food justify/require agricultural development and privatization).

Thus, it is not that neoliberal logic and the policies it manifests in simply exonerate the responsibility of the state; but rather, that in (re)writing the logic of the market as the guiding logic, the state’s responsibility has been restructured. In this, the food security of the population as a whole has been restructured out of the state’s concern and moored to the market as the catalyst of security.

3.2.3 | *Governing Development: accounting for poverty and hunger*

The government’s representations of development and poverty provide perhaps the clearest example of how governmentality, the production of the population, and the commoditization of food (through the Green Revolution and the cutbacks in state welfare) can be read as converging. Increasingly subsuming food within its exchange value, the Green Revolution project achieved “national security” through the management of the population (where agro-technology served as a technology of government) as much as through efforts at increasing production. Utsa Patnaik has followed up with the situation of food insecurity today, documenting that food availability per capita is at the lowest levels since the 1930s, and that rural hunger is particularly acute.¹¹⁰⁸

She explains that despite the low and decreasing levels of food consumption, the Government repeatedly claims that poverty rates have not increased since the 1990s (i.e. since the major neoliberal reforms began). The Government’s statistics on poverty are possible only because the Government has stopped correlating calories consumed (or mal/nutrition) with poverty—after the PDS was cut, that metric did not produce “good” numbers.¹¹⁰⁹ This shift in how poverty is assessed—for the apparent purpose of being effaced—has enabled an increasing percent of the population to be declared “above” the poverty line. The neoliberal narrative of “the nation” relies on these decreases in poverty to anecdotalize the “paradox” of hunger amidst plenty as an exception, an irony, rather than the overdetermined outcome of policies of development as exclusion. The narrative that these statistics produce is mobilized as evidence to justify these

development projects (or, at minimum, it enables effacing the depth of the effects of neoliberal restructuring). The actual material resources (e.g. the amount of food consumed) do not count in the statistical representations of poverty, yet, at the same time as those who are malnourished are effaced into the monolithic category of population, their malnutrition and hunger are harnessed, and their exclusion from the market is mobilized for projects of development.

The government has played a balancing act with the population: they have been able to render deceptively large portions of the population “developed” through the manipulation of statistics and categories. By redefining and re-measuring “poverty” such that it excludes the most basic markers of bio-political deprivation and lowering the poverty line itself, more people are automatically delivered to the status of non-poor without any improvement in their material conditions. In this production of development, it is *hunger that actually underwrites national security* and “food security.” The government’s explanation that “[t]he agricultural sector, therefore, acts as a bulwark in maintaining food security and, in the process, national security as well”¹¹⁰ can be read through the lens of the exclusion and commoditization of the majority of the agrarian population over the last fifty years. The effacement of the malnutrition of the majority of the population means that, the bulwark of the security of the nation is offered up with their bodies. Hence, the nation’s security has come to rest on the effacement of poverty and hunger to produce the necessary “surpluses.” This is the fundamental contradiction the Green Revolutions navigate: a logic which must both efface this poverty and hunger, at the same time as it is absolutely reliant on (invoking) it to secure its project of development.

Throughout the above chapters I have suggested that to approach this situation it is necessary to consider the production of the subject of development and the effacement of vast portions of the excluded “population” from this subject position. For, in the case of food, the majority of the population is excluded from resources that are available. In this case, *where exclusion is not simply a matter of a lack of resources, exclusion results from the nature of development projects which (re)define how, and which, subjects have access to resources.* The construction of this subject position shaped not only who received the basic resources of “development” and the state, but also whose needs and/or poverty are effaced when the government declares the nation to be “food secure.”

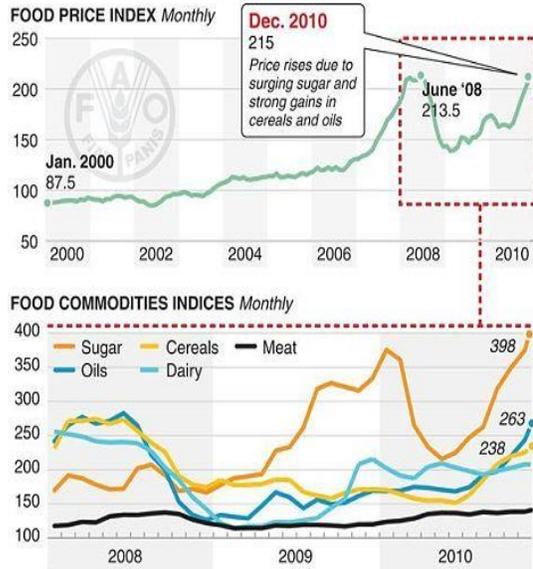
The era of the Gene Revolution is defined by “surplus” food, increasing inequality, and “superfluous” hungry populations. At no time has the world produced as much food as it does today, nor have there ever been as many people malnourished or in chronic hunger. In the market-centric logic propelling GM crops in India, this paradox of hunger amidst plenty itself is taken up

to justify and to enable the need for “market competitiveness” as underpinning development. The functioning of these constitutive contradictions has also allowed an opening—one in which the alternative voices are emerging, to reopen the discussion the future of agriculture for development and to allow the autonomy for people to feed themselves.

Endnotes

¹ These graphics, for instance, represent some of the numbers on price rises:

RISING FOOD COSTS



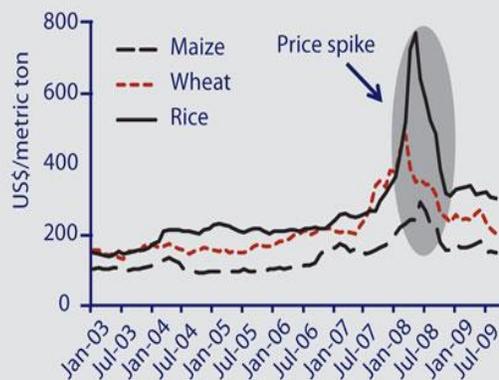
Source: FAO

REUTERS

available at:

<http://www.dailymail.co.uk/sciencetech/article-1350009/Food-prices-rocket-50-global-hunger-epidemic-causes-riots-famines.html>

Figure 1—Market risks: High and volatile world grain prices



Source: FAO (Food and Agriculture Organization of the United Nations). 2009. *International commodity prices database*. Rome.

available at:

<http://www.ifpri.org/publication/food-security-risks-must-be-comprehensively-addressed>



available at: <http://www.washingtonpost.com/blogs/wonkblog/wp/2012/08/09/could-the-u-s-drought-trigger-another-global-food-crisis/>

² For more on the food riots, see for example Holt-Gimenez and Patel 2009; McMichael 2009.

³ A graphic indicating food riots alongside food prices:

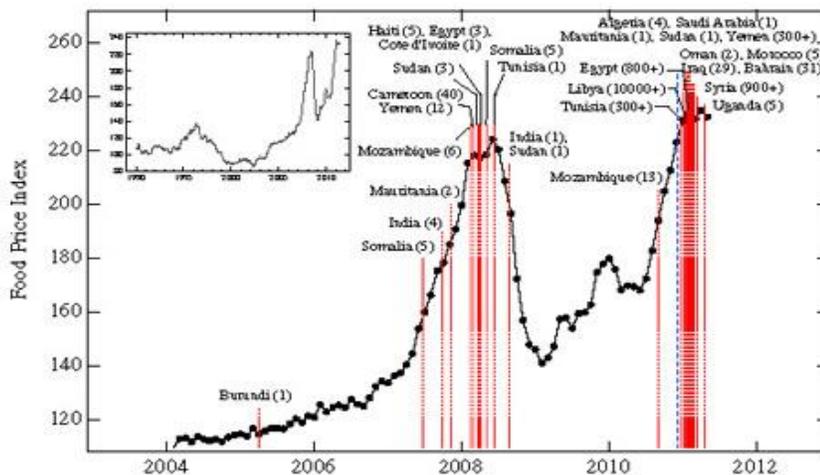


FIG. 1: Time dependence of FAO Food Price Index from January 2004 to May 2011. Red dashed vertical lines correspond to beginning dates of “food riots” and protests associated with the major recent unrest in North Africa and the Middle East. The overall death toll is reported in parentheses [26–55]. Blue vertical line indicates the date, December 13, 2010, on which we submitted a report to the U.S. government, warning of the link between food prices, social unrest and political instability [56]. Inset shows FAO Food Price Index from 1990 to 2011.

available at:

<http://www.governorsbiofuelscoalition.org/?p=3385>

⁴ For more on the term “Third World” see for example Power 2003.

⁵ There was a major concern among Western powers with mandating significant “population control” measures in the “third world”—due to the “sensitive” nature of explicit sterilization projects, these concerns were quickly largely subsumed into the project of “development,” and more specifically, “agricultural development” (see for example: Green 1999; Time (Editors) 1974a).

⁶ This was the dominant rhetoric, however, then as today there are accounts that challenged this representation. Reporting from the 1974 UN Conference on the last “major global food crisis,” Simon (1975) offers an assessment that could be reprinted—with a simple change of date, thirty-three years later—in response to the global food crisis of 2008. He explains that the representation of the problem as

one of shortage, then as now, does very significant political work: “We may *think* there is scarcity; only the corporate traders know for certain” (ibid). He continues that the exact causes of the crisis were intentionally obscured—namely by :

Multinational agribusiness, primarily U.S.-based, [who] controls more than the markets of world agriculture, as Jean Pierre Laviec of the International Union of Food Workers said in a statement released in Rome:

They decide the quantities of vital inputs to be produced, the quantities of agricultural products to be bought, where plants will be built and investments made. *The growth rate of agribusiness has risen during the last ten years [1964-74] and . . . has been directly proportional to the increase of hunger and scarcity.* (Laviec, as quoted in Simon 1975; my emphasis).

⁷ The UN FAO estimates that food prices will not stabilize or return to “normal” (i.e. 2005) prices until 2017 (FAO 2008; European Commission 2008; FAPRI 2008; USDA 2008).

⁸ (Kaufman 2008, 2012).

⁹ That said, Goldman Sachs and the other primary speculators were not buying actual food stocks, of course. But futures, promises of potential food. A primary proposed means of regulating and reigning in speculation in the food system is to make such orders deliverable—for these speculative investors of course do not want the actual food they buy and cannot store it. They are trading in financialized food: in effect speculations on the exchange value of what its use value will be.

¹⁰ This, of course, is not an insight of the current food crisis, but a well-established, extensively documented point (Sen 1981).

¹¹ This was the dominant explanation in the 1970s (see for example Time 1975), in the second half of the 1960s the blame had been on what Americans perceived to be lazy and incompetent Third World Governments (see for example Time 1974, Wallerstein 1980).

¹² (c.f. The Economist 2008a, 2008b, 2008c).

¹³ (c.f. The Economist 2008a, 2008b, 2008c).

¹⁴ Even though in this case, increased production clearly would have done nothing to stem the price rise—the realm that needed intervention was regulatory and financial), the US Government’s response to the crisis argued that financial deregulation and the eradication of trade barriers in developing market agriculture was the only way forward (see Lugar-Casey, CSIS 2008).

¹⁵ (Pollack 2008).

¹⁶ (Wall Street Journal 2008, GRAIN 2008; Angus 2008; Anderson 2009; Monstanto 2008).

¹⁷ Norman Borlaug, who left DuPont to work for the Rockefeller Foundations breeding HYV wheat in Mexico is often dubbed “The Man Who Fed the World” (Hesser 2006)—a project which lives on, summoning his Nobel Peace Prize as evidence of the intrinsically stabilizing work of “modernizing” agricultural production methods.

¹⁸ (Sheeran 2008; as quoted in Kaufman 2012: 131).

¹⁹ (Kaufman 2012: 132).

²⁰ (Sheeran 2008; as quoted in Kaufman 2012: 130).

²¹ (Kaufman 2012: 134).

²² (Kaufman 2012: 134).

²³ (Cullather 2014).

²⁴ (Faribairn 2011; UN 1974).

²⁵ (Kingdon 1995).

²⁶ (CSIS 2008: 6; my emphasis).

²⁷ (CSIS 2008: 3; my emphasis).

²⁸ In case there was any ambiguity as to what they mean, they elaborate—by this understanding the argument on the necessity to:

Make the promotion of developing country agriculture a goal of U.S. trade policy.
Press on an urgent basis for a successful conclusion of the Doha Development Round that promotes investment and trade in developing country agriculture and reduces long-standing subsidy and tariff barriers. Focus U.S. executive-congressional dialogue on

concrete measures that could expedite U.S. approvals of Doha outcomes. Make the successful conclusion of the Doha Development Round a foreign policy priority in diplomatic relations with member states of the European Union (EU), member states of the African Union (AU), and emerging markets such as India and Brazil.

Pursue targeted international and regional trade discussions that can bring rapid follow-on benefits to developing country agriculture. Examine how existing U.S. trade preferences, already in place for many developing countries, might be used to reduce technical barriers to developing country agricultural exports to the United States and build trade capacity in those countries.

Take deliberate bilateral and multilateral diplomatic action to ease export bans and restrictions that have contributed to higher food prices, including strengthening World Trade Organization (WTO) rules on export restrictions. The World Bank says that 26 net-food-exporting countries have maintained or introduced such measures, making it hard to acquire and ship food to the most needy even when funds are available (CSIS 2008: 8-9).

²⁹ (CSIS 2008: 6; my emphasis).

³⁰ (c.f. The Economist 2009a, 2009b, 2009c).

³¹ In addition to removing tariffs, subsidies and rolling-out futures trading to small marginal farmers, agrotechnologies (namely GM crops) also make a prominent entrance at this moment in “solving” the crisis of hunger. The far more complex series of social-economic-ecological relations that leave people without food are not always completely ignored in these claims; it is implied and explicitly stated in some accounts that GM crops provide the solution to the problems of acute poverty plaguing those marginalized in our global economy by enabling them (for the poor and hungry are twice as likely to be agrarian workers) to secure greater returns on their crops and thus become actors in the global market by selling their genetically enhanced produce.

³² Here we can see Watts and Bohle’s (1993) concept of “spaces of vulnerability” mapping on a geopolitical scale.

³³ (Diouf 2009; as quoted in The Economist 2009b).

³⁴ (Sheeran 2008, as quoted in Kaufman 2012: 130).

³⁵ (Time 1974: <http://www.time.com/time/magazine/article/0,9171,911503,00.html>).

³⁶ (Rockefeller, John D. III. 1961[1976]: 35).

³⁷ (Rockefeller, John D. III. 1961[1976]: 35).

³⁸ (Nobel Committee 1970).

³⁹ (Nobel Committee 1970).

⁴⁰ (Nobel Committee 1970).

⁴¹ (Hesser 2006).

⁴² (Thompson 2000: 60; Busch 2001).

⁴³ (Shiva and Jalees 2004; NYT 2009).

⁴⁴ The revamped Public Distribution System (PDS) was renamed the Targeted Public Distribution System (TPDS)

⁴⁵ (Chand 2005, 2008a; Swaminathan, M. 1999, 2000).

⁴⁶ (Chand 2005, 2008; Dreze 2001, 2003; Swaminathan 2009; Patnaik 2008).

⁴⁷ (DasGupta 2013; IFPRI 2010).

⁴⁸ (Dayal 1968: 77).

⁴⁹ As Dayal further explains:

The principle keystones of the New Strategy for agricultural production under the Fourth Plan have been enunciated as follows: ‘(i) to apply scientific techniques and knowledge of agricultural production at all stages, particularly in the fields, (ii) to select a few areas with assured rainfall and irrigation for concentrated application of package of practices based on improved varieties of seeds responsive to heavy doses of fertilizers and availability of inputs and to fix special targets of production of foodgrains for such areas’ (Dayal 1968: 76).

Under the new Food strategy or high yielding varieties programme, it is proposed to select within the existing IADP and IAAP areas a few blocks:

Where there is no problem of water—either the rainfall is good or the irrigation system is satisfactory.

Which enjoy immunity from natural hazards such as floods, drainage problems, soil conservation problems, etc.

Which have well-developed village institutions like cooperatives and village panchayats (Dayal 1968: 77).

⁵⁰ (RAC 1969: 25).

⁵¹ (RAC 1969).

⁵² (RAC 1969: 2).

⁵³ (Raina, Rajeswari, interview by author. New Delhi. February 24, 2011).

⁵⁴ (See for example Nobel Committee 1970).

⁵⁵ (Patel 2012).

⁵⁶ (Patel 2012).

⁵⁷ (Patel 2012: 2).

⁵⁸ (c.f. Vickery 2011; Visvanathan 2005; Frankel 2006; Wallerstein 1980).

⁵⁹ (Frankel 2006; Frank 2002; Visvanathan 2003; Subramaniam 1977).

⁶⁰ (See for example Omvedt 1975).

⁶¹ (McMichael and Schneider 2011: 126, citing Macinnis 2008).

⁶² (Chatterjee 2004; Gupta and Sharma 2006).

⁶³ These interviews often took the form of long conversations and shaped the ways that I understand and frame the questions that I ask in the following pages; that said, the text of the interviews does not feature prominently in the dissertation chapters—as my primary concern here is to interrogate the work that agricultural development performs, many of these interviews helped me approach that question, rather than serving as textual examples of it.

⁶⁴ (Latour 1986; Scott 1998; Smith 2006, 2002).

⁶⁵ In this I follow postcolonial, feminist, and other critical scholars who conceive of ‘institutions’ and the work they perform not as a single concrete entity housed in a place, but rather ‘institutions’ are constituted in the intersections of modes of *rule and regulation* which coordinate the relations and everyday practices of state functioning (Gupta and Sharma 2006; Ferguson and Gupta 2002; Smith 2005, 2002; Devault 1999, 2002).

⁶⁶ (Althusser 1974).

⁶⁷ (Latour 1986; Mitchell 2002; Smith 2002).

⁶⁸ “Reading” as defined in the Glossary of *Reading Capital* (1997 [1968]) is as follows:

The problems of Marxist theory (or of any other theory) can only be solved by learning to read the texts correctly (hence the title of Althusser's later book, *Lire le Capital*, ‘Reading Capital’); neither a superficial reading, collating literal references, nor a Hegelian reading, deducing the essence of a corpus by extracting the ‘true kernel from the mystified shell’, will do. Only a symptomatic reading... constructing the problematic, the unconsciousness of the text, is a reading of Marx's work that will allow us to establish the epistemological break that makes possible historical materialism as a science (q.v.). Both Hegelian and empiricist readings are attempts to return to the myth of direct communication, to the Logos, and they therefore have a religious inspiration. Marx's own reading of the classics provides an example of symptomatic reading. While apparently merely recording the discoveries of the classics, their sightings (*vues*) and at the same time noting their omissions (*manques*) and oversights (*bévues*), Marx in fact shows that the classical texts contain something in their omissions that the classics did not know they contained. The symptomatic reading analyses the textual mechanism which produces the sightings and oversights rather than merely recording it (Althusser 1970: 317-8).

⁶⁹ (Althusser 1970: 318).

⁷⁰ To do so, a symptomatic reading identifies a “problematic” which anchors the narrative: an anchoring which diagnoses the world and produces itself as self-evident. That is, this anchoring operates to simultaneously and selectively illuminate some regions and leave others in darkness. The mechanism

through which this operates is by investing them with the natural self-evidence of “common sense.” Such a framing or anchoring allows only some questions to seem relevant, or to even be asked, and it de-legitimizes others.

⁷¹ (Foucault 1977).

⁷² (Foucault 1977: 76).

⁷³ Documents, of course, not to be taken as necessarily physical objects.

⁷⁴ Foucault’s and Derrida’s methods each have a similarity to Althusser’s symptomatic reading, but they take this in rather different ways. Both begin from a premise of the rejection of the concept-term of an origin. While Foucault sets his approach in explicit opposition to the search for origins (largely for reasons that as) Derrida diagnoses the ways in which this desire for an origin underpins Western (onto-theological) thought and how the attempts at producing/securing such an origin—by expelling/effacing the other—are the defining, or constitutive, theme of Western thought. There are also some important differences, not to be easily glossed over; one of relevance here is that Foucault’s brilliant writings are marked (methodologically, ontologically, and epistemologically) by a willingness on his part to adopt and observe from an “outside” in a way that Derrida’s are not. I mean: when diagnosing society and its periods Foucault in effect steps into the role of “analyst” in a very different way than Derrida—in this particular aspect, Foucault’s approach seems antithetical to Derrida’s. While they do not agree on their respective approaches, both agree that a search for “origins” lies within the [Western] onto-theological tradition (an inherently “religious” view of the world). That is, along with Althusser, all three reject the narration of history which holds an implicit origin, and narrates history as a fall from that state of presence—an obvious question being what constitutes that origin and how far back need one go—an appeal which has generally turned to a figure of the divine to halt the excavations. Such a view often manifests itself in concerns with, and the privileging of “presence.” As Althusser explained “Both Hegelian and empiricist readings are attempts to return to the myth of direct communication, to the Logos, and they therefore have a religious inspiration” (1970: 318). The distinction I am suggesting is that Foucault’s approach implicitly appeals to (and cl/aims to find) an “outside” to this; something which Derrida is at a pains to remind us is not so easy/possible. While my broader perspective/approach is more sympathetic to Derrida’s method, Foucault’s method does also provide a useful means of tracking and sign-posting a path through this process of the production of history as text. This is also of note for how Foucault defines genealogy, and how I pair this understanding with Althusser’s symptomatic reading—as alluded to in noting the different perspectives they adopt—a deconstructivist approach to reading would, of course, balk at Foucault’s implication that the genealogist could access anything like a conscience, or consciousness, or the idea that something as such exists in pure, or that it could be known even by the possessing subject. Rather, this perspective untiringly reminds us that such a quest serves to bring the searcher right back into the secured space (that she never really left) of the very onto-theological perspective that she is trying to operate “outside” of. The fallacy is one that must be guarded against; and I suggest, a symptomatic reading might serve a guardrail of such tendencies of a “genealogy.” While Foucault does insist that this approach “dissolves the unity of the subject” (1977: 163), his conception of this (as Spivak (1984) brilliantly deconstructed) still falls short of escaping Derrida’s critique. The accessing of a consciousness is not something that I seek. Rather, I aim to show, if anything, that such a conscience is always already fractured, and to trace what work this does. While the philosophical framework underpinning Foucault’s framework does not fit into a Derridian approach, I still aim to see if it can provide tactical tips for maneuvering the field of historical material (I do not yet have an answer to this question). *Genealogy does offer something similar to SR, it helps us to excavate how specific terms, concepts and processes have become naturalized, or taken for granted.*

⁷⁵ (Lawson 2007).

⁷⁶ (Chatterjee 2008).

⁷⁷ (Kaviraj 1989).

⁷⁸ (Chatterjee 2008).

⁷⁹ (Chatterjee 2008).

⁸⁰ (Chatterjee 2008: 58).

⁸¹ (Chatterjee 2008: 57).

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- ⁸² (Chatterjee 2008: 57).
- ⁸³ (Chatterjee 2008: 62).
- ⁸⁴ (Chatterjee 2008: 57).
- ⁸⁵ (Gupta 2012).
- ⁸⁶ (Lawson 2007).
- ⁸⁷ (Swaminathan 1983).
- ⁸⁸ (Hart 2010: 119).
- ⁸⁹ The two are integrally interconnected, as she continues, “Development is most usefully understood in terms of the exercise of power in multiple, interconnected arenas, inseparably linked with the socially and spatially uneven dynamics of capitalist development” (Hart 2010: 122).
- ⁹⁰ (Domosh 2004: 453).
- ⁹¹ (see for example: Sneddon 2012, 2006, 2003; Domosh 2012, 2010, 2004)
- ⁹² (Smith, N. 2003).
- ⁹³ (Cullather 2010, 2003; Ahlberg 2008; Wallerstein 1980, Latham 2003; Sackley, 2012, 2011a, b, 2004; McMichael 2004).
- ⁹⁴ (Essex 2013).
- ⁹⁵ (Sen and Dreze 1990; Sen 1981).
- ⁹⁶ (Cullather 2010, 2003; Ahlberg 2008; Perkins 1997; Thompson 1992; Wallerstein 1980).
- ⁹⁷ (Swaminathan 2007; Patnaik 2004; Currie 2000; Swaminathan 2000, 1999; Mooij 1999; Sharma 1997).
- ⁹⁸ (Behera 2008; Gupta and Sharma 2006; Gupta 1998).
- ⁹⁹ (Ahlberg 2008; Davis 2002; Friedmann 1993, 1987; Goodman 1987; McMichael 2009a: 139, 2005, 1994; Perkins 1997; Watts and Goodman 1997).
- ¹⁰⁰ (McMichael and Schneider 2011; McMichael 2009a, 2005, 1994; Atkins and Bowler 2001).
- ¹⁰¹ (Essex 2013).
- ¹⁰² (Essex 2013: 3).
- ¹⁰³ (Chatterjee 1986; Goswami 2004; Gupta 1998; Prakash 1999).
- ¹⁰⁴ (Gupta 1998).
- ¹⁰⁵ (Hecht 2011).
- ¹⁰⁶ (Sparke 2005: xxvi).
- ¹⁰⁷ (Sparke 2005: xxvi).
- ¹⁰⁸ (Smith 2003).
- ¹⁰⁹ (NDTV 2013; my emphasis).
- ¹¹⁰ (Dreze 2001).
- ¹¹¹ (Singh 2012, as quoted in NDTV 2012).
- ¹¹² (Sainath 2006).
- ¹¹³ (Reuters 2012; TOI 2012; NYT 2013).
- ¹¹⁴ (FCI 2013).
- ¹¹⁵ The FCI is the Food Corporation of India, the body responsible for the procurement and storage of food stocks; it was established during the Green Revolution era to ensure surplus (and as part of conditionalities on US food aid).
- ¹¹⁶ (Planning Commission, GoI 2002: 365).
- ¹¹⁷ (Dreze 2001; Muller and Patel 2004).
- ¹¹⁸ It is estimated that (at least) ten thousand people die each day of hunger in India (Rai et al. 2005). Most of these deaths are from ‘complications’ of acute chronic hunger—a medical distinction from starvation—but both kinds of death result from the same policies (Patel 2007; Pealez-Gonzalez 2005). In 2001 reports of starvation deaths surfaced in seven states in North India (Muller and Patel 2004), with several hundred starvation deaths were reported in Orissa alone (Devraj 2002).
- ¹¹⁹ (Dreze 2003).
- ¹²⁰ (Patnaik 2008).
- ¹²¹ (IFPRI 2010; GoI 2009; Jharwal 2008; Patnaik 2007; Swaminathan 2007).
- ¹²² (Dreze 2001a, b; Swaminathan M. 1999, 2000; Chand 2005, 2008; Patnaik 2008; Himanshu 2013; Sen and Himanshu 2003, 2004).

¹²³ (NDTV 2012, Hungama 2012, IFPRI 2010).

¹²⁴ It should be noted that while the level of malnutrition in fully half of the children is a *symptom* of hunger, the government data does not classify these children as “hungry.” While official data recognizes that half of children are malnourished—something that PM Singh declared a national tragedy (cite)—and 20% of adults are malnourished, the government’s categories contort the definitions and statistics in such a way that they are able to claim less than 2% of the population is officially “hungry” (GOI SAARC 2011: 29).

¹²⁵ (IFPRI 2010).

¹²⁶ (IFPRI 2010).

¹²⁷ (GoI 2002: 365).

¹²⁸ (e.g. WB 2008).

¹²⁹ (IFPRI 2010).

¹³⁰ These are lessons that we are increasingly seeing manifest around the world. Most starkly in the summer of 2013 has been the manifestation in the US, the breadbasket and “feeder” of the world—as Congress passed financial support for massive subsidies to industrial farmers while cutting out money for food assistance for the food insecure. The Congressional debates around the Farm Bill in the summer of 2013 should give us pause, as they underwrite the production of a disturbingly similar “paradox” of plenty.

¹³¹ Rao (2005) estimates that over 10,000 people die each day of hunger in India; these deaths are not recorded as hunger deaths, but listed according to the accomplice (fatigue, illness, etc).

¹³² This is approximately 1.34 billion USD. One crore (1,00,00,000) denotes ten million (10,000,000); a crore is one hundred lakh (1,00,000).

¹³³ One lakh (1,00,000) denotes 100,000.

¹³⁴ (Sahai 2010).

¹³⁵ (GoI 2002).

¹³⁶ (Sahai 2010).

¹³⁷ (GoI 2002).

¹³⁸ (Dreze 2001, 2003, 2012; Gupta 2011; Mooij 1999; Swaminathan, M 2000, 1999).

¹³⁹ (Chand 2005; Dreze 2003; Mooij 1999; Swaminathan, M 2000).

¹⁴⁰ (Mitchell 1998: 91; my emphasis).

¹⁴¹ (Mitchell 1998: 92).

¹⁴² (Gupta 2012).

¹⁴³ According to the widely regarded (yet somewhat controversial) Sengupta Committee Report, 77% of the population poor and without access to even the most basic resources (living on less than 50cents (USD) a day). The Report released in 2009 for the National Commission on Enterprises in the Unorganized/Informal Sector (NCEUS) is officially called “The Challenge of Employment in India: An Informal Economy Perspective.”

¹⁴⁴ (Gupta 2012: 4).

¹⁴⁵ (Chatterjee 2004).

¹⁴⁶ By “most of the world,” he explains “I mean, in a general sense, those parts of the world that were not direct participants in the history of the evolution of the institutions of modern capitalist democracy” (2004: 3).

¹⁴⁷ (Chatterjee 2004: 38).

¹⁴⁸ (Chatterjee 2004: 40).

¹⁴⁹ While the government’s ostensible reason that the food was not given out was because of cutbacks and reductions in expenditures on food subsidies, during this time the government expenditure actually increased—it cost more to store the food than to distribute it. In fact, the expenditure on subsidy in 2000-1 was over four times what it was in 1992-3, yet food reached less people (Shiva 2002).

¹⁵⁰ The need to secure food’s exchange value is clearly part of the reason because (as has been widely documented) the surpluses are artificial. That is, they result from people being priced out of the market. However, this is not simply a matter of maintaining food’s exchange value; for, the excess surpluses were sold to multi-national corporations at 40 to 60% of the price they were available to consumers at (Shiva

2002). While these exports may help the international balance of trade, clearly they do not regain more money for the food than if it were sold domestically.

¹⁵¹ Food security, is most commonly referenced as it was defined at the World Food Summit in 1996: “food security exists when *all people, at all times*, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for a healthy and active life” (Pinstrup-Anderson 2009: 5; my emphasis). However, “[i]n its *narrowest definition*, food security means that enough food is available, whether at the global, national, community, or household level,” and does not specify “what is meant by ‘*enough*’. Is it enough to meet *economic demand* and if so, *at what price*, or is it enough to meet energy and *nutrient requirements*?” (ibid: 4; my emphasis). The political implications of (food) security as it is commonly understood can be delineated at the levels of the *nation* and the *population*. While at some level a nation is its population, and some would argue is food secure only if its population is food secure, the imperatives of food security also exceed the population.

Understanding food security as operating at multiple levels, at the scale of the nation, food-security is argued to be needed to safeguard against the leveraging power that a dependence on other nations to meet basic food requirements allows. Further—in addition to strategic concerns of sovereignty—food is also symbolically significant in sovereignty. The presence of an adequate food supply is important in maintaining and assuring the nation’s status within the metonym of development¹⁵¹ (both its demonstrated material self-sufficiency and the state’s ability to regulate access to the most basic commodity of life for its population). Food-security for the population at large is necessary both to ensure proper governance and to secure against the destabilizing threats posed by widespread hunger. But if these are not of concern and there is little reason to even govern the poor, in such an understanding, the food necessary for “national food security” is for those who are proper members of “civil society” (i.e. what Chatterjee calls “citizens”), and not for those in “political society” (i.e. what he calls “the population”).

¹⁵² (Gupta 2012: 4).

¹⁵³ (Gupta 2012: 4-5; my emphasis).

¹⁵⁴ (Gupta 2012: 4).

¹⁵⁵ What Dipesh Chakrabarty (2000) refers to as “the waiting room of history” (where European colonial powers told colonized subjects and nations “not yet,” you can have independence, but “not yet,” you’re not ready *yet*) is not used as an excuse for denial of citizenship any longer, but this logic remains starkly the case, used as an excuse for denial of securing, or achieving, the full rights, guarantees, and expectations of citizenship (i.e. being a full citizen—what Partha Chatterjee (2004) refers to being a member of “civil society,” rather than a member of “the population”). This aspect of citizenship is *not yet* available to large segments of society. Rendered what Chatterjee refers to as “population,” they are told they must wait—until the national economy grows—and then, they too can be included in the most basic entitlements of liberal government.

¹⁵⁶ Update: this plan has now passed Parliament and been signed into law since the writing of this chapter.

¹⁵⁷ (The Hindu 2013; Tehelka 2013; GoI NFSA 2013).

¹⁵⁸ Inadequate as the ration is for a family, and is still priced beyond what the poorest can afford. Further, it is less grain at a higher price than what some states already offered. Further, empirical evidence indicates that only more inclusive, or *universal*, schemes can even reach the poorest—as the poorest are the first to be *de facto* excluded when any *de jure* criteria are in place.

¹⁵⁹ If prisoners were to die of lack of access to food, one could predict more outcry than when the poor die of the same physical deprivation. What is it about the logic of “economics” that has produced “poverty” as a (bio)political condition that we sanction even while it is so far outside of our otherwise taken for granted norms? The *absolving logic of economics*, worth, work and free-choice as alibis, obviously shape our capacity to condemn the undue death of a prisoner (who presumably had no other means of accessing food)—even though she ostensibly is in prison for acts which “violated” the “social contract,” she is still entitled to the basic necessities of life (the “social contract” is still in place enough to feed her).

¹⁶⁰ Gupta characterizes the violence of poverty as “structural violence,” but he continues that the state is *culpable* and should be linked (even though structural violence is clearly outside of Weber’s classic idea of the state as defined by its “monopoly on violence”). He suggests: “the reason such violence is considered to be structural is that it is impossible to identify a single actor who commits the violence. Instead, the

violence is impersonal, built into the structure of power” (2012: 20). That is, Gupta suggests, it is structural because it is a “crime without a criminal” (2012: 21)—without a criminal, I suggest, because of the releasing work of economics. Gupta characterizes this violence as “the reduction to bare life” (2012: 21). Gupta is drawing largely on Galtung (1969) for the base of his conception, and refining it with Das’ insight into uncertainty as an important aspect—for to Gupta (in his quest to understand bureaucracy) this aspect of arbitrariness is central. (His argument is that structural violence is enacted through everyday practices and that this violence coexists with care (found in welfare practices).

¹⁶¹ The logic of economics acts as alibi can be read as an attempt at continuing the closure of the basic moral questions which (Foley, 2006) asked. Political economy has since its articulation in the “moral philosophy” of Adam Smith, been grappling with the continuing the closure of the basic moral questions; Smith was first a moral philosopher and, as Foley (2006) argues, he sought to resolve the fundamental question of how to live a “moral life” within the antagonistic social relations that capitalism imposes (Foley, 2006: 2). Smith’s answer to this is that capitalism is the universal-elixir: by acting in one’s rational self interest *within the constraints of capitalism*, the natural human antagonism is actually transformed into ‘service and regard for others’ (ibid). Smith thus “absolves us of the moral ambiguity and pain that haunt capitalist reality” (ibid: 3). This alibi functions likewise in cases of exclusion and poverty where we are absolved by the alibi of “not yet.”

¹⁶² That is Agamben’s claim that *the production of “bare life” is integrally tied to the “state of exception”* does not hold up in the logic of the life-depriving violence of extreme poverty. For their exclusion is economic and sequential, even as they are actively involved in society.

¹⁶³ (Gupta 2012: 6; my emphasis).

¹⁶⁴ (Agamben 1998).

¹⁶⁵ (World Bank 1986: i).

¹⁶⁶ (World Bank 1986: v).

¹⁶⁷ (World Bank 1986: v).

¹⁶⁸ During this crisis a new solution originated. As Time Magazine explained:

As their first priority, the delegates must approve a program to aid those who will face starvation during the next decade. In order to have supplies on hand for immediate aid to the victims of crop failures and natural disasters, the U.N.’s Food and Agriculture Organization will propose stockpiling national grain reserves as a “system of world food security.” ...

The FAO proposal raises several questions that are as yet unanswered: Who will contribute to the reserve? Who will finance the storage and transport of the grain and who will control it? U.S. Secretary of Agriculture *Earl Butz*, whose views are crucial because *no reserve system could function without major U.S. participation*, worries that *the existence of the surplus stocks could hang over the commercial market and depress the prices paid to farmers for their crops*. His fear is based on the Government’s experience handling the enormous U.S. grain surpluses during the 1950s and 1960s. American farmers commonly—and often bitterly—complain that the Government sold some of those stocks whenever grain prices moved up, thus denying farmers a higher return for their investment and work.

If the U.S. supports the food security system, it will probably insist on ironclad limitations preventing the reserves from being used for anything but emergency relief. Moreover, the U.S. will want all nations, including the Soviet Union and China, to share in the cost of maintaining the stockpile (Time 1974).

Well, the US did not support the system. They insisted that stockpiles must be kept only by the private sector—as Simon (also reporting from the 1974 Conference) explained:

Further, the U.S. has consistently opposed the creation of internationally held grain reserves. The virtual depletion of world food stocks prompted the U.N. meeting in Rome; yet *the U.S. government maintains that the private sector is best able to build reserves*. In 1972, when the world suffered an exceptionally poor harvest, there were 209 million metric tons of grain, or 66 days' worth, in world reserve. Last year saw record grain crops worldwide, yet the reserve was reduced to 25 million metric tons, or 37 days. This year there is estimated to be a 27-day reserve after exceptionally large grain harvests (Simon 1975).

¹⁶⁹ The postwar food regime was built around the US's massive food surpluses, including their allotment as food aid; the disposal of US surpluses was made so central that during this era there was seemingly paradoxically an emphasis on food aid alongside emphasis on building up national agriculture sectors (McMichael 2005; Friedmann and McMichael 1989). That is, food aid was framed as having a key role to play in aiding development, and was not regarded as a competitor to domestic markets. However, this food regime came to an end with the world food crisis of 1972-73

In the early 1970s, the US food surpluses that had underwritten the reigning food regime were dwindling and oil shocks were increasing costs of production. In this context, food and financial trade began to overspill their previous containment largely within national borders. This confluence produced a significant global food crisis (Fairbairn 2011; Shaw 2007,). This crisis was the first of (neo)liberalism's many shocks to stretch across world. By the mid-1970s, the Green Revolution in India and many other countries was considered a failure (c.f. Time 1974).

¹⁷⁰ (FAO-United Nations 1974).

¹⁷¹ (FAO- United Nations 1974; Mc Michael 2005).

¹⁷² (World Bank 1986, 1996, FAO 1997).

¹⁷³ (World Bank 1986; UN 1974; McMichael 2005; Fairbairn 2011).

¹⁷⁴ (Fairbairn 2011).

¹⁷⁵ (World Bank 1986).

¹⁷⁶ (c.f. Conway 1998; Shaw 2007).

¹⁷⁷ (World Bank 1986; World Bank 1993; FAO 1997; Shaw 2007).

¹⁷⁸ (World Bank 1986; WB 1993; FAO 1997).

¹⁷⁹ (Swaminathan 2007; Joois 2001; Swaminathan, M. 1999).

¹⁸⁰ Before the Eighth Plan this view was articulated with the GOI's 1991 new economic policy (dictated heavily by the WB and IMF), an economic policy which restructured the economy along the precepts of liberalization. The liberalization mandates by the WB/ IMF were partly in response to a mounting debt and foreign exchange crisis from 1979-1990; in order to resolve this they decreed India must open its economy and strive to increasingly integrate with the "global" economy.

¹⁸¹ (GoI, Planning Commission 1992: i).

¹⁸² (GoI, Planning Commission 1992: ii).

¹⁸³ (Pursell and Gulati 1993: 19).

¹⁸⁴ (World Bank 1986: vi; my emphasis).

¹⁸⁵ (World Bank 1993).

¹⁸⁶ The FCI and the PDS are results of both imperial and national development policies—as India was rendered an export based cash-crop colony under British rule, at independence it was heavily dependent on imported food to meet consumption needs (Krupadanam 1985; Sharma 1997). Thus, post-independence national development policy prioritized national self-sufficiency of production and access to food for all (Muller and Patel 2004). Following this, around the era of the green revolution, India's Public Distribution System (the PDS) became the most extensive national system of food distribution (Mooij 1999; Swaminathan 2002). It was linked with the Food Corporation of India (FCI), which was established with two main roles: increasing domestic production towards reaching self-sufficiency and storing buffer stocks

in case of hunger or a failed harvest (Muller and Patel 2004). When the FCI was established in 1964, the PDS (dating from colonial times) was restructured under the FCI to distribute the massive US grain imports (Mooij 1999; Sharma 1997).)

¹⁸⁷ (Swaminathan 2000, 2002; Muller and Patel 2004; e.g. Sharma 2007).

¹⁸⁸ The “systematic dismantling” of the PDS in the 1990s—through dramatic reductions and a new ‘targeted’ approach—was conceived under the leadership of then Finance Minister (now Prime Minister) Manmohan Singh (Patel, 2007).

¹⁸⁹ (Muller and Patel 2004; Swaminathan 1999, 2000; e.g. WB 2003).

¹⁹⁰ (Chand 2005; Muller and Patel 2004; Swaminathan 1999, 2000).

¹⁹¹ (World Bank 1986: vi; my emphasis).

¹⁹² As Sanyal explains, and as Chatterjee and others take up, the processes of (accumulation by) dispossession inherent in capitalist growth are re-mediated by the state. As the dispossession of the basic means of life itself is not seen as acceptable, a state must take some degree of redistributive efforts after the acts of dispossessing peasants. Even if only to allow the processes and logics to continue or accelerate, in the name of development. It is these relations that are being renegotiated in fundamental ways as understandings of food security, and with that peoples’ food entitlements, shift in this project of redefinition and re-imagination.

¹⁹³ (FAO 1997:3).

¹⁹⁴ (McMichael 2004, 2005).

¹⁹⁵ (Foucault 2007).

¹⁹⁶ (Gupta 2012: 18).

¹⁹⁷ (Foucault 2007 [1978]: 45).

¹⁹⁸ (Foucault 2007 [1978]).

¹⁹⁹ As Timothy Campbell explicates:

For Foucault, the security of the population does not reside only in the negative motor of individual death brought on and maintained by scarcity; rather, security is equally productive in the sense that in the development of circuits linked to capitalism—circuits of greater exchange between persons, primarily—*security will come to be seen as profoundly connected to instances in which the ‘members’ of a population are joined in circuits of exchange* (Campbell 2011: 123; my emphasis).

²⁰⁰ (World Bank 1986: v).

²⁰¹ (Campbell 2011: 126; my emphasis).

²⁰² (Campbell 2011: 126; my emphasis).

²⁰³ (Gupta 2012: 18).

²⁰⁴ (Gupta 2012: 18).

²⁰⁵ (World Bank 1986: vi; my emphasis).

²⁰⁶ (World Bank 2004: 38).

²⁰⁷ (World Bank 2004: 38).

²⁰⁸ (World Bank 2004: 38).

²⁰⁹ (Montag 2005).

²¹⁰ (Montag 2005: 13).

²¹¹ Campbell explains Montag’s “necroeconomics as homonymous with the market and the process whereby *some are slowly killed* so as to make the market work” (Campbell 2011: 176, note 23; my emphasis).

²¹² (GoI, Planning Commission 1997).

²¹³ “The World Bank’s new ‘*agriculture for development*’ initiative seeks to improve *small-farmer productivity* with new inputs, and their incorporation into global markets via value-chains originating in industrial agriculture. ...This is a view which regards “agriculture is [simply] a servant of economic growth” (McMichael and Schneider 2011: 119).

²¹⁴ (McMichael and Schneider 2011: 119).

²¹⁵ (World Bank 1986: v).

²¹⁶ (Gupta 2012: 6; my emphasis).

²¹⁷ In this drive, the new crops are largely focused on transportability and “quality” so that their “high value produce” can be shipped long distances to lucrative urban and foreign markets. The crops that are emphasized today have a distinct market audience than previous eras: they are not staple crops for the poor but meant to feed the elite. With the multiple shifts of neoliberalism, the GR era obsession with “feeding the nation” (even if only in name and to prevent “communism” and instability) has given way to a project of “feeding the world,” a project in which the poor have increasingly been effaced.

²¹⁸ However, for many of those who are incorporated in this market, part of the reason why they have not seen the expected benefit of rising staple food prices is fairly straightforward—as the WB earlier commanded—many who grow for “the market” (i.e. not subsistence) are not growing “staple” food grains, but rather “high value” specialty cash crops. For, with the neoliberal realignment, seen similar dynamics have played out across the nations of the “developing” world. The main shifts (mandated by various structural adjustment programs as well as by WTO regulation) have produced processes marked by:

a shift from a *publicly supported domestically oriented* agriculture producing staple *foods for local and national markets*, to a *value-chain-oriented export agriculture* producing for those with purchasing power in world markets. ...crops such as green beans, coffee, flowers and biofuels. While economic theory postulates that high-value exports can assist in financing staple food imports, the food crisis revealed the limits of this scenario (McMichael and Schneider 2011: 125).

That the food crisis revealed this should not have come as a surprise to any student of development—the same type of policies implemented in Africa in the 1980s managed to, in the course of one decade, transform the continent as a whole from a food surplus and food exporter into a state of consistent food shortage and staple food inputs (Shiva 1992). The transformations which the Bank implemented and pushed in many African nations promised that if cultivators switched to “high value” cash crops they could export these crops to Europe, and with the income pay off the national debt and individuals would have higher incomes than they received from staple crops, could in turn buy their necessary food on the market. The problems with this theory were many, not only did the value of “high value” specialty crops (vanilla, etc) crash fantastically, the more they crashed the more farmers tried to produce (Bello 2008; Patel 2008a; Patel and Action Aid 2008b). This implementation of this theory in policy, which inverted the fortunes of millions of people across Africa, however, was not indicted, but spread, across the “developing” world—as the means to achieve greater food security and development.

²¹⁹ (McMichael 2005: 276).

²²⁰ (FAO 1997, as quoted in McMichael and Schneider 2011: 125; my emphasis).

²²¹ (FAO 1997, as quoted in McMichael and Schneider 2011: 125).

²²² (John Block, US Secretary of Agriculture 1986, as quoted in Bello 2008; my emphasis).

²²³ (McMichael and Schneider 2011: 122).

²²⁴ (McMichael 2009).

²²⁵ The global agricultural sector has seen some of the greatest and geographically uneven effects of neoliberal trade policy reforms—shifts that have been both domestically driven and conditionalities of international development agencies and trade agreements (i.e. the WB, IMF, WTO). While subsidies and protection barriers in the Global North have actually increased, deploying this logic, agricultural sectors across nations of the Global South have been pried open, a process—which, alongside deep cuts in public investment, has fueled arguments for the increased need for private capital and has opened the way for policies in accordance with corporate demands (Patel 2008; Muller and Patel 2004). Together these have changed the direction of who can *afford to produce* food—such policies have rendered 70% of nations in the ‘South’ net food importers (Wahlberg 2008, Grain 2008).

²²⁶ (World Bank 2003: 68).

²²⁷ (World Bank 1986; Muller and Patel 2004).

²²⁸ “The World Bank’s neoliberal conception of a ‘new agriculture’”—as offered in the Bank’s 2008 “*World Development Report 2008*”—envisions a “market solution,” and is based on the assumption and expectation “that the private sector would drive ‘the organization of value chains that *bring the market to smallholders and commercial farms*’” (McMichael and Schneider 2011: 125, quoting World Bank 2008: 8).

²²⁹ (McMichael and Schneider 2011: 126).

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- ²³⁰ (Shiva 2002).
- ²³¹ (Shiva 2006).
- ²³² (FAO 1997).
- ²³³ (McMichael and Schneider 2011: 127; quoting Patnaik, P. 2008).
- ²³⁴ (World Bank 2003: 68).
- ²³⁵ (Lynas 2001, as quoted in Corporate Watch 2001).
- ²³⁶ (McMichael and Schneider 2011: 128).
- ²³⁷ (McMichael and Schneider 2011: 128).
- ²³⁸ (GoI, Planning Commission 1997).
- ²³⁹ But, while the TPDS received celebrated endorsement from the Bank (WB 2003), the Government was more reluctant to dismantle the FCI—as the PDS’ budget was ‘targeted’ for restructuring, the FCI’s budget was increased (Muller and Patel, 2004; Swaminathan 2000). FCI stocks increased—the FCI procured twice as much food in 2001 (40 million tons) than it had in 1997 (Muller and Patel, 2004), and its “food-subsidy” — ostensibly for the poor and hungry (Dreze 2002)—increased two and a half times between 2001 and 2007 (Goswami, 2007). Yet, the scope and acuteness of hunger have also continued to increase. Post-1990s-liberalization, economists explain both the PDS and the FCI have shifted tactics and concentrate more on guaranteeing minimum (if still insufficient) prices for farmers than on aiding the hungry poor (Chand 2005, 2008; Dreze; Swaminathan, M. 2009). But, this disjuncture produced deeply contradictory results: mounting state food “surplus” stocks alongside millions of people who cannot afford the food and whose minimal assistance to afford it (subsidies and entitlements) have been increasingly cut.
- ²⁴⁰ (USDA 2007; Muller and Patel 2004; Sainath 2003; Swaminathan 2002).
- ²⁴¹ (NYT 2002).
- ²⁴² (Shiva and Jalees 2004; NYT 2009).
- ²⁴³ (GoI, Planning Commission 1997).
- ²⁴⁴ (World Bank 2003).
- ²⁴⁵ (GoI, Planning Commission 1997; my emphasis).
- ²⁴⁶ (Campbell 2011: 126; my emphasis).
- ²⁴⁷ (Montag 2005: 15, quoting Adam Smith; my emphasis).
- ²⁴⁸ Tracing the conceptual legacies of such policies of dispossession and “letting die,” Montag’s reading of Adam Smith yields that in such cases “The subsistence of a population may, and does in specific circumstances, require the death of a significant number of individuals: to be precise it requires that they be allowed to die so that others may live” (Montag 2005: 14). *This is what “management” at the level of the population means.*
- ²⁴⁹ (Campbell 2011: 177, note 24; my emphasis).
- ²⁵⁰ (Campbell 2011: 177, note 24; my emphasis).
- ²⁵¹ In fact, as Araghi summarizes the effects of these shifts: “with the rapid, massive, and global incorporation of formerly self-sufficient agricultural peoples into market relations, and with millions of people having lost their nonmarket access to the production of their means of subsistence, hunger has assumed a uniquely global character. “*Hunger amidst scarcity*” has given way to “*hunger amidst abundance*” (2000: 155).
- ²⁵² (McMichael 2005: 285).
- ²⁵³ (Kauffman 2011; Mooij 1999; Swaminathan, M. 2000; Patnaik 2008).
- ²⁵⁴ (Manmohan Singh, as quoted in Bagla 2012; my emphasis).
- ²⁵⁵ (Balasubramanian, P., interview by author. Chennai, Tamil Nadu. January 25, 2011).
- ²⁵⁶ At the time GEAC was called the Genetic Engineering *Approval* Committee; following criticisms that it was basically a rubber-stamp body, the name was changed to be the Genetic Engineering *Appraisal* Committee (GEAC), as this was thought to better reflect what critics insisted the GEAC’s purpose should be.
- ²⁵⁷ Not, it may be noted, the first GM crop, but the first GM *food* crop, a distinction of significant importance in the approval process.
- ²⁵⁸ “Bt brinjal was developed by India’s Maharashtra Hybrid Seeds Company (Mahyco) using the modified gene Cry1Ac, under license from Monsanto. The modified Cry1Ac gene, found in the soil bacterium

Bacillus thuringiensis, along with two other supporting genes, *nptII* and *aad*, are assembled in such a way that they work to produce an artificial insecticidal protein that is toxic to the targeted insect, in this case the fruit and shoot borer” (Sahai and Nichols 2010).

²⁵⁹ Much of the literature that promotes “biotechnology for the poor” does so in a way from which three themes can be discerned. First, it takes up the rhetoric of science and claims that those who critique the Gene Revolution do not sufficiently understand the science and that their “fears” are “unfounded and unscientific” (cf. Paarlberg 2009; Bush 2003; Serageldin 2003; Pinstup-Anderson 2001; Strauss 2000). Second, this literature invokes the poor and the specter of hunger to justify the need for biotech, promising that without this scientific intervention hunger and malnutrition will increase, and that the only sure means of increasing production is technology—the fact that hunger is not directly related to production is an issue that they consistently skirt (ibid). Third, the authors of much of this literature are tied to “independent” development institutions that happen to promote GM/biotechnology, and the line of argument in this literature aligns with the stance of the US government (e.g. USAID, USDA and the US Trade Commission; cf. Bush 2003). These accounts embrace the new agri-biotechnologies as the tools which will lift “the poor in developing countries” out of poverty and provide solutions to “the agricultural problems of developing countries.” Further, in doing so, it claims to speak and act on behalf of interests of the poor. For instance, President Bush and Robert Zoellick (then US Trade Representative and later President of the World Bank) when filing a complaint against the EU with the WTO (to attempt to force the EU to accept GM), put forth the argument that the suit and GM crops were being done in the interests of “feeding starving people in Africa” (McAfee 2003).

This literature assures that GM will (i) boost agricultural productivity, (ii) improve the quality of food for the poor, and (iii) benefit populations by allowing them to become wealthier through increasing production and facilitating the transition from subsistence to cash crop agriculture (Paarlberg 2009; Pinstup-Anderson 2001: 2). In order to make this argument, these literatures depend on writing out any questions about *why* people in developing countries are poor. They do not look at the role of policy, global economic structures, or even considerations of implications that agriculture and its inputs are commodities that operate within a market. Instead, in promoting GM this literature deploys assumptions that the poverty that marks the people and places is timeless, and that the intervention of modernity is the first necessary step to addressing this poverty. As such it makes two competing, and at times contradictory, claims: first, it implies that these people and places are poor because they are isolated and still mired in a pre-modern form of poverty. This, of course, serves to deny that their poverty could be related to the terms of the market (domestic and/or international), or that the terms of this market are uneven and themselves produce poverty. While it does not question the effects of the market overall, this literature does acknowledge shortcomings of the market—specifically that because innovation of these new technologies is market-led, the products developed cater to well-off, not poor, farmers (the problem being that GM crops are the same in North and South, and do not respond to the needs of poor farmers or the different environmental/climate conditions in the South).. Second, it argues that the strength of the Green Revolution was that it integrated people and places into the global market, and as such, began them on the path to development and out of poverty (Paarlberg 2009, 2001; Juma 2005; Serageldin 2003; Pinstup-Anderson 2001; Conway 1998). This literature *does* acknowledge that there have been interventions from the outside, that these places are not untouched; to attempt to resolve the contradictions within its guiding narrative it cannot but characterize all expansion of the market as a positive force, offering hope, rather than as a force which under some conditions could serve to compound poverty and/or dispossession. This, of course, serves to deny that poverty could be related to the terms of the market (domestic or international).

While the premises of this literature do not question the (positive) effects of the market overall, this literature does acknowledge that the market has shortcomings. Specifically, it states that because the innovation of these new technologies is market-led, the products developed cater to well-off, not to poor farmers. The problem this literature names is that GM crops do not respond to the needs of poor farmers, or the different environmental/ climate conditions in the South, and that the GM crops marketed are the same in North and South. Acknowledging that the market does not respond to the needs of the poor, this literature suggests that the answer to this problem lies in private-public partnerships. This answer to the problem of inappropriate technologies is tied up in a second problem which the literature concerns itself

with: the fact that knowledge which is produced in the public-sector is often patented by private corporations (a problem which is, of course, deeply tied in with the putative solution to addressing the market's shortcomings through private-public partnerships). Acknowledging tensions between the public and the private, this literature turns to improving property rights for the resolution; it argues that property rights can mediate and resolve tensions between the public and private *if* property rights and technologies stay in their respective spheres. However, since it also argues that the solution to this situation of biotechnology not sufficiently responding to the needs of the poor lies in governments offering incentives for certain biotechnologies through private-public partnerships, the solution itself seems mired in the problem it sees with biotechnology. Locked within the framework where modern science solves all ecological, social and development problems this literature's answers threaten to deepen the very problems it points out. Further, the way that invocations of the 'market' operate in this literature serve to deny that the global agricultural "market" is not run by free market principles, but rather is a market carefully managed, maintained and governed by nation states and corporations (through the WTO and other multi- and bi-lateral agencies and agreements).

²⁶⁰ Brinjal is the 3rd most common vegetable in India, after tomato and potato (Greenpeace India 2009).

²⁶¹ A partnership between, Cornell, Sathguru, Monsanto, Mahyco, TNAU-Coimbatore (Tamil Nadu Agriculture University) and UAS-Dharwad (University of Agricultural Science) and IIVR-Varanasi (Indian Institute of Vegetable Research), overseen by ABSP-II, USAID. "The partnership – designed by the US government, funded by the USAID and led by Cornell University – comprises Mahyco Hybrid Seed Company Ltd, Tamil Nadu Agriculture University (TNAU) in Coimbatore, the University of Agricultural Sciences (UAS) in Dharwad, and the Indian Institute of Vegetable Research in Varanasi. USAID's Agricultural Biotechnology Support Project II is supporting Mahyco's efforts to gain regulatory approval for the technology" (GRAIN 2010: 26).

²⁶² Lifting small and marginal vegetable farmers out of subsistence poverty is the major goal of most agricultural development projects today (see for example ABSP II 2009).

²⁶³ Pictures proudly broadcast images of unadulterated produce alongside conventionally grown brinjal. For example:

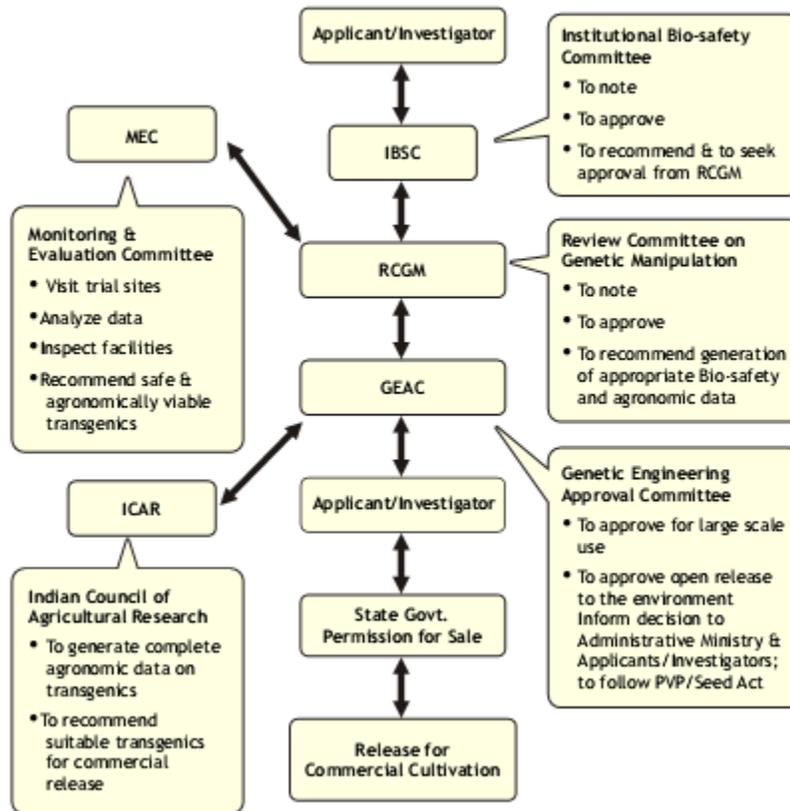


(Bagla 2010b, NDTV February 09, 2010b; <http://www.ndtv.com/article/india/the-bt-brinjal-saga-16053>).

²⁶⁴ (ABSP II 2009; USAID 2009; ISAAA 2009; Biotech News 2010).

²⁶⁵ The Ministry of Environment and Forests was/is responsible for assessing the potential environmental impacts of new GM crops. For example, as this graphic indicates (CEE 2010: 62):

The following is the schematic representation of the current procedures for approval of GM crops in India.



²⁶⁶ (MoEF 2009a).

²⁶⁷ Namely, the Cartagena Protocol 2000.

²⁶⁸ (MoEF 2010a).

²⁶⁹ Specifically, the moratorium was on Event EE1 in Mahyco's Bt Brinjal (MOEF 2010a).

²⁷⁰ Making his case, K.K. Narayanan. Managing Director, Metahelix Life Sciences Private Limited, Bangalore, explained:

Vegetable cultivation in our country is beset with several problems, a major one being the losses due to insect pests. *Brinjal is one of our major vegetable crops* and its production is seriously affected by the Fruit and Shoot Borer (FSB), a pest which can be effectively and safely tackled using the Bt brinjal technology which increases the production of marketable fruits while significantly saving on pesticide use. *Thus, it brings not only tangible economic benefits to the cultivator, but also benefits to the consumers in the form of pesticide-free vegetable and to the environment in the form of lower pesticide loads. I therefore do not understand why should anyone, least of all the environmental activist, have an issue with this technology?* (Narayanan 2010: as cited in DBT 2010: 18).

²⁷¹ The Mahyco-Monsanto relationship is described by the company as follows: "Mahyco Monsanto Biotech (MMB)--a 50:50 joint venture between Mahyco and Monsanto Holdings Pvt. Ltd." (MMB 2013; available at: <http://www.monsantoindia.com/MMB.html>).

²⁷² (One India News 2010a).

²⁷³ (Team Mangalorean 2010).

²⁷⁴ (Team Mangalorean 2010).

²⁷⁵ (Shenoy 2010).

²⁷⁶ (Sehgal 2012).

²⁷⁷ (see for example compiled comments in MoEF 2010b).

²⁷⁸ (PM Bhargava 2010).

²⁷⁹ (Choudhury 2010).

²⁸⁰ (One India News 2010a).

²⁸¹ (One India News 2010a).

²⁸² (One India News 2010b).

²⁸³ Underlying this analysis is the notion of “technopolitics, a concept that captures the hybrid forms of power embedded in technological artifacts, systems, and practices” (Hecht 2011: 3).

²⁸⁴ (Cullather 2003: 229).

²⁸⁵ (Cullather 2003: 229).

²⁸⁶ This is obviously an old imaginary, one which, as I address in subsequent chapters was also at the core of debates about the GR.

²⁸⁷ The former imaginary represents what in today’s language we’d term more “vertical,” and the latter a more “horizontal” or participatory vision..Sometimes explicitly drawing on (a modern fusion of older imaginaries—a faith in technology as modernity) language that offers a convergence between a nationalist *swaraj* and contemporary food sovereignty concerns (but they complicate these older imaginaries, infusing them with new concerns and new realities).

²⁸⁸ (Prakash 1999; Visvanathan 2003; Bajaj 1990, 1988, 1988; Nandy 1988; Dasgupta 1975).

²⁸⁹ (For the sake of clarity, I refer to the latter amalgamation of perspectives in the singular for the rest of the paper).

²⁹⁰ (NYT July 2012; Reuters July 2012).

²⁹¹ (NYT July 2012; Reuters July 2012).

²⁹² (IFPRI 2010; World Bank 2010).

²⁹³ As has been documented, over the last decade childhood malnutrition rates in India have generally been higher than sub-Saharan Africa; childhood malnutrition rates, particularly those under 5 years of age, are of note because they reflect the current realities of people. The increase in childhood malnutrition rates correlates with other studies showing that many people have been getting poorer despite a liberalized economy and increasing growth rates (see Ch 6 for a detailed examination).

²⁹⁴ (IFPRI 2010a).

²⁹⁵ (IFPRI 2010; World Bank 2010; Patnaik 2008).

²⁹⁶ In the late 1950s and 60s India was heavily reliant on US food aid (60% of India’s wheat came from the US under PL480 (Patel 2008)) and India’s Green Revolution is widely considered to have reversed its “ship-to-mouth existence” (Sharma, D. 2009; Sharma, M. 1997), ending the (at times humiliating) dependence on foreign food aid and making India food self-sufficient (for various narratives of this account, see for example: Subramaniam 1979, 1995; Sachs 2005; Bush 2005).

²⁹⁷ Need it be said, this does not mean that they all follow this path; rather, whether they explicitly emulate the GR or are framed against the GR, they are defined in its shadow.

²⁹⁸ (Pandya, Atul, interview by author. Ahmadabad. February 3, 2011. Raina, Rajeswari, interview by author. New Delhi. February 24, 2011. Nambi, V.A., interview by author. New Delhi. January 10, 2011. Kumar, Ananda, interview by author. New Delhi. March 22, 2011).

²⁹⁹ (Singh 2005, 2012; Chavan 2010; Swaminathan 2007).

³⁰⁰ These are debates with conceptual, policy, and institutional stakes, for example: should it be public universities and research institutions? State governments? The Central Government? NGOs? MNCs?

³⁰¹ This is complicated by the fact that the legacy of the GR is itself contested. The GR paradigm centered on the use of science, specifically, technological advancements being “injected” into Indian agriculture to revolutionize production (GoI 1965). It was a technology driven project designed to address social and political problems. It is also regarded as a national triumph, and the nation’s FS remains a priority—many are suspicious of efforts that they perceive seek to re-colonize Indian agriculture, and Bt brinjal became caught up in that fight and came to be seen by some segments as just such a project.

³⁰² (Ford 1959; Omvedt 1975; Cleaver 1970; Dasgupta 1989; Shiva 1989; GOI 1965; GoI 1971).
³⁰³ (Outlook India 2012).
³⁰⁴ (Outlook India 2012).
³⁰⁵ (Shantharam 2010).
³⁰⁶ (Mitchell 2009: 416).
³⁰⁷ (Perkins 1997; Ford Foundation & GOI 1959; McMichael 2005; Bajaj 1982; Dasgupta 1975; GoI 1965; Bornton 1966; Seshia and Scoones 2003; Parayil 2003).
³⁰⁸ (GoI 1965: 3).
³⁰⁹ (Hecht 2011: 3).
³¹⁰ (Hecht 2011: 3).
³¹¹ (Hecht 2011: 43).
³¹² Namely WDC and Ford and Rockefeller Foundations.
³¹³ (Ahlberg 2008; Wallerstein 1980; Cullather 2009; Perkins 1999; McMichael 2005; Patel 2008; Gupta 2000).
³¹⁴ Clearly, such political goals are both painfully straightforward—eliminating hunger and ensuring food security—and profoundly messy: how to get there or achieve this end.
³¹⁵ (Ford 1959; GoI 1965; Bornton 1966, 1967; Cullather 2009, 2003; Dayal 1965; Subramaniam 1977, 1971).
³¹⁶ (Ford 1959; GoI 1965; Bornton 1966, 1967; Cullather 2009, 2003; Dayal 1965; Subramaniam 1977, 1971).
³¹⁷ (Omvedt 1975: 36-7; my emphasis).
³¹⁸ (c.f. DBT 2010).
³¹⁹ (DBT 2010a: 18; my emphasis).
³²⁰ (c.f. DBT 2010).
³²¹ The advocates repeatedly invoke this argument despite the very clear definition of “organic” agriculture, which tautologically excludes the use of any and all genetically modified crops, just as it, by definition, excludes the use of synthetic chemical fertilizers and pesticides/herbicides (see USDA 2011a; USDA 2011b).
³²² (DBT 2010a: 17; my emphasis).
³²³ (Organization for Economic Cooperation and Development (OECD) 2009: 42, as quoted in Nally 2010: 46; my emphasis).
³²⁴ For example, most famously by many neo-Malthusians Paddock & Paddock, but also even by self-declared “opponents” of Malthusianism (Borlaug and M.S. Swaminathan), for Malthusian claims continue to underwrite the possibility of their narrative.
³²⁵ (NCA 1976: 27, reprint of “Speech of Shri C. Subramaniam at the inauguration of the National Commission on Agriculture, New Delhi October 16, 1970).
³²⁶ (NCA 1976: 27, reprint of “Speech of Shri C. Subramaniam at the inauguration of the National Commission on Agriculture, New Delhi October 16, 1970).
³²⁷ One of the Paddock brothers worked for the USDA and the other for the State Department (ibid: ix).
³²⁸ (Paddock and Paddock 1967: 207).
³²⁹ Triage as they explain “is a term used in military medicine. ... Call triage cold-blooded, but it is derived from the hard experience of *medical humaneness* during a crisis. ... President Johnson has proposed ‘that the United States lead the world in a *war against hunger*.’ On the battlefields of this forthcoming war the practice of triage will be vital because choices must be made as to which wounded countries will receive our food. The leadership in Washington comprises the medical staff. The stricken ones in need of medical attention (American food aid) are the hungry nations. To provide maximum effective treatment the medical staff must divide them into three classifications for triage: (1) ...the ‘can’t be saved’ group. To send food to them is to throw sand into the ocean” (Paddock and Paddock 1967: 207; my emphasis).
³³⁰ (Paddock and Paddock 1967: 207; my emphasis).
³³¹ (Paddock and Paddock 1967: 222).
³³² (Paddock and Paddock 1967: 219).
³³³ (Paddock and Paddock 1967: 217).

³³⁴ Of the two Paddock brothers, one worked for the USDA and the other for the State Department (Paddock and Paddock 1967: ix).

³³⁵ That is, while India was clearly not the first to use HYVs to increase production (India adopted the seeds only after Pakistan), Indian officials maintain that their own vision in how and why to use the seeds—as a project of development in themselves—was the unique and visionary aspect of the Green Revolution.

³³⁶ (From “Speech of Shri C. Subramaniam at the inauguration of the National Commission on Agriculture, New Delhi October 16, 197 as reprinted in: National Commission on Agriculture Vol. 1. 1976: 27).

³³⁷ (Joseph Lelyveld, “Philippines Tries New Rice Strain,” New York Times, 18 December 1966).

³³⁸ But, in the Philippines this food self-sufficiency was not actually the case, Cullather (2003) demonstrates that it was essentially all for show. The use of agricultural technology in itself does not constitute an agricultural development policy.

³³⁹ (Cullather 2003: 227; quoting Joseph Lelyveld, “Philippines Tries New Rice Strain,” New York Times, 18 December 1966).

³⁴⁰ (From “Resolution setting up the National Commission on Agriculture. No. 25-13/68. On August 29th, 1970 in New Delhi as reprinted in: National Commission on Agriculture Vol. 1. 1976: 17).

³⁴¹ (Frankel 1971: 8).

³⁴² (Guha 2007: 443; quoting British Journalist Don Taylor; my emphasis).

³⁴³ (Swaminathan 2009a; my emphasis).

³⁴⁴ For instance, as the lead Green Revolutionary, Norman Borlaug continually reiterated, humans have since time immemorial been engaged in a constant struggle to produce food at a faster rate than they reproduce.

Poets—and city folk—love to romanticize agriculture, portraying as some sort of idyllic state of harmony between humankind and nature. *How far this is from the truth!* Since Neolithic man - or most probably woman—domesticated the major crop and animal species some 10-12 millennia ago, agriculture has been a struggle between the forces of natural biodiversity and the need to produce food under increasingly intensive production systems. *Thanks to advances in science during this century—which is when the population bomb really went off*—food production has kept ahead of population growth and, in general, has become more reliable. But, with the global population currently increasing by one billion each decade, meeting future food demand is becoming ever-more challenging and worrisome (Borlaug 2002:221).

³⁴⁵ (Borlaug 2000: 490; my emphasis).

³⁴⁶ (Atwood and Levine 2009; my emphasis).

³⁴⁷ (Watson as quoted in Bagla 2012).

³⁴⁸ (Watson as quoted in Bagla 2012).

³⁴⁹ As Borlaug explained:

Thirty years ago, in my acceptance speech for the Nobel Peace Prize, I said that the Green Revolution had won a temporary success in man's war against hunger, which if fully implemented, could provide sufficient food for humankind through the end of the 20th century. But I warned that unless the frightening power of human reproduction was curbed, the success of the Green Revolution would only be ephemeral. I now say that the world has the technology that is either available or well advanced in the research pipeline to feed a population of 10 billion people. The more pertinent question today is: Will farmers and ranchers will *[sic]* be permitted to use this new technology? Extreme environmental elitists seem to be doing everything they can to derail scientific progress. Small, well-financed, vociferous, and anti-science groups are threatening the development and application of new technology, whether it is developed from biotechnology or more conventional methods of agricultural science (Borlaug 2000: 490).

³⁵⁰ (Borlaug 2000: 487).

³⁵¹ (Borlaug 2000: 488).

³⁵² (Borlaug 2000: 490; my emphasis).

³⁵³ (Borlaug 2000: 490; my emphasis).

³⁵⁴ (Borlaug 2000: 487).

³⁵⁵ (Atwood and Levine 2009).

³⁵⁶ (Borlaug 2000: 490).

³⁵⁷ (Subramaniam 1995: 138-9).

³⁵⁸ (Subramaniam 1979: 56; my emphasis).

³⁵⁹ (Subramaniam 1968: 19).

³⁶⁰ (Thompson 1995: 47).

³⁶¹ “The naive utilitarian sees the constraint as a problem for which technology *is the answer*: invent something that makes the pie bigger. This is exactly what the yield enhancing technologies of Twentieth-century agricultural technology have attempted to do” (Thompson 1995: 64).

³⁶² “Measuring *success in [increasing] production* of food and fiber is taken to be both a necessary and a sufficient criterion for evaluating *the ethics of agriculture*. The productionist criterion amounts to a principle which states *that more production is always better*” (Thompson 1995: 47-48).

³⁶³ (Busch 2000; Levidow 2001; Thompson 1995).

³⁶⁴ (Thomson 1995: 60).

³⁶⁵ Levidow characterizes the ways in which agro-technologies have been taken up as exhibiting a “utilitarian bioethics” which manifests in a “market fetishism.” Addressing the continuation from the Green to the Gene Revolution, he argues that “utilitarian ideology naturalized the early marketization of agriculture,” and that “‘utilitarian’ ethics fetishizes market relations today” (2001: 75). This utilitarianism ties together and redefines ideas of nature, development, and distribution through the logic of the market. For, “market relations [themselves] were fetishized as properties of nature,” and in turn these laws were seen as applying to both social relations and nature. He explains:

For the utilitarians and neo-classical economists, ‘the market’ was naturalized as non-interference, while any state regulation was deemed an unnatural ‘interference’. As [Raymond] Williams further argues, ‘Nature in any other sense fled to the margins: to the remote, the inaccessible, the relatively barren areas’ (ibid). Nature became a legitimate object of endless ‘improvement’ according to natural laws which embodied models of commoditization (Levidow 2001: 78).

The moral science of economics is premised on such a utilitarianism in order to offer a means of relief from responsibility, transferring moral responsibility to the state, science, and the market. These institutions are cast as providing a well-ordered society and abundance, “truth” about the world, and justice in [i.e. through] the market (Busch 2000).

³⁶⁶ (Chaudhury, Shoma 2010).

³⁶⁷ (Bhargava; as quoted in Akhileshwari 2010).

³⁶⁸ (Mazumdar-Shaw as quoted in The Hindu 2010).

³⁶⁹ (GEAC 2009: 7).

³⁷⁰ GEAC is under the supervision of the Ministry of Environment and Forests (MoEF).

³⁷¹ (GEAC 2009: 7; my emphasis).

³⁷² (GEAC 2009: 7; my emphasis).

³⁷³ Some of this data was information that civil society groups contend was available only because of a 30-month Supreme Court ruling in a PIL (public interest litigation) legal battle on the RTI (right to information) (Greenpeace India 2009).

³⁷⁴ The hearings were organized by CEE, and the stated objectives were: “The main objectives of the consultation are to provide a forum to various stakeholders to express their views and concerns related to Bt Brinjal at venues across the country; Provide appropriate inputs to the Minister before a final decision is taken” (MOEF, CEE, Primer on Bt Brinjal. 2010: 2.) Hearings were held at the following sites:

Kolkata and Bhubaneswar were both located in states that are leading producers of brinjals. Hyderabad and Bangalore are representative of centres of science and research in agriculture and biotechnology. Nagpur and Ahmedabad are in states that have extensive experience with Bt Cotton, the first GM crop commercialized in India. Finally Chandigarh was included to represent a state which has been at the centre of the green revolution (MOEF 2010b: 8).

³⁷⁵ (MoEF 2009a).

³⁷⁶ As is articulated in the MOEF's February 9 2010 "Report on Bt brinjal":

16. Some scientists and civil society organisations have pointed out that the GEAC process has violated the Cartagena Protocol on Biosafety to which India is a signatory, *particularly the provisions pertaining to public consultations prior to the release of GM food crops and also the broad principles governing risk assessment*. It is pertinent to also recall Article 15 of the Rio Declaration on Environment and Development (1992) which echoes the precautionary principle when it states "where there are threats of irreversible damage, the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation". Further, Section 45 of Codex Alimentarius "Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Plants" says "The location of trial sites should be representative of the range of environmental conditions under which the plant varieties would be expected to be grown. The number of trial sites should be sufficient to allow accurate assessment of compositional characteristics over this range. Similarly, trials should be conducted over a sufficient number of generations to allow adequate exposure to the variety of conditions met in nature. To minimise environmental effects, and to reduce any effect from naturally-occurring genotypic variation within a crop variety, each trial site should be replicated. An adequate number of plants should be sampled and the methods of analysis should be sufficiently sensitive and specific to detect variations in key components." It does appear that the current standards by which the GEAC has formulated the decision to approve Bt-brinjal do not match these global regulatory norms to which India is a party (MOEF 2010a; para16).

³⁷⁷ Some of these groups were already well mobilized at the time of the GEAC's announcement, as there had been a 30 month "Right to Information" court case between civil society groups and Mahyco-Monsanto for the release of bio-safety information preceding the GEAC's 2009 approval.

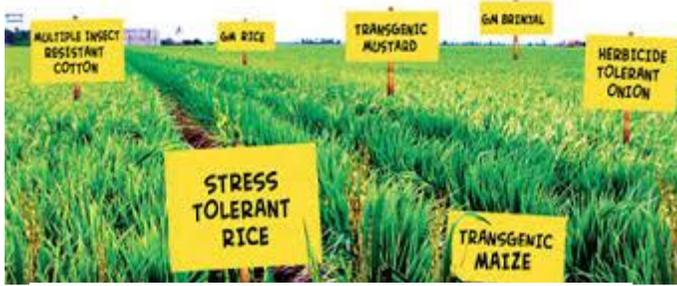


³⁷⁸ Marking fields as hazard sites:



(Nanda 2009).

(Kannan 2008).



379 Ahmedabad
2010).

Protests outside of Ahmedabad hearings (CEE



(Sunderarajan 2010).

³⁸⁰ As Ramesh notes (only the critics) in his *Report*:

“17. I have received a number of emails from scientists in the USA, France, Australia, UK and New Zealand raising very serious doubts on Bt-brinjal and also on the way tests have been conducted in India. Amongst them, I should mention communications received from (i) Professor G.E. Seralini from France who in a detailed report has pointed out several flaws in the EC-II report and concludes that "the risk on human and mammalian health is too high for authorities to take the decision to commercialise this GM brinjal"; (ii) Dr. Doug Gurain-Sherman of the Union of Concerned Scientists, Washington DC which says that "the record compiled over a 13-year period shows that the 4% yield

enhancement contributed by Bt-corn varieties constitutes only 14% of overall corn yield increase. Further, Dr. Gurain-Sherman highlights serious flaws in the EC-II report on evaluation of gene flow risks from Bt-brinjal; (iii) Professor Allison Snow and Professor Norman Ellstrand of the Ohio State University that identifies several shortcomings in the EC-II report concerning gene flow from Bt-brinjal to wild and weedy relatives; (iv) Dr. Nicholas Storer of Dow AgroSciences (a private US company much like Monsanto) who does say that Bt-brinjal does not pose unreasonable adverse risks to the environment or to human and animal health but who calls for careful implementation of resistance management strategies and points out that Bt-technology should not be seen as a silver bullet to managing lepidopteran pests in brinjal; (v) Dr. Jack Heinemann of the University of Canterbury, New Zealand who questions the consistent yield increases claimed for Bt-cotton and says that the Bt-brinjal tests conducted in India would not meet careful international standards; (vi) Dr. David Andow of the University of Minnesota, USA who says that his reading of the EC-II report is sufficient to lead him to question the adequacy of environmental risk assessment but it is not sufficient for him to conclude that the environmental risk assessment is erroneous; and (vii) Dr. David Schubert of the Salk Institute of Biological Studies, USA who says that Bt-brinjal should definitely not be introduced in India since it poses serious environmental and health risks, will increase social and political dependence on private companies and will entail higher costs at all levels of the food chain; and (viii) Dr. Judy Carman of the Institute of Health and Environmental Research, South Australia who has analysed Mahyco's biosafety dossier of 2008 in great detail and who says that her doubts and questions have not been answered at all in the EC-II report" (MoEF 2010a: para 17, page 10).

In addition to those scientists who submitted papers to Ramesh (named above), international politicians including US Secretary of State Hillary Clinton and her advisor (the famously fierce GM advocate) Nina Federoff intervened, in this case, to express their hope that India would reach a considered decision to reap the benefits of Bt brinjal (Ray, Shantanu Guha 2010).

³⁸¹ (MoEF 2010a).

³⁸² It is of interest that Jairam Ramesh (2011) notes that the issue was covered and was represented quite differently in the English language press and in the regional vernacular papers. The two have distinct audiences, while English language dailies tend to be read by the educated urban elite, vernacular paper are read more widely, and by a wider cross section of society. Ramesh explains that English language papers were generally pro-GM and condemned Ramesh's decision while the vernacular papers treated GM with greater skepticism and characterized Ramesh's decision in a more positive light.

³⁸³ The Bt brinjal debates were complicated to some degree by the fact that there were multiple lines of Bt brinjal being developed at different locations. These crops used the same technology, but were different – particularly in terms of their ownership structure after release. The strand up for approval and discussion was Mahyco's. While the products were distinct, they were all forms of "Bt brinjal," and as such were generally cast under the same name. Questions of ownership came to feature quite prominently in the debate.

Mahyco, a private seed company, was the original developer in India; they used Bt technology from their partner company Monsanto (Monsanto is a 26% owner of Mahyco). There were multiple strands because Mahyco then set up a PPP (public private partnership) in which it "shared" its Bt brinjal technology with a few public sector institutions. The reasons offered for this move vary (from trying to avoid monopoly charges, to the general sense that Indians are more accepting of technologies from the public sector (a GR legacy), to structures of international aid. The technology was provided through a PPP overseen by USAID and was ABSP II, administered by Sathguru.

³⁸³ (ISAAA 2009; ABSP II, Sathguru Management Consultants, Pvt. Ltd 2010; Department of Biotechnology 2010; ABSP II undated-b; ABSP II undated-a).

³⁸⁴ (Balasubramanian, as quoted in Department of Biotechnology 2010).

³⁸⁵ By some advocates' accounts, up to 70% of the crop can be lost to the FSB (ISAAA 2009; ABSP II, Sathguru Management Consultants, Pvt. Ltd 2010; Department of Biotechnology 2010).

³⁸⁶ (ABSP II, Sathguru and Cornell 2009; CEE 2010; ISAAA 2009; ABSP II, Sathguru Management Consultants, Pvt. Ltd 2010; Department of Biotechnology 2010; ABSP II undated-b; ABSP II undated-a).

³⁸⁷ (GEAC 2009b).

³⁸⁸ India currently only has one other GM crop legally approved to be grown, also a Bt (*Bacillus thuringiensis*) crop, Bt cotton. Bt versions of GM crops are different than the majority of GM crops currently grown in that they take a naturally occurring insecticide and breed the plant for insect resistance. Most (85%) of GM crops worldwide are modified to take heavier doses of pesticides while Bt crops are supposed to be able to reduce pesticide use, thus conferring benefits to consumers as well as farmers in reducing exposure to toxic chemicals.

³⁸⁹ (Minister Chavan as quoted in Team Mangalorean 2010).

³⁹⁰ (see for example Department of Biotechnology 2010).

³⁹¹ (Ray 2009).

³⁹² Most brinjal farmers are small or marginal they are the ostensibly targets of this project (see ABSP II 2009).

³⁹³ (Ananda Kumar as quoted in GEAC 2009: 4-5).

³⁹⁴ (Fairbairn 2010; Bello 2008; McMichael 2005; Friedman and McMichael 2009; Patel 2008).

³⁹⁵ In 1986 President Reagan's Agriculture Secretary John Block famously declared: "the idea that developing countries should feed themselves is an anachronism from a bygone era. They could better ensure their food security by relying on U.S. agricultural products, which are available in most cases at lower cost" (Schaeffer 1995: 268).

³⁹⁶ (Fairbairn 2010; Bello 2008; McMichael 2005; Friedman and McMichael 2009; Patel 2008).

³⁹⁷ (Balasubramanian, interview by author. Chennai, Tamil Nadu. January 25, 2011 ppt also available online; Mazumdar-Shaw 2010).

³⁹⁸ (Mazumdar-Shaw As quoted in Team Mangalorean 2010).

³⁹⁹ (Bhargava 2010; MS Swaminathan 2010; Jagadisan 2010; Seralini 2010; MoEF 2010a, b, c, d, e).

⁴⁰⁰ (CEE 2009).

⁴⁰¹ The Precautionary principle:

...states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking an action. Effectively, this principle allows policy makers to make discretionary decisions in situations where there is evidence of potential harm in the absence of complete scientific proof... The protections that mitigate suspected risks can be relaxed only if further scientific findings emerge that more robustly support an alternative explanation (CEE & MoEF 2010: 5; Quoting Recuerda 2006; ellipses in original).

⁴⁰² Their concern is with the unknowable effects of modifying eggplant in its country of origin. With well over 2,000 varieties, India houses the world's genetic diversity in eggplant, a fact which makes some segments of the scientific community and civil society particularly cautious about GM eggplant for they see the possibility of contaminating this genetic history (Sahai 2010; Ramesh 2010; MS Swaminathan 2010).

⁴⁰³ Bt cotton is currently the only GM crop grown in India and portions of the country are still reeling from its impact. The effects of growing Bt cotton—ranging from allegations of contributions to increased farmer suicides in certain regions (resulting from indebtedness incurred to purchase the inputs), to documented deaths of farm animals from grazing on Bt cotton fields, to new forms of rashes and sores on farm laborers exposed to the crops—have left farmers, veterinarians, doctors, and some policy makers concerned about the extent of the unknown social and health effects of Bt crops.

⁴⁰⁴ Dissenting scientists on the Genetic Engineering Approval Committee (GEAC) and advising the Supreme Court insist that disagreement and critical evidence have been silenced and that the reasons that Bt brinjal was pushed through are not about food security but rather are economic and geopolitical. They claim it is in response to pressure from US based multi-national agribusiness. The issue of Bt brinjal is discussed across sectors of society and the mainstream media—for not only does eggplant have a singular cultural significance in India, it also is seen by proponents and opponents alike as a gateway crop: since it

is the first GM *food* crop that would be grown in the country its path is expected to set important precedents.

⁴⁰⁵ (IANS and Bhargava 2010).

⁴⁰⁶ (Abhijit Sen, Member, Planning Commission, as quoted in Chaudhury 2010).

⁴⁰⁷ (MoEF 2010a, b, e).

⁴⁰⁸ As Latha Jishnu opined in The Business Standard India:

Equally significant is the compact between the university and Mahyco which is aimed at developing and delivering “pro-poor varieties of insect- tolerant Bt eggplant to facilitate technology access to resource-constrained farmers.” *Pro-poor varieties of Bt eggplant? That’s an intriguing term but what is germane here is the fact TNAU can only deliver the “products” (Bt varieties) to farmers by a further agreement with the company.*

The restrictions on the university are many: TNAU cannot backcross the Bt gene into any other germplasm apart from the four selected varieties; it cannot further develop transgenic eggplants with “products” it derives from the partnership nor can it do any breeding work with these products. On the other hand, Mahyco has reserved for itself “certain rights to the use of the Bt gene.”

It’s good to remember the overarching philosophy of ABSPII. The project document states that “*to safeguard the licensor’s interests, specific strategies for the stewardship and monitoring of the technology by the licencees was addressed and formulated early in the sublicensing programme.*” So while references to pro-poor varieties sounds impressive, it’s important to remember that IPRs extract a price - from the licensees, sub-licensees and the customer (Jishnu 2009).

⁴⁰⁹ (IANS and Bhargava 2010).

⁴¹⁰ (T. V. Jagadishan 2010, as quoted in Tehelka 2010)

⁴¹¹ Prime Minister Manmohan Singh maintains that only one-quarter of those currently farming in India should remain, helping to promote this goal (Sheelu Francis 2013), the WB has/offers “exit loans”—to try and get small farmers out of agriculture (Bhutani, Shalini, interview by author. New Delhi. March 16, 2011).

⁴¹² (Saberwal, Vasant, interview by author. New Delhi. March 2, 2011. Raina, Rajeswari, interview by author. New Delhi. February 24,2011. Bhutani, Shalini, interview by author. New Delhi. March 16, 2011).

⁴¹³ Namely NPM/IPM (NPM non-pesticide management and IPM integrated pest management).

⁴¹⁴ For example, as it manifests in high support prices for larger farmers and resultant massive government surpluses, while the majority of (small and marginal dry-land) farmers are consistently excluded from production support policies and increasingly food insecure with the liberalizing retrenchment of food distribution policies (see chapter 3).

⁴¹⁵ (Raina, Rajeswari, interview by author. New Delhi. February 24,2011; Saberwal, Vasant, interview by author. New Delhi. March 2, 2011; Sahai, Suman, interview by author. New Delhi. January 3, 2011).

⁴¹⁶ The concerns they articulated were not new, but were renewed with Bt brinjal. For example (several years earlier), activists commenting on a GOI document articulated that:

The expressed imperative to have a long term policy on agricultural biotechnology in itself is suspect and questionable since the government has never expressed a similar need for having a long term policy on ecological agricultural options, before exploring biotechnology.

Biotechnology is pictured [sic] in glorified terms in the paper, especially in the Introduction section, by a variety of expressions - “rapidly emerging”, “far-reaching”, “technology of hope”, “powerful, enabling technology”, “a number of agri-biotech products that have enormously helped mankind”, “can revolutionise agriculture and environmental sustainability”, “frontier technology” and so on.

The paper accepts unquestioningly that biotechnology HAS to be applied in the field of agriculture, as if there are no other alternatives. Even if this is a blind and child-like faith in “science”, such fascination towards a ‘rapidly emerging’ area of science shorn of its

other realities is unacceptable (“Response to National Biotechnology Strategy Development Paper” 2005: 3-4).

They continue, critiquing the GOI's unquestioning acceptance of the “need” for this technology as the only or primary means forward. Rather than putting GM technology on a pedestal in this way, the activists suggest that the GOI at least give consideration to the many other approaches being tried in India (namely, agro-ecology).

⁴¹⁷ Arguing that GM crops simply are not appropriate for India, they contend that the crops were designed for industrialized farmers to save on labor and fuel costs, both of which are irrelevant in India where crops are planted and harvested manually and where there are vast surpluses of low-cost rural labor in need of employment.

⁴¹⁸ These officials insist that GM crops appear successful *only* when compared to the devastating ecological effects of the Green Revolution, but fail in comparison to traditional methods of pesticide management. In fact, India has seen a resurgence in traditional agro-ecological methods, particularly following the bans on agro-chemicals in many districts across states in central India in recent years. These officials claim that the ecosystems in these regions have been slowly restored and that farmer suicides and indebtedness have fallen off dramatically as a result of using non-pesticide management schemes.

⁴¹⁹ However, part of why the general public was not convinced in the first place is because as—the frequent refrain relates: brinjal grows in such abundance that it is fed to cattle. However, it was also this abundance and its banality (as the everyday common vegetable) that lay behind the choice of Brinjal as the first GM food crop to try to introduce on a large scale. While this may seem ironic—particularly from the proclaimed and well-rehearsed food security perspective—the goal as laid out to me by one of the leading scientists is to get a GM vegetable approved, accepted, and desired by the public. As the head scientist of the public (unit) side of the BT Brinjal research explained: “once one is approved all the others will follow” (Balasubramanian, interview by author. Chennai, Tamil Nadu. January 25, 2011).

⁴²⁰ (Choudhary, Bhagirath, interview by author. New Delhi. January 12, 2011. Mazumdar Shaw 2010).

⁴²¹ (One India News 2010a).

⁴²² (Choudhary, Bhagirath, interview by author. New Delhi. January 12, 2011. Mazumdar Shaw 2010).

⁴²³ While some see GM crops as exacerbating agrarian distress, the picture that emerges so far is not that clear, but does open important questions.

⁴²⁴ Agriculture is designated as state subject under the constitution. Although the Green Revolution and other large scale modernizing projects have been central government projects, Ramesh claimed to be trying to restore some of the accountability to the states on this issue. The battle to try to shape the future of agriculture and who agriculture serves operates at every scale. The Bt Brinjal debates were national, but inevitably constantly contaminated by cross-scalar references, whether to international organizations, or Ramesh’s rebuttal to GM scientists that every state supported the Moratorium and not even one wanted it reversed. In my interviews, state governments were consistently characterized as being more accessible and more responsive to demands—whether from civil society or from MNCs. Activist groups have had more success at the state level (e.g. Andhra Pradesh)—in some states—but in other states (e.g. Rajasthan), Monsanto has gained extensive access and market share through state lobbying in the name of development. Even in responsive states, the activists’ successes have been met with targeted opposition by agribusiness lobbying, consistently threatening to undo their steps toward progress. But, the state level focus could also serve to make the terrain of India’s agricultural future more geographically uneven.

⁴²⁵ On the sunshine approach:

Following a careful consideration of the recommendations of the Genetic Engineering Approval Committee (GEAC) on Bt Brinjal, Shri Jairam Ramesh, Minister of State (IC), Ministry of Environment and Forests, Government of India, decided on the following course of action.

“1. The report of the Expert Committee (EC-II) submitted to the GEAC on October 8th, 2009 that formed the basis of the GEAC's decision of October 14th, 2009 is being made public with immediate effect. It is being uploaded straightway on the website of the Ministry of Environment and Forests (www.moef.gov.in). All previous reports and

studies on Bt Brinjal are already in the public domain. Comments on the EC-II report are being sought by December 31, 2009 and I actively encourage their submission,

2. During January and February 2010, I propose to have a series of consultations in different places with scientists, agriculture experts, farmers' organizations, consumer groups and NGOs. All points of view will be represented in these consultations.

Strong views have already been expressed on the Bt Brinjal issue, both for and against. My objective is to arrive at careful, considered decision in the public and national interest. The decision will be made only after the consultation process is complete and all stakeholders are satisfied that they have been heard to their satisfaction (MoEF 2010c, CEE 2010 Annexure 1: 2).

⁴²⁶ (MoEF 2010a).

⁴²⁷ (MOEF 2010a: 3; my emphasis).

⁴²⁸ (MOEF 2010a: 16-17; italics emphasized in original).

⁴²⁹ (MOEF 2010a: 18; emphasis in original).

⁴³⁰ That is, there were several similar types of GM eggplant in the pipeline. The Moratorium did not apply to these Bt brinjal products, only the one Mahyco product under consideration.

⁴³¹ The Annexure covered the following areas: Annexure 1: Report on national Consultations (compiled by CEE with MoEF), Annexure 2: Scientists in India; Annexure 3 Scientists outside of India; Annexure 4: Civil Society groups and Individuals.

⁴³² (MOEF 2010a, b, c, d, e, f).

⁴³³ Ramesh maintained that the publicly developed varieties of Bt brinjal needed to be released before the privately owned product (MoEF 2010a).

⁴³⁴ (Dayal 1968; Subramaniam 1971, 1995).

⁴³⁵ (Bhargava as quoted in Bidwai 2010), Bhargava is popularly considered to be the “Father of genetic engineering in India,” he was also the Supreme Court appointed Independent observer on the GEAC and is the founder and (former) director of the Centre for Cellular and Molecular Biology.

⁴³⁶ (DBT 2010).

⁴³⁷ (Mohan 2011; Shantharam 2010; Mazumdar-Shaw 2010; Hindu 2010b; the Business standard 2010; DBT 2010).

⁴³⁸ (MOEF 2010a).

⁴³⁹ The Bt brinjal debates were in many ways were funneled into longer-running concerns about the nation’s agriculture future. They opened a site for a discussion of questions of agrarian distress; these questions came to be articulated through biotechnology. The debates offered a spin on the hegemonic framework through which these questions are frequently taken up. For example, “biotech for the poor” aims to solve broader issues of poverty and development through the use of new and improved technology; hence, debates about broader concerns of issues with agrarian distress manifest largely through the question of technology. For example, the suicide deaths of one-quarter of a million small cotton farmers are commonly blamed on Bt cotton in popular discourse. This blame is despite the fact that state support, educational extension, and development projects are practically non-existent in many areas, which could also be credited for some of the failings. The debate is also limited as Bt cotton is often the only type of cotton seed available (constituting well over 90% of the cotton grown). Regardless of the shortcomings and/or potential of technology, the hegemony of a technocratic framework means that technology offers the dominant lens through which social, agrarian, and policy issues are discussed. Hence, Bt cotton came to be invoked repeatedly in airing the concerns: these concerns were often at the two extremes, either to prove the need for Bt brinjal or to warn of the looming disaster it would bring to hundreds of thousands of small vegetable farmers. Bt cotton has succeeded in making some farmers wealthy and has failed others; but, the issue, while credited entirely to this technology, is of course much more complicated. Because of the lack of institutionalized state support, technology bears a more significant portion of the debate (for and against) than it might in a context like the US or the EU where crop insurance and guaranteed government support eliminate much of the risk. However, instead of being framed in the more complicated and confusing context—lack of loans at fair terms, lack of insurance, lack of government support and lack of adequate

extension services, all in a context in which and international agreements regulating what very limited support can even be given to farmers—the debate, fundamentally one of policy (state, national, and international) instead, comes to hinge on the “technology.”

⁴⁴⁰ (Thompson 1995: 60).

⁴⁴¹ (Raina, Rajeswari, interview by author. New Delhi. February 24, 2011).

⁴⁴² (MoEF 2010a: 17).

⁴⁴³ (MOEF 2010a: 16).

⁴⁴⁴ (MoEF 2010a: 22; my emphasis).

⁴⁴⁵ (MoEF 2010a: 27; my emphasis).

⁴⁴⁶ As “democracy” became a salient framing for GM food crops, it of course also gets spun both ways — as the PM’s contrast of India’s [implied un-wise] moratorium on Bt brinjal as set in opposition to China, marking India’s development modernity (Singh as quoted in Bagla 2012).

⁴⁴⁷ (Ray 2010).

⁴⁴⁸ (Mazumdar-Shaw quoted in The Hindu 2010a).

⁴⁴⁹ (Shantharam 2011b; my emphasis).

⁴⁵⁰ NBRA or BRAI—National Biotech Regulatory Authority, or Biotech Regulatory Authority of India.

⁴⁵¹ (Chavan 2009: 112; my emphasis).

⁴⁵² (Chavan 2009: 112; my emphasis).

⁴⁵³ More sophisticated versions of this were also offered: as Able Executive Director, ABLE-Ag (The Association Of Biotech Led Enterprises) Dr. Shanthu Shantharam articulated:

my biggest concern is that the whole Bt technology has been completely *politicized*.

Because of the controversy there is an uncertainty on the future commercialization of biotech-based goods and services in India. It is really unfortunate that *Bt brinjal became a victim* of the ideologically motivated political campaign. The scientific knowledge, the empirical data from the field and the credible global scientific expertise have been neglected. It is no longer a fight on the safety of technology. *It has become a battle of political ideologies of different groups on how agricultural development should take place*. Some people claim to represent the ‘public’ or ‘farmers’ would like to shape this country’s agriculture future by going back to old forms of agriculture. It is clearly conflict of ideology driven by activism of all sorts (Koul and Shantharam 2011b).

⁴⁵⁴ (Jisnu 2010).

⁴⁵⁵ Reclaiming the terrain: “While experts admitted there are risks associated with every new technology, they said the level of risk is the criterion on which a technology should be judged. They *said perceived risks, unlike actual risks, have no basis and can never be answered*. Dr. Parihar said this perceived risk is keeping Bt-brinjal from being commercialised.” ... India cannot resist GM crops due to the increasing demand for foodgrain in the country, he said” (Deccan Chronicle 2012).

⁴⁵⁶ (Essex 2008).

⁴⁵⁷ The assumption (behind this technocratic view) is that the adoption and use of modern agro-technology itself constitutes an agricultural development policy. The conflicts over how much and which foreign agricultural technologies India should accept are not new. Preceding the GR there were anxieties about allowing in US seeds—(state them), CSS argued (quote). Today, these concerns with sovereignty remain, but “safety” has largely replaced “foreign exchange” as the featured metric /but the detailed monitoring of the effects on foreign exchange have largely been replaced by “safety” as the featured metric [grid-of-intelligibility]. While this might seem [disconnected??], the framework on which GM crops are evaluated today is safety. This scientifically testable, enumerable measure/standard has become the international standard, and in the functioning of development schemes [and the international political economic dictates of] today, it has replaced foreign exchange (in the 1960s and the much more bounded national economies). Expanding this rubric of science (or *scientific “risk” and its known risks, and known unknowns, and unknown unknowns, everything is forced into a rubric of science as the sole evaluator of social decisions (all of which must fit in this metric)*). But it didn’t quite work. For the concerns exceed this logic. As the only terms of assessment, measured and decreed in a standardized way has been a project of GM interests, however, the case in India demonstrates, this is not always as easy to control as intended or thought. In this

case, Bt brinjal exceeded the bounds within which it had been relegated. While “safety” has emerged as the terrain of assessment (and the battlefield), while much of the debate was about the in/adequacy of the testing & regulatory mechanisms, safety and health effects, the debates also exceeded these confines and another conversation emerged.

⁴⁵⁸ (MoEF 2010a).

⁴⁵⁹ (Choudhury 2010).

⁴⁶⁰ *Codex Alimentus*, etc.

⁴⁶¹ (Hecht 2011: 3).

⁴⁶² (Rosenstein-Rodan 1961: 7).

⁴⁶³ (Ford Foundation 1962, #3, B.3: 18).

⁴⁶⁴ (Ford Foundation 1962, #3, B.3: 13-14).

⁴⁶⁵ (Rostow 1960).

⁴⁶⁶ The first, traditional societies (pre-Newtonian societies: not necessarily temporally, but culturally and logically so); second, the pre-conditions for take off (conditions which come about as a result of *external interventions from “more advanced societies,”* the effects of which unravel historical society its political structure, thus allowing the state to be more effective); third, the take off (entailing radical changes in commercialization and productivity); fourth, becoming mature (the country finds its place in the world and begins to produce things it had to rely on others for, etc.); and finally, “The Age of High Mass-Consumption,” (as its name indicates it is marked by the production of “durable consumers’ goods and services”). Rostow is specific on how this process works, offering that the process of getting through these stages takes 20 years and that 60 years after take-off begins an economy is “mature.” An economy is mature when it is able to move beyond those industries which it built itself with and instead use modern technology in a wide variety of ways.

⁴⁶⁷ (Rostow 1960: 12-13).

⁴⁶⁸ He, of course, acknowledges that all societies have not stuck cleanly to this trajectory, and that there have been fluctuations and distortions—phenomena which he treats only as *deviations*, e.g. the result of wars, of imperfect investment, and faulty government policy. To Rostow these localized deviancies are dismissible as personal errors within a globally applicable law of economic progress and development, driven necessarily and solely by *the inexorable laws of capitalism*.

⁴⁶⁹ This, of course, was US development policy, but given the US’s influence on international institutions and multi-lateral bodies—from the World Bank to the Consortium on aid to India—the influence of Modernization theory was extensive.

⁴⁷⁰ The larger goal behind these modernization efforts was deeply tied with the weave of Cold War politics, geopolitical strategy, and the absolute centrality of legitimacy to win this war. Development, as a geopolitical project on the periphery of the Cold War, was not simply a tactic in this larger battle, not simply a humanitarian project, and as the US framed it, not a continuation of European territorial imperialism. While these development projects had a moral, political and economic justifications and goals (as did earlier development projects under imperialism), the US’s early development projects were also defined by a particular sense of liberal idealism of a rising nation—they were in the limelight of the tremendous US success of the Marshall Plan in Europe and Japan more than the cynicism and deep questioning raised by project the Vietnam War. The Green Revolution as a geopolitical project fell in-between these two major events, temporally and in its imaginaries. It was very much a project of nation-building, idealistic and unabashed in its aims and sense of possibility. Vast portions of the world could be transformed. Tradition bound peasants could be made modern economic subjects. A global market could be built. It simply required a few changes. And these changes were to begin where peasants dwelled and toiled—at the level of the farm (see also Mellor 1968).

⁴⁷¹ (Rosenstein-Rodan 1957).

⁴⁷² (Lester B. Pearson 1970: 6; from a speech “Lester Pearson delivered in Washington several weeks ago [1970] before the World Bank and the International Monetary Fund, in which he summarized the major findings of this far-reaching study [the Pearson Report]” (UNESCO 1970: 4)).

⁴⁷³ They do offer the qualification “This [four weeks] is much too short a time for a comprehensive study. The agricultural problems of India are so numerous, so complex, and so interwoven with traditions,

religions and philosophies which are strange to the Western minds that it is obviously impossible to do justice to them in a month's stay. Nevertheless, some of the problems are so obvious it would be impossible not to recognize them" (RAC 1952a).

⁴⁷⁴ But also, the Americans also did not have a structural or academic training or framework to understand basic issues and realities they encountered. As Merrill explains: "Just as the United States lacked experience in using aid as a foreign policy tool, it also lacked extensive knowledge of India. Prior to 1947, British Imperial rule inhibited the development of both economic and political relations with India, and the Indian subcontinent fell well outside the geographic parameters of American foreign policy concerns" (Merrill 1990: 13). Few American Universities studied India and those that did were interested largely in Sanskritic and Humanities side of question, further, "Social scientists evidenced little interest in India. As a consequence, American policy makers had little chance of understanding India's unique developmental needs" (Merrill 1990: 13). "A NSC [National Security Council?] Report in 1951 argued that India was 'the keystone to stability' in South Asia 'and every effort must be made to stabilize conditions' in that country" (Merrill 1990: 75).

⁴⁷⁵ (RAC 1952a: 3; my emphasis).

⁴⁷⁶ (Lewis 1959).

⁴⁷⁷ (Rostow 1960).

⁴⁷⁸ The British Raj's colonial development approach had been obsessed with "the agrarian," which manifest in policies that implicitly kept places from industrializing in the name of promoting peasant/rural harmony (Hodge 2007). However, some economists took issue with this approach from the 1940s on; among them and most famously Arthur Lewis, who saw rural over-population/under-employment as a major hindrance to development. Lewis (1950) advocated an "agrarian revolution"—to raise capital for basic improvements (health, infrastructure, etc.) and to make agriculture much more efficient. Lewis criticized the reigning British approach to colonial development, but even more than this, he argued that the state needed to *plan* a path towards rapid industrialization—through which it would be able to absorb the large rural surplus population. The British officials soundly rejected the very idea; Lewis resigned. But, in the newly independent nations, nationalist leaders embraced Lewis' approach and pushed these understandings of how to achieve development much further. They wanted rapid industrialization—regarded as something the British had gained through empire but had systematically blocked in the colonies. (Lewis was hired, for instance, by Trinidad and Ghana as a consultant to help forge early national economic development plans (Hodge 2007).) Lewis argued that industry should be the engine of growth, absorbing surplus and subsistence labor, it could then produce the necessary capital which could then allow for modernization and restructuring of the agricultural sector. The driver was to be industry; agricultural changes were simply one result of industrial development and economic growth. This was seen as fairly radical at the time as Britain's colonial policy had kept industrialization from happening. Thus to be independent was to now be able to industrialize too.

⁴⁷⁹ (Lewis 1959; as cited in Latham 2011: 51).

⁴⁸⁰ (RAC 1952a: 4).

⁴⁸¹ (RAC 1952a: 5).

⁴⁸² (Lewis 1959; as cited in Latham 2011: 51).

⁴⁸³ In India the "otherworldly" philosophy's effects on blocking development and modernization stretched beyond discouraging "material want," Ensminger credits it as the primary hindrance.

⁴⁸⁴ Ensminger directed Ford's programs for South Asia; he oversaw Ford's activities in Pakistan, Nepal, and India during the 19 years of his tenure (1951-1970).

⁴⁸⁵ (Ensminger 1972. Box B.3:2-3).

⁴⁸⁶ (RAC 1952a: 3-4).

⁴⁸⁷ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁴⁸⁸ (Ensminger 1972 B.3).

⁴⁸⁹ (RAC 1952b).

⁴⁹⁰ (RAC 1952a: 12).

⁴⁹¹ (RAC 1952a: 12).

⁴⁹² The RF, unsurprisingly, came to a similar conclusion—RF explain the crux of the problem Ensminger also lays out—i.e. why the peasants lack of ambition and lack of enterprising nature is a problem / limiting factor on the nation’s development as a whole. After painting the scene the Rockefeller men proceed to explain that the biggest problem the RF foundation point to with the village as a “well-established ecological complex” is that it is *only* self-sufficient. It is the subsistence nature of the village economy itself which RF scientists deem to be the root of India’s problems:

In other words, the villages *maintain themselves on a subsistence level with respect to food, but do not produce a surplus for the cities*. India has reached a point where the practice of agriculture no longer serves the traditional and important purpose of providing leisure for the development of the creative aspects of culture, the arts, sciences, and religions (1952a: 6; my emphasis).

They are clear: the peasant farmers are not producing sufficient surplus to fuel, feed, or supply a leisure class.

⁴⁹³ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁴⁹⁴ Further, In arguing that the first necessary step is to instill “want” in the peasants, the Americans are of course harnessing a long tradition in (conservative thought and) political economy. Malthus had opined a century and half earlier in *The Principles of Political Economy*:

It is unquestionably true that wealth produces wants; but it is a still more important truth that wants produce wealth. Each cause acts and reacts upon the other, but the order, both of precedence and importance, is with the wants which stimulate industry. ... The greatest of all difficulties in converting uncivilized and thinly peopled countries into civilized and populous ones, is to inspire them with the wants best calculated to excite their exertions in the production of wealth. One of the greatest benefits which foreign commerce confers, and the reason why it has always appeared an almost necessary ingredient in the progress of wealth, is its tendency to inspire new wants, to form new tastes, and to furnish fresh motives for industry. Even civilized and improved countries cannot afford to lose any of these motives (Malthus 1968: 403).

⁴⁹⁵ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁴⁹⁶ (Rostow 1960).

⁴⁹⁷ (Hirschman 1958).

⁴⁹⁸ (Hirschman 1958).

⁴⁹⁹ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁵⁰⁰ Thus endorsing and building on the prescription of primitive accumulation, this vision and explanation of the process of development draws heavily on colonial understandings of “underdeveloped” peoples. Rostow’s deep colonial inheritance is not at all surprising, particularly because this approach can in many ways be read as extending British Imperial policies; policies which explicitly privileged science, technology, and scientific expertise as the guiding values to setting agricultural policy (c.f. Hodge 2007).

⁵⁰¹ The imperative they craft is distinctly opposed to British imperialism while at the same time, in many ways they pick up from where the British left off.

⁵⁰² (Ensminger 1972).

⁵⁰³ (RAC 1952a: 6; my emphasis).

⁵⁰⁴ As they explain, the concern with hunger permeated all aspects of Rockefeller programming, even its Arts wing, for: “*The Foundation’s* program in the Arts is a civilized and *civilizing initiative*. Nevertheless, there is widespread medical and psychological evidence to show that *hungry people are listless, apathetic, and disinterested in most aspects of their environment*, including artistic endeavors.” (RAC 1982: 2). As such, the Foundation must: “...support initiatives in food and agriculture that are innovative and that other institutions have not begun to support”—“*food will continue to be one of mankind’s major problems for the foreseeable future if only because man has not yet reached the state of civilization in which hunger and deprivation are viewed by all people as dehumanizing and barbarous threats to civilization itself*”(RAC 1982: 12).

⁵⁰⁵ (RAC 1929; my emphasis),

⁵⁰⁶ (RAC 1929).

⁵⁰⁷ As they explain (in a letter which also reveals that the Ag program was linked to other RF programs), India was an important site for their work:

Thirdly, *India constitutes a big chunk of "mankind." The Foundation program of population control can be put to an acid test and could do great things for India if population becomes stabilized. In the meantime, the ad hoc committee on morals, virtues, and values will probably be studying the Indian situation to see, if in the struggle for survival here, populations can have values which enable them to live peacefully and be satisfied with limited amenities, opportunities, and employment* (RAC 1972: 4).

⁵⁰⁸ (RAC 1952c: 1; my emphasis).

⁵⁰⁹“Sir Josiah Stamp understands the situation when he observes: “The question is what proportion of human effort the peoples of the world are prepared to devote to merely feeding themselves” (RAC 1929).

⁵¹⁰ (RAC 1972).

⁵¹¹ (Patnaik 2008).

⁵¹² (RAC 1952a: 3, 4).

⁵¹³ Pausing to consider what the American scientists are assessing and in effect advocating: as they lay it out the driving problem *in the villages* is *not* that the village people are starving. Nor is the “problem” (as far as the Americans assess) that villagers are unhappy or are longing for a better life (rather, the Americans modernization theorists repeatedly puzzle over how to instill “the desire for progress” in these peasants). The problem is *not the peasants’ want*. Rather, the crux of the problem is that the villages are not sufficiently subsidizing others (be it the rural landed elite or the urban elite—whether directly or indirectly—e.g. via cheap food for the increasing and underpaid urban proletariat). The lack of surplus value is the fundamental core, or crux, of the problem the Americans locate. This necessary surplus value cannot be extracted because it is not being produced. The “self-evident” answer the RF scientists present is thus is to restructure agriculture away from a subsistence relation and into a structure that will effectively produce a surplus (which can then be appropriated) to provide for “the important purpose of providing leisure.” The model is the US and Europe; to instill such “want” they conclude that they must break them out of their lethargy and rouse their natural spirit of competition.

Whose leisure they seek to reinstate and secure is not explicitly stated, but it is implicit throughout the text that it is *not* the leisure of those “creatures motivated largely by inherited animal instincts, and devoid of any inclination to depart from a fixed hereditary pattern,” preferring their “strange symbiotic relationship” with cattle and plants (1952a: 3, 4). The “traditional ... leisure” is so plainly not for these peasants that the RF experts do not need to spell out that it is for others, elites and urbanites. The authors make this resoundingly clear at points throughout—the goal was to figure out how to extract sufficient surplus to build a leisure class *outside the village, all while ensuring that the villager himself does not aspire to migrate or to join that lifestyle*: the challenging line which they must figure out how to navigate is how to modernize him *just enough* to ensure that he can produce more without wanting more for himself. For example, as they take this issue up in the conclusion of their report with the need to create more agricultural training schools:

such schools should be very carefully designed and located and they should be protected in such a way that students receive essentially only simple practical instruction which will *enable them to return to their villages as community assets, but will not make them dissatisfied with village life* and create an urge for urban existence or further education which will make them unwilling to return to their native villages (1952a: 29; my emphasis).

The best path to take is not yet clear. They continue to debate and deliberate over how to produce surplus: is it to take the farmers “off of their land and put them in factories” (RAC 1949) or is it to make sure they stay on their land and continue to produce, but in excess. This question is not immediately or explicitly resolved. (In the end, it comes to be ascribed to a force called “the market.”)

⁵¹⁴ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁵¹⁵ (RAC 1949).

⁵¹⁶ (RAC 1952a: 11-12; my emphasis).

⁵¹⁷ (RAC 1952a: 11-12; my emphasis).

⁵¹⁸ (RAC 1952a: 11-12; my emphasis).

⁵¹⁹ (RAC 1952a: 5).

⁵²⁰ The nature of this work was entwined with the interests of making the “world” stable for US interests and capital, RF was a primary international actor in this regard, and food was one of the most important realms in which this work was pursued. For example, as US Vice President Henry Wallace told Rockefeller Foundation President: “If the RF would undertake to help the Mexican people increase yield per acre...it would mean more to the future of Mexico than anything else that government or philanthropy could devise” (Wallace 1940; as cited in Dowie 2001: 108).

⁵²¹ The numerous already failing American projects they visited and commented upon (RAC 1952a).

⁵²² The RF was also concerned that their efforts succeed for the sake of India and Indians. As explained in the profoundly dehumanizing and paternalistic document “*Prekarious Welfare*” RF was aware of their power asymmetry (certainly not in the way it would be understood in RF today) and felt that they risked simply toying with Indians’ future if their efforts did not succeed.

Imagine an uninhabited island with a population of about 1,000 head of deer. Suppose this population of deer is held in check by the inadequacy of abundant parasite free water[1], by a certain number of pumas[2], and by a limited amount of forage[3] [*a footnote on the page states “to correspond with [1]pestilence, [2]war, and [3] famine, referred to by Malthus”*].

Now, what will happen if you construct one clean and steadily flowing water trough or well, hold a successful puma hunt every year, and introduce a few new forage grasses? The deer population will increase.

But if you let the water supply become clogged and infected, stop killing the predatory animals, and allow the forage crops to be eliminated by overgrazing? The deer will be starved or killed back to the old level—or below it.

It seems to me that the main problem for us in India is to teach Indians how to produce locally and by themselves the knowledge and skills now and ‘til now furnished to them by the West. Medical science, stability of government, and agricultural technology have made possible the growth in population, and on these their enormous number now utterly depend.

Indians are not deer, but they are still dependent, and until they become independent we are playing with their welfare, precariously (RAC 1951b: 1).

⁵²³ (Willkie 1942).

⁵²⁴ (RAC 1949: 2).

⁵²⁵ The class dimensions of their critique and their civilizing plans are implicit throughout; in “Notes,” RF Ag men opine that the failures are largely caused by the fact that the US projects are led by small minded lower-class [American] men, not the well-educated more successful elite (RAC 1952a).

⁵²⁶ Further, they framed the relatively lean and strategic focus of their intervention as due to the imperative to focus their own relatively limited resources as strategically as possible to *guarantee* success.

⁵²⁷ (RAC 1956: 11).

⁵²⁸ (RAC 1952a: 12).

⁵²⁹ (RAC 1952a: 25).

⁵³⁰ (RAC 1952a: 24-5).

⁵³¹ (RAC 1952a: 24-5).

⁵³² (RAC 1952a: 25).

⁵³³ (RAC 1952a: 25).

⁵³⁴ (RAC 1952a: 26; my emphasis).

⁵³⁵ (RAC 1952a: 25).

⁵³⁶ (RAC 1952a: 26; my emphasis).

⁵³⁷ (RAC 1952a: 26; my emphasis).

⁵³⁸ (RAC 1952b: 1; my emphasis).

⁵³⁹ (RAC 1956: 11; my emphasis).

⁵⁴⁰ Throughout the decades, RF officials indicate a paternalistic engagement, even when voiced as respect for:

Indian scientists [as they] are intelligent, or even brilliant, serious and scholarly, although often if not indeed usually impractical. ...they often seem to be more interested in science for its own sake than for its application to basic national problems. ...they shun direct field work ... Even those Indian scientists who as a result of their experience in the US land grant colleges have now come to respect field work and to practice it to a degree, seem to lack the vision necessary to enable them to transpose these results thus obtained into terms of practical application for improved national yields (1952a: 27).

RF officials voice a constant frustration at what they characterize as Indian scientists lack of “practicality” and “aversion to fieldwork.” In a circular, the New Delhi staff explain to other Americans at the RF (circulated within and outside of India) what they see as the problem with Indian scientists’ mindset, namely that it:

...overemphasized creativity, breakthroughs etc. for India. They are indeed important, but in India the scientists have difficulty growing a crop. I feel that more effort need to be put forth in basic project organization, the problem approach, implementation, hard work. The strict adherence to a short seven-hour day and tea breaks has got to change. It may seem that these topics are too mundane for mention in a “project projection” but Indian scientists in general have less difficulty creating ideas in the office than they do in putting them into practice because they have little concept of practicality. A very effective way of changing this is with training programs and concentration at a few locations where adequate power and tillage equipment and good irrigation and drainage facilities are available. If it was not difficult to evolve CSH-1, why was it not done without RF assistance? It will also not be difficult to breed shoot fly resistance into an improved agronomically desirable variety—but, how many additional years would it take without RF support and organization? The idea is not difficult to create; it is putting into practice that is difficult, especially in India (RAC 1973c).

The enduring theme, constantly repeated that “the Indians just won’t actually do the work,” “aren’t practical,” and “aren’t concerned to resolve the practical hard work issues.” As an American scientist complained:

I am concerned about the attitudes of many of our Indian colleagues. ...

...We have a professional opportunity even if the local system fails. This is complicated—they do not like their own failures and like even less someone else doing something when they feel they cannot. This is not too difficult to appreciate in the limited sense. But we are there for the well fare of people in India in particular and of others, especially in South East Asia in general. An attempt by them to continue good will toward us will help us help them. Their attitude makes a bad situation even worse. Even from a selfish point of view—why should I as an individual or RF as an organization accept a situation in which our ability to perform is seriously hampered. ...

I am concerned that given the credit because they want it while they refuse to come forward with any responsible action is not helping them and probably hurting them. In the rules of the game, one does not get a pat on the back for doing a bad job. If they are not willing to be serious in accepting responsibility, and cannot stand to have people around who are, then lets [*sic*] not proceed. The pace is slow, the anguish great, and everyone ends up at odds with everyone else” (RAC 1965: 7-8).

⁵⁴¹ Ensminger continues:

..in 1962-63 when we were in the process of trying to get greater support from the Government to move forward on all recommendations of the Food Crisis Report ... I had a conversation [with]...a senior person the in the Ministry of Finance. ... He saw that I was considerably concerned about the lack of attention on the part of the government to implement [agricultural] programs. After a while he said, and I will quote him, “*Oh Hell,*

Doug, until a couple of million people in India have died of starvation, don't expect us to get very excited about what we are doing or not doing on the agricultural front."

... Several years later, after India had really come face to face with the possibilities of a famine, and he saw the evidence the Ford Foundation had stayed with its commitments and had helped the country develop enough experience and enough understanding to put together a national program of food production, he reminded me of the conversation and ... he wanted to impress upon how right I was and how wrong he was in assuming one could not bring the nation or the leadership of the nation to strive to maximize and increase its agricultural production potential. *This I record simply to illustrate the great difficulties we had in working with India when the top leadership itself was more or less lackadaisical about implementing programs once they were conceived, tested and proven to be workable* (1972. B.3: 20-21).

⁵⁴² (Ensminger 1972. B.3: 20).

⁵⁴³ (Ensminger 1972).

⁵⁴⁴ (Ensminger 1972. Box B.3: 11-12).

⁵⁴⁵ Ensminger explains that as such: none of aspects of what we "In the West, and now in India, ... think about [as constituting] agricultural development, one thinks of improved seeds, water for irrigation, pesticides, fertilizers, and so forth [were in India—instead]... Indian research was oriented toward traditional agriculture" (Ensminger 1972. Box B.3:12; my emphasis).

⁵⁴⁶ (Ensminger January 5, 1972. Box B.3: 12; my emphasis).

⁵⁴⁷ (Ford Foundation 1962, #3, B.3: 20-21).

⁵⁴⁸ It is of note that this account in the FF records is very different than the account in the RF records—which relates the Indian leadership as singularly obsessed with the question of hunger and food enough. The conflicting accounts, I suggest are indicative of the fact that the Americans' explanatory framework was not yet written. Rather, over this process, their representations of India and its problems are in *formation*.

⁵⁴⁹ In the letters Americans in RF and FF consistently speak of their counterpart Indian scientists as if they are naughty (but clever, "even brilliant") children in need of constant supervision, only interested in bench science, unwilling to do anything "practical," even the most basic tasks.

⁵⁵⁰ (Ford Foundation 1959).

⁵⁵¹ (Ford Foundation 1962, #3, B.3: 15-16).

⁵⁵² Ensminger elaborates:

I finally concluded the reason why you could not get the administrative leadership of India, and the political leaders, to feel anxious about agricultural development was, over the years poor hungry people living on the borderline of insufficient food had been a part of India. Therefore, there was nothing strange about the fact large numbers of people in India did not know whether or not they would have enough food from one day to the next (1972. B.3: 20).

⁵⁵³ (Ford Foundation 1962, #3, B.3: 9).

⁵⁵⁴ (GOI 1952: 82).

⁵⁵⁵ The view that "tradition" and mindsets as a major source of the problem was an understanding shared between the American and Indian administrative elite; both were concerned with the need to change mindsets. However, the answer of how to do so, and where to go from there, or how to proceed to development and deal with this "problem," was at odds and not agreed on.

⁵⁵⁶ Karunaratne (1976) Failure of the CDP in India :

The C.D. Programme in India was launched in 1952 on a pilot basis. The basic aims of the Programme, as summarized by Prof S.C. Dube were as follows:

‘1. To provide for a substantial increase in the country's agricultural production and for improvements in the system of communications, in rural health and hygiene and in village education.

2. To initiate and direct a process of integrated culture change, aimed at transforming the social and economic life of the villagers.’ ...

In the words of Nehru, the Prime Minister of India:

‘these Community projects appear to me to be something of vital importance, not only in the material achievements that they would bring about, much more so, because they seek to build up the community and the individual, and make the latter a builder of his own village centre and of India, in the larger sense’

It is important to note here that the emphasis was not only on the material and economic aspects, but also on the human and social aspects. The Report “U.N Development Decade” says:

‘development concerns not only man’s material needs but also the improvement of the social conditions of his life and his broad human aspirations.’ (as quoted in Karunaratne 1976).

⁵⁵⁷ Karunaratne (1976: 115) Failure of the CDP in India: “the people’s efforts to work for their own welfare and progress. It is thus inevitable that the C.D. Programme, instead of making people self-reliant, has made them increasingly dependent on official assistance” (Dwivedy, Surendranath 1965: 15, as quoted in Karunaratne 1976: 115).

⁵⁵⁸ (GoI undated (1962?): 1).

⁵⁵⁹ “Community Development is a programme of aided self-help for individual and collective welfare of India’s vast rural population. The programme is intended to be planned and implemented by villagers themselves. Government offering only technical guidance and financial assistance. Its objectives are to develop self-reliance in the individual and initiative in the village community. Community thinking and collective action are encouraged through people’s institutions like the Panchayats, cooperative societies, vikas mandals, etc.” (GoI undated (1962?): 1).

⁵⁶⁰ Bowles served two non-consecutive periods as US Ambassador to India, he was seen in Washington as an advocate of India; to Bowles India was the key battleground of the Cold War.

“Chester Bowles was moved to accept the post of [US] ambassador to India because:

‘India is the key point in the entire East, and a country which we simply must learn to live with a whole lot more successfully than we are doing at present. If we lose India, as we lost China we shall certainly lose Southeast Asia with the repercussions running all the way through Africa’” (Rosen 1985: 11).

⁵⁶¹ (Merrill 1990).

⁵⁶² Many members of India’s administration were also deeply concerned with instilling “scientific mindset” in people: As Karunaratne explains the purpose of the CDP:

In the words of another stalwart, V.T. Krishnamachari, the purpose was: ‘to create in the millions of rural families a burning desire to change their old time outlook, and arouse enthusiasm in them for new knowledge and new ways of life. This “will to live better” is to be brought about by ensuring that every family has a programme for increased employment and production...that every family makes its voluntary contribution to works of benefit to the community as a whole’ (as quoted in Karunaratne 1976).

⁵⁶³ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁵⁶⁴ (Baviskar and Saberwal 2002).

⁵⁶⁵ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁵⁶⁶ (Merrill 1990: 6).

⁵⁶⁷ (Baviskar and Saberwal 2002).

⁵⁶⁸ See for example: Ford Foundation and GoI 1959, where they argue that agriculture must be prioritized and yield increases pursued with a war like urgency.

⁵⁶⁹ (Merrill 1990; GoI 1956).

⁵⁷⁰ (Rosen 1985: 72).

⁵⁷¹ (Rosen 1985: 72).

⁵⁷² (Rosen 1985).

⁵⁷³ In “Failure of the CDP in India,” Karunaratne (1976: 113) diagnoses that: “It was not understood that the people had to be educated out of their subsistence agriculture situation, and that in this respect,

education was an essential input for agricultural development.” That said, Karunaratne continues to explain that: “John W. Mellor after a study of the causes for the failure of the C.D. Programme in India says: ‘It is easy to argue for the failure of the C. D. Programme, but it is difficult to formulate a better alternative for the India of 1951’” (Mellor p 41 in “The Evolution of Rural Development Policy” as cited in Karunaratne 1976: 116).

⁵⁷⁴ The way that the GoI explains this task: “Increasing agricultural production is one of the major tasks of the C.D. Programme. Most of the time of the Block agency and a substantial part of the C.D. funds are devoted to activities leading to better agricultural production. Adoption of improved agricultural practices and as use of improved seeds fertilizers and improved implements and mobilization of local resources like compost and green manuring, field bunding, soil conservation and reclamation are the major items of this programme. Each village panchayat is encouraged to prepare its association with the cooperative and progressive cultivators a realistic production programme taking into account the locally available resources and the outside help that may be forthcoming and give effect to it with assistance of the Block extension staff. Credit is made available through the Cooperatives which also arrange to supply the necessary requisites such as seed, fertilizers and implements” (GoI undated (1962?): 3).

⁵⁷⁵ (Karunaratne 1976: 116).

⁵⁷⁶ Its “failure” status, some argue, was because the CDP was drastically underfunded and otherwise a well thought-out program; others suggest that its priorities were not straight and it became muddled in bureaucratic institutions (Karunaratne 1976). Others argue that it was dismissed and maligned because the CDP was seen as taking a Nehruvian approach, and its rejection was part and parcel of the movement rejecting all things Nehruvian. Dey, for example insists that “the tirade against the C.D. Programme and Panchayati Raj continued unabated within both the Parliament and the Press ... The denigration of the C. D. formed part of the wider program of denigrating everything connected with Jawaharlal Nehru” (as cited in Karunaratne 1976: 116).

⁵⁷⁷ (Merrill 1990: 142).

⁵⁷⁸ China was very much the specter haunting the Americans, driving their “intrusion” and steering the nature of their interventions. The Americans’ project in India was deeply entwined with fighting the specter of Communism (represented both by the Soviets and just in general). Citing “the Marshall plan as *‘the most spectacular demonstration of what economic aid can contribute by helping people to help themselves’*. ...economically as well as in terms of resisting communist political control”(Paul Hoffman as quoted in Rosen 1985: 11), Hoffman advocated the same in India—insisting that if we had embarked on such a program in China in 1945 it would have “been a China completely immunized against the appeal of the Communists. India, in my opinion, is what China was in 1945” (Hoffman as quoted in Rosen 1985: 9).

⁵⁷⁹ While the “United States influence in India never reached hegemonic proportions. In spite of the large influx of aid during the late 1950s and early 1960s, Washington never established the firm, controlling authority over India’s decision making processes, and the American presence in India remained limited. Yet United States leads can be said to have harbored hegemonic ambitions relating to India’s development. In this sense, the American effort to make India a model for capitalistic growth and non-Communist political evolution can be understood to have constituted an effort to implement indirect control over that nation’s future. The crucial problem that arose in India, and which endlessly frustrated Washington, was that of reconciling American developmental policies with the economic and political realities in the recipient nations” (Merrill 1990: 13).

⁵⁸⁰ (Frankel 1978: 117,128, 144, 147).

⁵⁸¹ (Rosen 1985: 73)

⁵⁸² (Rosen 1985)

⁵⁸³ (See Bajaj 1982).

⁵⁸⁴ (Baviskar and Saberwal 2002).

⁵⁸⁵ (RAC 1952a).

⁵⁸⁶ (RAC 1952a).

⁵⁸⁷ (RAC 1952a).

⁵⁸⁸ To understand how changes in farming were to defeat Communism and produce a global free market necessitates addressing a few key points. A technology fetish defined this modernity and a view of the

individual's role in this desired market. The idea was to give peasants themselves the incentive and a means to revolutionize their production methods. Something they would clearly opt for if it was remunerative. As Galbraith and the Ford Foundation had earlier laid out, there were regarded to be two main means of improving peasant's earnings: better quality *inputs* and better *prices* for their crops. The former component was one that international agencies brought, the latter only the government could do; heavy pressure was applied to the Indian Government on this issue, this was the first point made in the Ford Foundation's lengthy 1959 Report and was repeatedly insisted upon during the Johnson Administration. Private Foundations (Ford and Rockefeller) and the US government applied pressure to the Indian government, encouraging them to raise the floor prices for crops and ensure farmers prices at which they could afford to produce profitably. These changes seem self-evident and clear, so where does the "*Revolution*" come in?—*the revolution is a counter-revolution*: and needs to be done through technology.

⁵⁸⁹ (Government of Madras 1956: 4).

⁵⁹⁰ (Government of Madras 1956: 4).

⁵⁹¹ (Government of Madras 1956: 4).

⁵⁹² (Merrill 1990: 141).

⁵⁹³ (Karunaratne 1976; Nayar 1960; GoI 1968, 1973, 1978; Government of Madras 1956).

⁵⁹⁴ (Ford Foundation 1962: 9).

⁵⁹⁵ Mosher was head of the Allahabad Agricultural Institute from 1948-1953 (Daniels 1992).

⁵⁹⁶ (RAC 1952a).

⁵⁹⁷ The project of "*Getting Agriculture Moving*" was spearheaded by the Agricultural Development Council. The series targeted "agricultural officials and technicians in Asia, Africa and Latin America" (1966b: 3). The project was also supported by the RF. Mosher was President of the Allahabad Agricultural College when RF selected the college as an appropriate project to support in accomplishing the broad scale transformation they deemed necessary.

⁵⁹⁸ As Nelson Rockefeller (1951) emphasized, it was essential that these nations feel as if they too are progressing /have a chance/can catch up. This was not necessarily a fair chance/shake at this prosperity, but at least a stake in it and in the sense of a larger progress.

⁵⁹⁹ (Mosher 1966: x; my emphasis).

⁶⁰⁰ (RAC 1952b).

⁶⁰¹ (RAC 1956: 11).

⁶⁰² (Nobel Committee 1970).

⁶⁰³ (Nobel Committee 1970).

⁶⁰⁴ (Little 1982: 105).

⁶⁰⁵ In 1958 Ensminger toured rural India, focusing on the farm level. He "was especially struck by the peasants failure to adopt improved production practices, and reported this to Nehru and ...Krishnamachari. He suggested it might be useful to have a team of foreign experts work" come to India (Rosen 1985: 74). They could assess what was happening and make recommendations for improving Indian agriculture (Rosen 1985: 74)—this was the team that wrote the 1959 Ford Report (Rosen 1985: 75).

⁶⁰⁶ Ensminger explains:

...this Food Crisis Report was not really the product of a group of foreigners. It was the product of the interaction of a group of foreigners with a group of comparable and competent Indian agricultural officials and specialists. This is really what made it such a remarkable report.

I would be remiss in not reporting while I am talking about the Food Crisis report, that the people who have read it, even ten years later, say *it is one of the most remarkable documents they have ever seen written on a problem in a developing country*. I think this is true. It is a scholarly document and it is a document where the findings are documented and the recommendations come out of well reasoned analysis based upon a situation in India (Ensminger 1972. Box B.3: 31-32; my emphasis).

⁶⁰⁷ Ford Foundation describes the IADP as follows:

“The Intensive Agricultural District Program (IADP), popularly known as the “Package Program,” is currently in operation in seven districts, each in a different state. This program, sponsored and partly financed by the Ford Foundation, is an outgrowth of a Report “India’s Food Crisis and Steps to Meet it,” prepared by a team of American specialists in early 1959. More specifically and immediately, this effort to achieve a rapid increase in agricultural production is based on the integration of a ten-point program, the principal ingredients of which are farm production plans, adequate credit, fertilizers, improved seeds and farm implements, price incentives and improved marketing facilities, and a public works program, using local labor for a variety of land improvement projects from minor irrigation works to the building of godowns and roads. While most of these measures are well-known, tried and tested, what was novel about this program is the attempt to integrate and concentrate all of them, backed by adequate technical guidance and financial resources used for productive purposes. If India’s agriculture was to attain a “breakthrough,” *what was needed was “a big push applied* in short enough time span to ensure its effectiveness. Putting inadequate resources into the needed improvement of agriculture can be compared to pushing a large stone without enough concentration of impact—neither the production problem nor the stone may move at all.” So much for the origins and philosophy underlying the package program” (Ford Foundation 1962, #3, B.3: 17-18).

⁶⁰⁸ It was called “the package program” because it brought a “package” of practices and inputs to select farmers in select districts, and its success was dependent on all of its components being used together, as a package). The farmers had to have a “progressive” mindset, willing to adopt new practices and inputs and have good land that could demonstrate the effects of this program. The criteria for a district to participate in the package program was basically the same as what came to be the criteria for the new strategy/GR: “...the overall criteria were favorable soil and water facilities, minimum of natural hazards, and better than average cooperative and village panchayat organization” (Ford Foundation 1962, #3, B.3: 18).

⁶⁰⁹ (Ford Foundation 1962, #3, B.3: 18).

⁶¹⁰ (Ford Foundation 1962, #3, B.3: 14)

⁶¹¹ (RAC 1969a: 25).

⁶¹² (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶¹³ (Ensminger 1972. Box B.3: 15-16; my emphasis).

⁶¹⁴ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶¹⁵ (RAC 1952a: 4; my emphasis.)

⁶¹⁶ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶¹⁷ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶¹⁸ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶¹⁹ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶²⁰ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶²¹ (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶²² (RAC undated-b, IBEC Box 12, Folder 295; my emphasis).

⁶²³ (RAC 1968).

⁶²⁴ (RAC 1952a).

⁶²⁵ The New Strategy is the approach which comes to be popularly known as the “Green Revolution.”

⁶²⁶ (Ford Foundation 1962: 13-14; my emphasis).

⁶²⁷ The FF does note that in some villages and locales, this did not work—the masses were not interested in copying the elite. As if lacking all/any imagination and/or insight, they declare that in those places it is impossible to know what will work.

⁶²⁸ Though, it might be noted that caste is conspicuously absent, never mentioned or so much as acknowledged in any of the notes and memos; apparently Indian villages in the 1950s and 60s were without caste relations, or awareness.

⁶²⁹ (Ford Foundation 1962: 16; my emphasis).

⁶³⁰ (Ford Foundation 1962: 5).

⁶³¹ (Ford Foundation 1962: 2).

⁶³² (Ford Foundation 1962: 3-4).

⁶³³ (Ford Foundation 1962: 13-14; my emphasis).

⁶³⁴ On the other hand, Ensminger noted the project had many limitations as well, namely:

The program is essentially governmental and bureaucratically-ridden, where the farmers, for all their seeming participation, are not really insiders. Partly because of the preoccupation with the quantitative targets the program set for itself at the inception; partly because ... partly because ... partly because ..., and admittedly and importantly, partly because farmers don't take to change at the drop of a hat—for all these reasons the *enlistment of the active cooperation of the cultivators remains a major problem. ... in the final analysis this involvement, as nothing else, will determine the success or failure of the package program* (Ford Foundation 1962: 2).

⁶³⁵ (Ensminger 1972).

⁶³⁶ (RAC 1969: 25).

⁶³⁷ (RAC 1952a: 11; my emphasis).

⁶³⁸ (Ford Foundation and GoI 1959: 29; italics in original).

⁶³⁹ (Ford Foundation 1962: 13-14; my emphasis).

⁶⁴⁰ (Ford Foundation 1962: 16; my emphasis).

⁶⁴¹ (Ford Foundation 1962: 15; my emphasis).

⁶⁴² (Rosen 1985: 76).

⁶⁴³ (Rosen 1985: 77).

⁶⁴⁴ (Rosen 1985).

⁶⁴⁵ (Rosen 1985: 77).

⁶⁴⁶ (Rosen 1985).

⁶⁴⁷ Rosen suggests that the first five years of the IADP were “trial and error” trying to figure things out and make it work. Ensminger wanted FF Head Office (in New York) to renew it for another five years, but they would not agree to do so because they argued that the GoI had engaged in too much foot-dragging (Rosen 1985).

⁶⁴⁸ While records of the time do not acknowledge caste, Ensminger does, in his later oral memoirs note that their view of villages as homogenous and the fact that it never occurred to them to attend to tenure relations or other differences between villagers did in the end hinder Ford's early development projects. Thus, he explains that since small and marginal farmers and those who rented were less likely to make changes, the agricultural programs going forth did not target them, as they were less likely to implement the changes, much less succeed (Ensminger 1972).

⁶⁴⁹ (Ford Foundation 1962: 15; my emphasis).

⁶⁵⁰ The use of crisis here to get policy through was strategic. In reflecting on the FF's India activities, Ensminger commented on the necessary role of crises in setting policy—explaining that it was only with a crisis that the GOI listened up and was finally willing to do anything—“Ensminger was struck by the role of crises in India's policy making in that sector and by the foundation's role as an aid that helped India to experiment in crisis solution” (Rosen 1985:81-2).

⁶⁵¹ As Agricultural Minister Subramaniam explained: “There has been a cry that it is *only the better-off farmers* who have been using the fertilizer so that *we have been only subsidizing* them. But, you have to strike a balance because if they do not use the fertilizer they will not produce and the *whole nation will have to starve*” (Subramaniam 1979: 56; my emphasis).

⁶⁵² (Ford Foundation and GoI 1959: 29; italics in original).

⁶⁵³ (Ford Foundation and GoI 1959: 29; italics in original).

⁶⁵⁴ (Ford Foundation 1962: 16; my emphasis).

⁶⁵⁵ (Ford Foundation 1962: 16; my emphasis).

⁶⁵⁶ (Dayal 1968: 72).

⁶⁵⁷ (Ford Foundation 1962: 16; my emphasis).

⁶⁵⁸ American experts were convinced that technology itself could bring the revolution they aimed to instigate—it “could inspire changes in behavior and thought, it could instill a sense of rationality,

efficiency, and respect for empiricism in contrast to native passivity” (Latham 2003: 3). Similarly “The Rockefeller Foundation adopted a “technology first” approach—articulated in “the firm belief that new technology is the leading factor in the process of desired social change *because technology is also the locomotive of economic growth*. RF officials understood the importance of demonstrating the efficacy of technology in the field, visible to governments and publics. But their approach was always in a measured relation their attempt to reform existing institutions or create new ones. In the RF’s immediate environment, there was also a compelling attraction to the prospect of ‘behavior science,’ a kind of science which would permit social engineering comparable to biological engineering being proposed for agriculture which actually was being tested in the RF’s project in Mexico. ... But despite this interest in social engineering there was the perception that eventually the new technologies could be applied to the solution of the problem of insufficient food production with little reference to the less tractable problem of food maldistribution or the thorny issue of land reform. Technology would be the leading factor in the profound changes which governments appeared to desire and which the RF believed to be inevitable” (Anderson et al 1991: 31).

⁶⁵⁹ For, most rural areas were not addressed under this strategy anyway and the food produced was not for rural areas.

⁶⁶⁰ (Ford Foundation 1962: 3-4).

⁶⁶¹ (Dayal 1968: 72).

⁶⁶² (Dayal 1968).

⁶⁶³ (Baviskar and Saberwal 2002, citing Frankel 1971: 5; Dayal 1968).

⁶⁶⁴ (GoI, draft outline of the Fourth Plan, as quoted in Dayal 1968: 74; my emphasis).

⁶⁶⁵ (GoI, National Commission on Agriculture 1976; Dayal 1968; Bajaj 1982).

⁶⁶⁶ (GoI, MoIB 1966).

⁶⁶⁷ (GoI, MoIB, 1966: 11).

⁶⁶⁸ (GoI, MoIB, 1966: 6).

⁶⁶⁹ (GoI, MoIB, 1966: 3).

⁶⁷⁰ (GoI, MoIB, 1966: 11).

⁶⁷¹ (GoI, MoIB, 1966: 10).

⁶⁷² Subramaniam pushed this interpretation of the modernization of agriculture even more explicitly than it is articulated in the American’s records (see Ch. 4 for more a detailed discussion of this). The process of development itself, Subramaniam insists, needs to be ruled by scientists and run scientifically. In an effort to instill efficiency and create science as a vital driving life force, he characterizes some of the most important changes of the new strategy/GR policy as the replacement of the bureaucrats with scientists (Subramaniam 1973; 1979; 1995). Subramaniam sought to expand technocratic management to far more sectors of society—to ensure that the path of science was what was guiding the nation’s institutions and to avoid the sorts of larger development and allocation challenges that “non-specialists” brought up. Guided by the certainty that: “Every country which has improved its agriculture has done so *only through* the introduction of *science and technology* into farming. *India cannot be an exception*” (Subramaniam 1995: 108).

At the heart of efforts to introduce this “modern outlook,” Subramaniam insists, lies technology. Subramaniam argues that the founders share a vision of development in which it is / which is defined by “the lack of appropriate and efficient technology is at *the root of underdevelopment*, rather than other factors” (Subramaniam 1973: 3). In this story, agricultural technology has a key role to play in creating modern scientific subjects, As C.S. Subramaniam articulates this project of *subject making* of the masses:

Nehru... called it *the evolution of ‘a scientific temper,’*... This has a great deal to do with ways of thinking that are relevant to *our activity as economic agents* ... Its importance in promoting a new culture based on science is undeniable. ...

Two years after his death when we carried our package of improved seeds, fertilizers and pesticides to the rural community, the response that the new strategy evoked was, I believe, in large measure due to earlier attempts at opening mental doors and stimulating a *modern outlook* among all our people (Subramaniam 1973: 4; my emphasis).

Subramaniam further explains the subject and consciousness (re)making potential of this project, narrating:

Once science and technology are brought into day to day productive activity the attitudes of the people completely change. This can be seen in the development of the High Yielding Varieties Programme ... If we are able to make a dramatic initial impact by introducing science and technology, even illiterate conservative rural people will be prepared to make further changes. For example ... Now they have begun to ask, 'If artificial insemination is possible for animals, is it possible to control human pregnancy artificially?' family planning thereby becomes much easier in this area because villagers are exposed to these new ideas. Thus a major transformation in attitudes takes place once a new change is introduced (Subramaniam 1979: 77).

Beyond making development and its institutions more efficient, for science to become a "vital force," this mindset had to be instilled in the population themselves. Subramaniam continues citing the nation's founders and leading scientists in constructing his origin myth. Clearly there is no dearth of statesmen's writings and speeches exalting "science for development," the question of concern, however, is *what kind of technology and science are being envisioned and for whom?* With the agricultural revolution inducted under the name of the "New Strategy," the direction of "science for development" was realigned, focused down a slightly different path; while nominally the paths remained much the same—in their discursive appeals and populist justification, the focus of the policy and the understanding of how development spreads (or the directionality of development's "trickle" effect) shifted in ways with significant lasting effects to this day. Some of these differences were immediately highly contentious and others took decades of further policy change for the effects to be evident. What is clear is that this "scientific" mindset—of accepting agricultural technology was a pre-condition for "rational(ity's)" metric: surplus production, producing for a market (Ensminger 1972). Subramaniam's reading and reformulation of "science-for-development" offers an insight into these shifting understandings in their formation. As a number of scholars have argued, Subramaniam *redefined* "science," shifting it away from Nehru's (socialist-democratic-technocracy) understanding and into an understanding more in line with what the Americans were arguing for. Subramaniam was a "resolute modernizer" and this more "expertise"-driven and opaque technocratic science; a science ultimately linked to the drive of private enterprise (Visvanathan 2006; Frankel 2006).

⁶⁷³ (Brown 1970).

⁶⁷⁴ "During the 19 years that I was in India the Ministers of Food and Agriculture were rather representative of the political leadership of India in their understanding and orientation to agriculture as being necessarily traditional. The only exception to this was C. Subramaniam who, more than any other individual in India, gave leadership to the designing of agricultural programs to move the nation from traditionalism to modernism" (Ensminger 1972: 23). Likewise, India's Ambassador to the US, B.K. Nehru recalls President Johnson being specifically impressed with Subramaniam as a modernizer (Nehru 1997).

⁶⁷⁵ (Ensminger 1972: 23).

⁶⁷⁶ Ensminger argues that the all of the other ministers simply were not concerned with the food problem; the Food and Agriculture Ministers just assured the nation everything was fine.

I went on to say, "But I think you could have said to them, "we have work to do, we have to really work hard if we are going to finally get ourselves to where we are free of the need for importing food grains." The Minister [of Food and Agriculture] looked at me and smiled. This was pretty much the attitude of the various Ministers of Food and Agriculture in the centre Government during the time I was there. This made it very difficult to get the States and the districts to be serious about agricultural development (Ensminger 1972: 24).

⁶⁷⁷ Rao, it may be noted, was vehemently against the New Strategy until this point—Ensminger complains repeatedly about Rao's resistance as hindering the progress of this approach (Ensminger 1972).

⁶⁷⁸ (Rao 1967: 15).

⁶⁷⁹ Rao also asserts that while the Ministry of Agriculture wants to distribute large concentrated doses of fertilizer over very small areas, this tactic is not necessarily the most effective and must be further "contemplated." For, some have pointed out that "the overall economics of fertilizer use may be in favor of their *application over a larger area in smaller doses* (say of about 40 to 60 lbs of N per acre) rather than

over a smaller area in larger doses” (Rao 1967: 20). The question that CSS effaces by appealing to the “nature” of the seeds (and the “nature” of certain farmers) needs to be addressed more carefully than it has been. Rao also has practical and ecological concerns, explaining that “moreover, it is a well-known fact that chemical fertilizers need to be accompanied by organic fertilizers. Even in Japan, which as perhaps the largest application of chemical fertilizers per acre, organic fertilizers are used to the extent of 50%...or a proportion of 1:1 with chemical fertilizers” (Rao 1967: 20).

⁶⁸⁰ (Rao 1967: 13-14; my emphasis).

⁶⁸¹ How to achieve this?—the mechanism is technology in itself, C.S. Subramaniam argues that the founders he invokes share a vision of development: “...the lack of appropriate and efficient technology is at the root of underdevelopment, rather than other factors” (Subramaniam 1973: 3).

The second feature of the above philosophy is that sustained development will not take place on the basis of selective application of modern technology to a few enclaves in the economy. What is postulated, on the other hand, is what Bhabha called “transforming” the entire economy, which has its echo in the plan document when it refers to the need for a ‘balanced programme of research covering every sector of the economy.’ This will explain why ...before India attained political independence, a process of self-sustaining growth had not been *triggered* off in the economy. What was lacking was an across-the-board application of the tools of modern science, with progress in one direction impinging on the other sectors, in a pattern of dynamic chain reaction (Subramaniam 1973: 3).

⁶⁸² (Subramaniam 1968; as quoted in RAC 1968).

⁶⁸³ This wheat revolution became the famous GR—as US AID Administrator Gaud explains, coining the term:

These and other developments in the field of agriculture contain the makings of a new revolution. It is not a violent Red Revolution like that of the Soviets, nor is it a White Revolution like that of the Shah of Iran. I call it the Green Revolution.

This new revolution can be as significant and as beneficial to mankind as the industrial revolution of a century and a half ago. ...

To the farmer, the new seeds and fertilizer represent an untried and expensive investment. The high yields of IR-8 depend on a combination of intensive labor and materials which makes it four times as costly to grow as ordinary rice. Only when the farmer sees that the added investment will increase his profit will he give them a try (Gaud 1968).

⁶⁸⁴ (Nobel Committee 1970).

⁶⁸⁵ (USDA 1961).

⁶⁸⁶ As Brown explains, the most important aspect of the GR was to be in reshaping consciousness:

Perhaps the most significant aspect of the farm revolution is the psychological effect it may have on government leaders in the developing countries. If modern technology should enable the developing countries to solve their food problem—a problem many consider insoluble—then it may give government leaders confidence in the ability of modern technology to solve some of the other difficult problems (Brown 1968: 27).

⁶⁸⁷ (as cited in Dowie 2001: 106).

⁶⁸⁸ (M.S. Swaminathan 2009a; my emphasis).

⁶⁸⁹ (J.K. Bajaj 1982: 100; my emphasis).

⁶⁹⁰ The GoI’s National Commission on Agriculture (NCA) numbers—on which Bajaj makes this claim—are (detailed in his preceding paragraph) as follows:

In Table 2, we display the plan-wise rates of growth of agricultural production, area and productivity. What we see there is that during the Third Plan period (1961-62 to 1964-65), i.e., during the period immediately preceding the years when the decision to implement the HYVP was made, the productivity had reached an all time high rate of growth. The rate of growth of productivity in this period was 2.7% per annum, as compared to the annual growth rate of 1.4% and 1.8% achieved during the First and the Second Plan periods. *Thus the productivity graph, far from having reached a plateau,*

was actually moving upwards in the years before the Green Revolution. During the Fourth Plan (1969-70 to 1973-74), i.e. during the five year period immediately following the introduction of the Green Revolution technology, the rate of growth of productivity, however, touched an all time low of 1%. Thus it is obvious that the decline in 'the growth of productivity after the Green Revolution cannot be trivially explained by taking recourse to the law of declining marginal productivity (Bajaj 1982: 99).

⁶⁹¹ (Dowie 2001: 105).

⁶⁹² (Cullather 2003: 227).

⁶⁹³ (Sachs 2005, Dossani 2008; Majumdar 2007).

⁶⁹⁴ (Dossani 2008).

⁶⁹⁵ (Sachs 2005: 177).

⁶⁹⁶ (Majumdar 2007: 64).

⁶⁹⁷ The technologies used in the GR initially came to India via American foundations (which had been working on cross-breeding improved crops in Mexico). In the American version of the GR story, the new agricultural technologies were the result of decades of work by Americans abroad and it was American men that were to credit for their global dissemination. The American rendition of the GR narrative summons images of “age old” hunger as the “native condition” of far-off places to paint a backdrop, against which the vision of a few (American) men harness the power and potential of “modern” science to help “feed the world” and secure against the destabilizing threat of hunger (and its feared handmaiden, communism). In this worldview, hunger and (geo)political stability and security are intimately linked. After all, Norman Borlaug (of the Rockefeller Foundation) was awarded the Nobel Peace Prize (not a science prize) in 1970, for ostensibly solving Asia’s endemic hunger with the new HYV (high-yielding variety) seeds used in the GR.

⁶⁹⁸ The point is not that the events in their “truth” lie waiting to be uncovered, or that their “truth” needs to be “uncovered” and told to construct a new narrative, nor that such “truth” matters more than the lasting tale. This is not because such empirical “truths” are irrelevant, but rather, reading across various representations of events—from policy documents, to private letters, to public speeches and published materials, I “read” the GR’s lasting narrative, attempting to excavate and unravel the GR’s lasting power and address: what is at stake in this rendition of the Green Revolution story? What does this GR narrative reveal and conceal? What work does this success narrative do? How does this tale continue to be sustained?

⁶⁹⁹ (Streeter and Rockefeller Foundation 1969: iii).

⁷⁰⁰ (Streeter and Rockefeller Foundation 1969).

⁷⁰¹ (Streeter and Rockefeller Foundation 1969: 3-4, 7; my emphasis).

⁷⁰² (NCA vol. 1 1976: 27).

⁷⁰³ As a point of comparison, the drought was more severe—although a shorter duration—than the US Dust Bowl of the 1930s.

⁷⁰⁴ (Streeter 1969).

⁷⁰⁵ This legacy and its line of argumentation not only continue today, but are made into an explicit case/argument for why poor people (often in African countries) do not have the right or the choice to say no to GM crops (see for example Paarlberg 2009).

⁷⁰⁶ (RAC 1969b).

⁷⁰⁷ (Law 2000: 2).

⁷⁰⁸ (Brown 1970; as quoted in Sen 1974: 3).

⁷⁰⁹ (Currie 1998: 90).

⁷¹⁰ The “success” as narrative of the GR is more clear-cut in some cases than others. A simplistic example of narrative “producing” its own reality could be read in the case of the GR in the Philippines GR, where the new rice variety

IR-8 appeared to solve the rice crisis, and for the Marcos administration, the appearance of success was sufficient. The new variety covered a million acres in the Philippines in 1968 according to IRRI (750,000 according to the CIA). U.S. intelligence reports noted that the gap between production and consumption of rice was about 10 percent, roughly what it had been before miracle rice was introduced, but that the technocrats had

produced a bountiful harvest through fraud. The Marcos administration, which first claimed *self-sufficiency* in 1968, maintained the illusion well into the 1970s through the simple device of exporting small quantities amid great fanfare while secretly importing tons of rice from Hong Kong and faking the figures. Marcos's reputation as a *modernizing, technocratic leader*—as well as his victory in the 1969 election—rested on the feigned achievement of his Green Revolution. Marcos's publicity agents wrote the early drafts of the Green Revolution legend: "Coming at the precise moment in history when the Philippines' growing population was forcing the country steadily and surely into a maelstrom of hunger," a spokesman elaborated, "the development of miracle rice marks a turning point which may not only arrest this possibility, but makes possible a complete reversal toward self-sufficiency" (Cullather 2004: 245; my emphasis).

While such a case is clear-cut, it is the narratives that underwrite it—self sufficiency, technology, modern "knowledge," independence—that I suggest are the powerful enabling claims, or naturalized understandings. It is these narratives that I seek to examine in this chapter, for they produce a "reality" and have far reaching material effects (such as implementing these policies and keeping Marcos in power); these narratives are thus more interesting to me than those (such as "the Philippines is rice self-sufficient") that have a clear break from the material referent, which remains "outside."

⁷¹¹ (Birla 2002: 178).

⁷¹² There are several reasons for this, including that the narrative itself produces: a clear intentionality (and its intending subject), a linear time (which in turn underwrites the imaginaries of the nation and the subject), an imagination of the technology (as itself almost necessarily bringing progress—manifest for example in the productionist paradigm).

⁷¹³ While I seek to examine "narrative" and hence I dwell more in accounts of the time than the official records, my account's access to the official records is also limited by the fact that official files from the Ministry of Food and Agriculture and its affiliated agricultural departments and institutions are not available for the time period of the Green Revolution. Agriculture Ministry files from any period after the late 1950s are not housed at the National Archives of India (NAI) where other GoI files from the time period are kept; as they are not available in the National Archives these files are not available to researchers or the public, despite being more than 50 years old (and thus technically decommissioned). None of the archivists at NAI had much of an explanation as to why the files were not there, other than that the Ministry of Food and Agriculture simply had never released the files. However, the files from other GoI ministries and departments (Foreign Affairs, Aid, etc) are available and are in the NAI. From the available Indian Government official files I rely largely on files of the Finance Ministry, Economic Affairs, Aid Division, because these files come closer than other available files at the NAI to revealing the official relation between the US and India during this time. To gain insight into the Agriculture Ministry's perspective on the GR I am confined largely to published accounts and cross-referencing with other available archival material at the NAI (as well as US Government and US Foundations). While the official files from the Ministry are not available, there are many reports and pamphlets on the GR, or "new strategy," published by various offices and Ministries of the GoI, many of which are available at Nehru Memorial Library and elsewhere. In addition, there are hundreds of texts on the GR, from the published records of the many symposia held across India during the 1960s to those addressing specific questions at the time, to more recent scholarly and historical accounts. Drawn together, this work informs my understanding of the GR and provides a solid base for understanding and building an account of the dominant narratives. Likewise, there are many post-GR reports, such as the 14 volume National Commission on Agriculture study (1970). However, the perspective revealed in accounts written after the GR reflects the GR-era's consolidation of shifts in understanding—that is the (change in) perspective is put forth in a fairly self-evident manner, unlike texts during the GR which reveal ambiguity and the sense of ongoing battle and contingency. For further insight, I invoke the writings of C. Subramaniam, India's Minister of Agriculture during the GR (via texts of his lectures and his memoirs on the GR). Subramaniam was instrumental in bringing in the GR and taking ownership of it. C. Subramaniam's accounts of how the "New Strategy" came to be largely align with other published and US archival material. In building an understanding of the US's perspective, I was able to rely more extensively on archival data: The US Government files from the era have been

declassified and are available, I also rely on the personal files of the US Ambassador to India, Chester Bowles, on the Rockefeller Foundation's archives, and on the personal files of Douglas Ensminger, President of the Ford Foundation in India.

⁷¹⁴ For example, statistics of agricultural yields and reports on agricultural crop production published by India's National Commission on Agriculture and those of the Directorate of Economic Statistics reveal that India's agricultural yields increased most rapidly in the period before the Green Revolution (NCA, GOI MoA 1976). This squares with what other scholars have reported: that the rate of growth in agricultural output in India was higher *preceding* the Green Revolution policies than it was during or after the Green Revolution (Blyn 1966; Griffin 1972). For example, based on this official data, Balwinder Singh argues:

According to the all-India trend growth rates of production (published by the Ministry of Agriculture) for two distinct periods i.e. 1949-50 to 1964-65 (pre-GR period) and 1967-68 to 1984-85 (post GR period), there has been a *deceleration in the annual growth rate of production* during the latter period while the improvement in productivity has been very modest and not adequate to offset the much slower increase in area. ... the compound growth rate of agricultural production slacked to 2.66%/annum between 1967-68 and 1984-85, from 3.13% between 1949-50 and 1964-65 (Singh 1990: 19-20).

And Sudhir Sen explains that "A former chairman of the Agricultural Prices Commission even went to the extent of claiming that the growth rate of foodgrains output had actually declined in the sixties" (Sen 14; see Ashok Mitra, "Bumper Harvests has created some dangerous Illusions" *The Statesman* Oct 14-15 1968).

Further troubling the idea of a (foreign) intervention suddenly revolutionizing age-old agricultural stagnation, discussions at the Rockefeller Foundation India and US offices in the late 1960s (as revealed in archival documents) were obsessed with two question: why is productivity *declining* despite all the technological upgrades and how do we get agricultural growth rates back up to what they were in the 1950s? The GR was an attempt at restoring these earlier growth rates. As revealed in letters and correspondence, the declining food production *during* the GR period was a serious concern:

In the past decade, the period of the 'Green Revolution' in India, the availability of food declined from 463.1 grams per capita per day in 1961-2 to 458.8 in 1970-71—India's best food year of the record. In 1971-72 availability declined further 4 percent and, now more than half way through 1972-73, we're reconciled to a further decline in availability during this year of about 4.6 per cent. *Deterioration in quality of available food in the period has been even more serious as the lower yielding legumes, and important sources of protein in India, have been unable to compete with cereals* (RAC 1973a).

When Knowles visited they discussed with GoI possible areas of continued RF involvement. It continues:

When the Foundation began to phase its program activities in 1970-71, India was in a relatively strong position in areas of Foundation involvement. Since that time she has been beset by one adversity after another. Food availability has declined annually—107.8 M/T to 104.6 M/T to about 95 this year. *Within the past 12 months she has exhausted not only her 9M/T of buffer stocks of food but also expended about two-thirds of her foreign exchange. At this time, India does not have sufficient foreign exchange to buy enough food grain to offset recent production shortfalls*, even if the food grain can be found, and to procure fertilizers on the world market for the next crop, the target for which is 115M/T. this tonnage is urgently needed. The 107.8 M/T was not enough food in 1970-71. This year she will have but about 95 M/T and 54 million more people to feed (RAC 1973b).

It was not just that food had declined since the peak in 1970, it had declined significantly since 1960, the quality of the average person's diet had been in decline over this period as well, and buffer stocks were declining (ibid in letter dated March 16, 1973). But, even after noting that over the decade of the GR food production has declined, consumption has declined and buffer stocks have declined, the RF proceeds to recommend the application of "modern science" as the solution (ibid).

The exact reason why agricultural growth rates declined during and after the GR is not entirely agreed upon. The lack of remunerative prices seems to have been an important factor; in the years preceding the

GR, this was exacerbated by the failure of the Monsoons (a drought of very significant proportion, at least as devastating as the US' "dust bowl" years). Further, from the mid-1950s to late 1960s India was heavily dependent on US food aid; this food aid flooded the market at subsidized prices and undercut the ability of local farmers to compete. Central government policies intentionally kept prices low for urban consumers to keep wages relatively low for industrial labor. However, without assured prices (and unsure if they could even afford to produce in a context of cheap imported food aid), farmers' production levels (of wheat in particular) steadily declined until the GR price supports.

⁷¹⁵ (NCA, GoI 1976, RF 1972).

⁷¹⁶ (Mukerji 1974: 1).

⁷¹⁷ (Mukerji 1974: 1).

⁷¹⁸ (Sen 1974: 1-2).

⁷¹⁹ (Chand 1970: 16; my emphasis).

⁷²⁰ (Chawdhari 1970: 18).

⁷²¹ (Mukerji 1974: 1-2).

⁷²² (Sen 1974: 12). Sen suggests that:

One way of evaluating the recent increases in annual foodgrain output is to compare them with the long run trend rate of growth established in the period 1949-50 to 1964-65, that is before the advent [*sic*—or, at least their introduction into India] of the high yielding varieties" (11). Hence, "The expectation is that since the GR represents a sharp break from the past, it will have raised the long run trend rate of growth of foodgrains output considerably over the rate of the 3.05 per cent per annum established during the period of 1949-50 to 1964-65" (12). However, in comparing growth rates and yields, Sen assesses that there was "an improvement that can be termed at best nominal. It appears that in terms of rates of growth of foodgrains output, the achievement of the GR has been grossly overrated. The long run trend growth rate improves from 3.05 to 3.26 per cent per annum when the output increases between 1967-68 and 1970-71 are taken into account. It is hard to take this small improvement as being significant enough to merit the term revolution. The record in respect of foodgrain yield is no different. ... The long run trend growth rate of growth in yield rose from 1.63 in 1949-50 to 1964-65, to 1.99 per cent per annum in 1949-50 to 1970-71 (Sen 1974: 12).

⁷²³ (Norman Borlaug; as quoted in Paarlberg 1970: 19).

⁷²⁴ (Hansra and Shukla 1991: vii; my emphasis).

⁷²⁵ Rudolph and Rudolph's (1984[1967]) account *The Modernity of Tradition: Political Development in India* rather unproblematically deploys the idea of "modernity." While the authors do so in an attempt to destabilize its binary with tradition, what they tell us of modernity is in many ways more revealing. By modernity they say that it generally references a universalism and cosmopolitanism, individualism and choice, rationalism (and the waning of faith itself for faith in science and calculation) and the mastery (rather than fear) of nature. Basically, the modernity they invoke could be read as the modernity featured in Horkheimer and Adorno's treatise on "The Dialectic of the Enlightenment." While Rudolph and Rudolph's account aims to demonstrate some of the ways in which our Western conceptions of modernity are limited and that Indians are *also* modern (taking up the examples that their social structures are mobile, and they are entrepreneurial). Thus, taking on how these mis/understandings of modernity and tradition have produced an "analytic gap" between the ostensibly traditional and modern societies (and their corresponding East/West geographies). It is these divisions that are productive, promising to people that they can leap over to the other side. To modernity. If only they behave in the right ways. And the GR was one key such way, as Cullather argues the GR exemplified "the use of a technology—such as rice [or wheat seeds]—to visualize a boundary between tradition and modernity" (Cullather 2003: 229).

One account that exemplifies the conception of modernity which Rudolph and Rudolph critique is Dipankar Gupta's (2000) book *Mistaken Modernity: India between worlds*. His account of Indian modernity and the place of the Green Revolution therein enforces these conceptions of modernity and the natural role of the west as the origin and definition of modernity and civilization. His main argument is that the Green Revolution helped farmers produce more crops/yield on their land without the need for

agricultural labor and that it helped medium sized farmers become more plentiful and more prosperous, decreasing tensions with labourers (and the need for them, in many cases). This simplistic sketch fits into his larger argument on modernity, “Whether sympathetic or critical, narratives of the Green Revolution follow a structure conventional to histories of technology, beginning with the inspiration of scientists, climaxing in the defeat of tradition, and unfolding in tables of statistics measuring harvests, revenues, and social disturbance” (Cullather 2003: 229).

As has been repeatedly discussed by postcolonial scholars, the *narrative of modernity* is the guiding, or defining, narrative of development, from the time of territorial imperialism through the present day. And the scientism of this modernity narrative runs particularly deep in agricultural development. Modernity and progress conquering hunger and producing food as industrial goods in abundance, stamping out the specter of hunger.

⁷²⁶ This is not to create a binary between discourse and materiality—for, they are in many ways not separable as such. Rather, this is to point out and examine this aspect of their coproduction.

⁷²⁷ To see this revolution it is necessary to look beyond output levels. As Sen suggests, input levels offer one place to start. But more specifically, who used these inputs, how did they access them and on what terms, and with that effects?

⁷²⁸ (M.S. Swaminathan 2009a; my emphasis).

⁷²⁹ (M.S. Swaminathan 2009a; my emphasis).

⁷³⁰ To be clear: by “conceal” I do not mean an agent directed process, I am not implying an intentionality to conceal or trick. Rather, I am interested in excavating much more than that, in understanding how this narrative comes to be produced through the conjuncture of a large array of factors that defined what the problem is, how it is to be understood, addressed, and how this entire process is to be catalyzed.

⁷³¹ (Freeman 1968: 154).

⁷³² (Subramaniam 1979: 48-9).

⁷³³ (Subramaniam 1979: 46-7).

⁷³⁴ (Ensminger 1972).

⁷³⁵ (Norman Borlaug; as quoted in Paarlberg 1970: 19).

⁷³⁶ (Subramaniam, as quoted in RAC 1968).

⁷³⁷ (RAC 1966b).

⁷³⁸ Borlaug complains (in a private letter to Glenn Anderson of the RF, India Agriculture Program (RAC 1966b)).

⁷³⁹ (Subramaniam 1995: 135).

⁷⁴⁰ (Subramaniam 1995: 135).

⁷⁴¹ (RAC 1966b).

⁷⁴² (RAC 1966a).

⁷⁴³ The policy of “concentration” was the concentration “a *heavy dosage of chemical fertilizers*.” This was the key to this new “breakthrough” and the HYVs being able to show any improvements (Subramaniam 1995: 119). Given the limited fertilizer supplies in the country, the New Strategy sought to “maximize” resources by distributing these resources (chemical fertilizers) only in select “areas where irrigation is assured.”

⁷⁴⁴ (RAC 1966b).

⁷⁴⁵ (RAC 1966b).

⁷⁴⁶ (Subramaniam 1995: 116; my emphasis).

⁷⁴⁷ Dr. V.K.R.V. Rao was a member of the Planning Commission from 1963–66.

⁷⁴⁸ (Rao as quoted in Dayal 1968: 88-9; my emphasis).

⁷⁴⁹ (Rao as quoted in Dayal 1968: 88-9; my emphasis).

⁷⁵⁰ (Dandekar as quoted in Dayal 1968: 88-9; my emphasis).

⁷⁵¹ (Subramaniam 1995: 135).

⁷⁵² The IADP (Intensive Agricultural Development Programme) was the predecessor to the New Strategy. The theory behind and approach of the two programs was largely the same.

⁷⁵³ (Melvin Fox, A FF consultant, as quoted in Berman 1983: 164).

⁷⁵⁴ (Dayal 1968: 87-8; my emphasis).

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- ⁷⁵⁵ (Dayal 1968: 87-8; my emphasis).
- ⁷⁵⁶ (Dayal 1968: 87-8; my emphasis).
- ⁷⁵⁷ (Dayal 1968: 90; my emphasis).
- ⁷⁵⁸ (Subramaniam 1995: 117).
- ⁷⁵⁹ (Streeter and Rockefeller Foundation 1969: iii).
- ⁷⁶⁰ (Subramaniam 1995).
- ⁷⁶¹ (Dowie 2006).
- ⁷⁶² (RAC 1966b).
- ⁷⁶³ Borlaug advocates for a technocracy—a structure in which only agricultural technology “experts” should have a say—a policy structure in which there are NO social concerns, no larger questions of national goals, equity, development, allocation, or anything else to mind other than the management of “technology.”
- ⁷⁶⁴ (RAC 1966b).
- ⁷⁶⁵ (Borlaug “Memorandum” entitled “Considerations and actions needed to keep India’s accelerated Wheat production program rolling forward on Target and on Schedule.” RAC, RG 6.7, Box 82 Folder 528: 1).
- ⁷⁶⁶ (Borlaug “Memorandum” entitled “Considerations and actions needed to keep India’s accelerated Wheat production program rolling forward on Target and on Schedule.” RAC, RG 6.7, Box 82 Folder 528: 1).
- ⁷⁶⁷ (Hirschman 1967).
- ⁷⁶⁸ Hirschman explains: “The Hiding Hand is essentially a way of inducing action through error” (Hirschman 1967: 21)—“its principal usefulness is in inducing risk-aversers to commit themselves to risk-taking behavior. This commitment *permits an acceleration of economic growth* ... The Hiding Hand is thus essentially a *transition mechanism* through which decision-makers learn to take risks” (Hirschman 1967: 20; my emphasis).
- ⁷⁶⁹ (Lewis 1969 House Committee on Foreign Affairs, The Green Revolution, 91st Cong, 1st sess., 5. December 1969, 63; as quoted in Cullather 2003: 241).
- ⁷⁷⁰ (Pal 1964: 4–5; my emphasis).
- ⁷⁷¹ The speech was before The Society for International Development at the Shorehan Hotel in Washington, DC on March 8, 1968.
- ⁷⁷² “These and other developments in the field of agriculture contain the makings of a new revolution. It is not a violet Red Revolution like that of the Soviets, nor is it a White Revolution like that of the Shah of Iran. I call it *the Green Revolution*. This new revolution can be as significant and as beneficial to mankind as the industrial revolution of a century and a half ago” (Gaud 1968: my emphasis).
- ⁷⁷³ Gaud ended his speech with a plea to the funders:
- Is the aid program in trouble because economic development does not matter - because it is not important? Nonsense! Development is the burning obsession of more than half the people in the world. Development as Pope Paul has said, is the new name for peace. *Development does matter and it cannot wait.*
- Is it because foreign aid will not work? Hardly! There is far too much evidence to the contrary. *The story of the Green Revolution is not a story of failure, it is a story of success.*
- Is it because we cannot afford the foreign aid program? Absurd! We are the richest and the most affluent nation on earth. Our Gross National Product has been increasing by tens of billions of dollars each year. We can afford what we want to afford (Gaud 1968).
- ⁷⁷⁴ (Gaud 1968).
- ⁷⁷⁵ (Gaud 1968).
- ⁷⁷⁶ At this point Subramaniam was already India’s former Minister of Agriculture.
- ⁷⁷⁷ (Subramaniam, as quoted in RAC 1968).
- ⁷⁷⁸ (Subramaniam, as quoted in RAC 1968).
- ⁷⁷⁹ (Subramaniam, as quoted in RAC 1968).
- ⁷⁸⁰ (Subramaniam, as quoted in RAC 1968).
- ⁷⁸¹ Agriculture Minister Subramaniam details his battles with the Planners, explaining that it *was* quite controversial, not least because the Planners were quite opposed to the “New Strategy” of the GR. While

the Planners on the Commission in 1965 advocated the very Community Development approach that Subramaniam had declared a failure for focusing “too broadly”; however, instead of becoming mired in policy debates, the problem turned out to be simple enough to resolve: there was a top-down initiated change of leadership. When Indira Gandhi became Prime Minister, Subramaniam was appointed to the Planning Commission. The Commission’s stance changed accordingly, and the New Strategy and the price support policies were adopted.

⁷⁸² While the most vocal opposition the “New Strategy” in Parliament came from the Leftist Parties (who argued it would foster dependence on the US), they did not present the largest obstacle to Subramaniam proposed approach. Critique came on all aspects and from many quarters, and the Finance Minister’s resolute opposition (on the grounds that the cost of the large subsidies would throw India’s approach of balanced development entirely out of sync) was the largest stumbling block. Subramaniam explains:

The finance minister, T.T. Krishnamachari, was the first to object to the price policy—because the urban population could not afford it and secondly, because “any increase in food prices would unsettle the planning process which was based on a certain food price policy. I placed my view as forcibly as possible as said *my entire agricultural policy would depend on the price policy* (Subramaniam 1993: 113).

⁷⁸³ (Subramaniam 1979: 51).

⁷⁸⁴ (Subramaniam 1979).

⁷⁸⁵ In fact, not surprisingly many farmers did lose money and were not repaid, as multiple newspaper accounts of the time chronicle.

⁷⁸⁶ (Dayal 1968: 87, summarizing Dandekar).

⁷⁸⁷ “Our aim is maximizing the output with limited resources in the shortest possible time. The principle of selection of areas runs contrary to this purpose” (Dandekar as summarized by Dayal 1968: 87).

⁷⁸⁸ (Subramaniam 1995: 119)

⁷⁸⁹ (Subramaniam 1995: 139).

⁷⁹⁰ (Subramaniam 1995: 138).

⁷⁹¹ (Subramaniam 1979: 56; my emphasis).

⁷⁹² “There has been a cry that it is *only the better-off farmers* who have been using the fertilizer so that *we have been only subsidizing* them. But, you have to strike a balance because if they do not use the fertilizer they will not produce and the *whole nation will have to starve*” (Subramaniam 1979: 56; my emphasis).

⁷⁹³ Subramaniam’s development vision has (perhaps unexpected) resonances with the vision of another development “revolutionary”—US national security adviser W. W. Rostow. In his most famous move—the amputation of Lenin’s stagist progression of its final state (communism)—Rostow argued that instead it is capitalism’s “age of high mass consumption” that signifies arrival. High-mass consumption was to be the ultimate state of development; it is this that all societies are to strive for and prioritize in development policy.

⁷⁹⁴ (Subramaniam 1995).

⁷⁹⁵ (Dayal 1968: 78).

⁷⁹⁶ The “New Strategy”—which later came to be known as the “Green Revolution”—was basically an even more targeted version of the previous agricultural modernization programs (the IAAP and IADP). These previous programs melded a new take on development economics (a distinctly different take than the Nehruvian socialism pursued thus far, and backed this new economic ideology with the power of science, a belief in which was in many ways a re-articulation of the longstanding faith in science and technology as modernity of the Indian nation state. The commitment to making agriculture remunerative coupled with the logic of scarcity defining the time, determining that agriculture would only become remunerative for those already engaged in capitalist (surplus producing) agricultural production. Only “*the most productive land farmed by the more efficient farmers*” were included in the GR approach. In order to accomplish this goal—of aiding industrial development—the GR took a highly targeted approach:

The new food strategy is really an extension of the IADP initiated in 1960 and extended into [the] IAAP in 1964. ... under the new Food strategy or high yielding varieties programme, it is proposed to select within the existing IADP and IAAP areas a few blocks:

Where there is no problem of water—either the rainfall is good or the irrigation system is satisfactory.

Which enjoy immunity from natural hazards such as floods, drainage problems, soil conservation problems, etc.

Which have well-developed village institutions like cooperatives and village panchayats (Dayal 1968: 77).

⁷⁹⁷ In this period, all development agencies from the GOI to USAID and the FF and RF emphasized the importance of effective planning for development.

⁷⁹⁸ (Frankel 1972).

⁷⁹⁹ My aim here is not to be an arbiter of development processes, but as all choices involve a politics and ethical stance, it can of course be noted that each of these two approaches to development can find justification in the instrumentalities of economic literature. The former approach—of prioritizing equity has been established on the rational terrain of economics as achieving desirable ends in itself: the economic argument being that safer societies where people have more chances, while the latter takes a different economic justification: employing theory rather than results to argue that this approach *should* be the most efficient and best able to produce desired results. Economic evidence for and against each approach can of course be mobilized; but all of the evidence requires buying into the abstract metrics of economic studies as able to effectively reflect society.

⁸⁰⁰ (RAC 1966b).

⁸⁰¹ Before addressing the work of the seed’s “natural” materiality, it is apparent that the politics of knowledge is markedly absent from these narratives, swapped for a reverence of technology. This reverence is shared by nationalist and developmentalist narratives of the era. The faith in “Science for Economic Development” (Subramaniam 1972) binds the two, and the absence of the *politics of knowledge* (not to be confused with “technical know-how,” which is very much discussed in developmentalist narratives) cements the tale. It is not simply knowledge, but contingency, possibility, and conjuncture that are written out: the GR was undoubtedly controversial at the time (and its existence owes to fairly significant political maneuvering).

⁸⁰² (Subramaniam 1979: 35-36).

⁸⁰³ (Singh 1966).

⁸⁰⁴ (Dayal 1968: 85; my emphasis).

⁸⁰⁵ (Dayal 1968: 85; my emphasis).

⁸⁰⁶ (Dayal 1968: 86; my emphasis).

⁸⁰⁷ (Subramaniam 1979: 35-36).

⁸⁰⁸ (Subramaniam 1979: 35-36).

⁸⁰⁹ (Subramaniam 1979: 35-36).

⁸¹⁰ (Subramaniam 1979: 35-36).

⁸¹¹ But that is not to be the issue, collaborating with the technical framing, aggregate output was not the question at hand—the question had become one of how to get the particularities of the strategy through. That said, it must be acknowledged that if India were to follow this approach, then the new seeds they had procured—an investment which was by far the largest seed purchase ever made (up to that time) would risk being entirely in vain. The “path,” as it were, had been “set,” or written, and having set out upon this path, it was necessary to ensure the results of their investment—for the new seeds they had procured were different.

⁸¹² This is in part because of the technology, the HYV is the only technology available—as the RF explain in “A Fresh Strategy...” after pointing to this problem they note that—there is not yet a new approach for increasing yields on dry and rain-fed lands the way there is for irrigated lands.

⁸¹³ (Ensminger 1972; FF 1962).

⁸¹⁴ (Subramaniam 1995: 139).

⁸¹⁵ (Subramaniam 1979: 56; my emphasis).

⁸¹⁶ (Subramaniam 1995: 138-9).

⁸¹⁷ Implicit throughout this is the idea that the GR did increase production. But, as is clear from the start, the lack of “evidence” for this position is a major part of why it was controversial and was repeatedly questioned. For, not only did the field statistics *not* indicate significant improvements across GR districts (with the select exception of a few areas of Punjab), there were stories in newspapers about the failure of a number of the new HYVs. As the RF notes in response to one such story: the GoI bought off farmers and had to silence the farmers when the crop failed.

⁸¹⁸ (Subramaniam 1995: 139).

⁸¹⁹ Some argue that the perspective of the CDP as a clear failure was more a reflection of a change in the tide of thinking about development and part of the shift away from Nehruvianism than it was an indictment of the CDP itself.

⁸²⁰ (Ford Foundation 1959; Subramaniam 1971).

⁸²¹ Distinct from the question of “technicizing” is the question of technology (and the role of technology in imagining modernity). The GR success narrative is marked by a repeated sleight-of-hand, in which technology and technocracy are deployed in the service of the other—as if to accept or use new technology a society must also surrender all (social, political, economic) decisions to the technocratic framework, a framework in which the criteria assessed are not those of the larger question at hand, but rather simply the relevant (i.e. measurable) criteria of one quantifiable aspect of one of the technologies among those that could possibly be used. That is, the “technical decisions” Borlaug references are not considerations of, or decisions about the question or problem, but rather are decisions about one among a multitude of possible approaches, masquerading as the (only) solution. In this move the actual problem is obscured, the technological solution functions to efface the possibility of discussion and inserts in its place the ostensible solution as what now must be attended to. It is a sleight-of-hand that writes out the question of whether this technology could or should be a solution, and instead deposits it as the only means of managing the problem. Moreover, the “solution” operates with authority of the weight and urgency and of the problem’s moral imperative. This is the collaborative work of technicizing and technology that we see in the GR’s quantitative yield success narrative. Managing HYVs properly comes to stand in for managing the problems of inequity—in land, in food access, in inequality and in power relations—between individuals, groups, communities, governments, agencies/ministries within a government (inequities of hunger and lack of access). It becomes: if we just manage these few inputs properly, then all the other (much larger and more systemic) problems will be treated and will decrease or go away. This isn’t just the process of technicization, it is also concomitant with the process of industrialization and dispossession—masquerading behind “technical expertise.”

⁸²² (Ford Foundation 1962).

⁸²³ (RAC 1969a; my emphasis).

⁸²⁴ (RAC 1969a; my emphasis).

⁸²⁵ Not meeting goals at large, and in some more specific cases spectacularly failing (RAC 1973a, 1973b).

⁸²⁶ (RAC 1969a; my emphasis).

⁸²⁷ (NCA 1976).

⁸²⁸ A 1973 RF report offers a sharp contrast to a report two decades earlier which had discussed the quantity and quality of food available and the need to supplement vegetarian diets with animal protein. The earlier report was written in the early 1950s around the time of the RF’s arrival in India and while the RF did not publically engage in a program of trying to change diets from vegetarianism, by 1973 they note that the availability of both grains and of vegetarian proteins (legumes) have both suffered during the GR. The RF report notes this as the Foundation was preparing to wrap up and phase out their programs in India (when Knowles visited the RF and GoI did discuss possible areas of continued RF involvement). The report (dated June 26 1973) worries about the state of the country’s agricultural future, explaining:

Since that time [1970-71] she [India] has been beset by one adversity after another. *Food availability has declined annually—107.8 M/T to 104.6 M/T to about 95 this year.* Within the past 12 months she has exhausted not only here 9M/T of buffer stocks of food but also expended about two-thirds of her foreign exchange. At this time, India does not have sufficient foreign exchange to buy enough food grain to offset recent production shortfalls, even if the food grain can be found, and to procure fertilizers on the world

market for the next crop, the target for which is 115M/T. this tonnage is urgently needed. The 107.8 M/T was not enough food in 1970-71. This year she will have but about 95 M/T and 54 million more people to feed.

As far as *quality* of the diet is concerned, *we have by virtue of our contribution to cereal technology worsened the competitive position of legumes*. A decade ago, when the impact of improved technology for cereals was beginning to be felt the diet contained about 62 gr/cap/day. In the intervening decade, legume production has been static, so population growth diluted by 1970-71 the legume fraction of the diet to about 49 gr/cap/day, and the competitive position of legumes to cereals is worsening annually (RAC 1973b; my emphasis).

⁸²⁹ (Rao 1967).

⁸³⁰ (Rao 1967: 12).

⁸³¹ (Rao 1967: 12).

⁸³² In fact, the FF's Ensminger notes that Rao was his strongest opponent when Ensminger was pushing for a policy change to the NS, but that with the course of events, even Rao was eventually convinced (to some degree) of the NS's necessity.

⁸³³ (Rao 1967: 12).

⁸³⁴ (Rao 1967: 12).

⁸³⁵ (Rao 1967: 21-22).

⁸³⁶ (Saberwal, Vasant, interview by author. New Delhi. March 2, 2011; Bhutani, Shalini, interview by author. New Delhi. March 16, 2011.).

⁸³⁷ (RAC 1969b).

⁸³⁸ The implication is that even if they will not be statistically more productive, now that the GoI has committed to this path it must at least get the yield increase from these areas, even if that means taking all fertilizer (and any other limited forms of support) away from other areas (Subramaniam 1979).

⁸³⁹ (For example see Muller and Patel 2004 and Ghosh 2002).

⁸⁴⁰ (World Bank 1986).

⁸⁴¹ (Nobel Committee 1970; my emphasis).

⁸⁴² (Nobel Committee 1970).

⁸⁴³ (Kennedy 1963: 2).

⁸⁴⁴ (Nixon May 28, 1969).

⁸⁴⁵ (Singh July 19, 2005).

⁸⁴⁶ The 1965 US tethering of food aid to India's implementation of the "New Strategy" (which came to be known as the Green Revolution) is considered to be the only "successful" use of "food as a weapon" in the history US foreign policy. This term was used by Nixon's agricultural Secretary Earl Butz—who argued that instead of deploying military force, the US should foster food dependence as then the US could "starve nations into submission" (Paarlberg 1985; Thomson 1992; Perkins 1997; Ahlberg 2003).

⁸⁴⁷ (Ahlberg 2008; Thompson 1992; Wallerstein 1980).

⁸⁴⁸ (Paarlberg 1970: 18-19).

⁸⁴⁹ (Paarlberg 1970: 18-19).

⁸⁵⁰ (Cullather 2004: 247).

⁸⁵¹ Editorial Cartoon commenting on aid conditionalities (image depicts US President Johnson and Indian Prime Minister Shastri, the caption reads: "*I'm sure you won't mind a li'l old string to go with that wheat, pardner...*") clipping from the Hindustan Times (9/30/1965), Chester Bowles Files, Yale Library Archives.

⁸⁵² (Paarlberg 1970: 18-19).

⁸⁵³ (Cullather 2010: 218).

⁸⁵⁴ George Rosen, who worked on economic development in India and with the Ford Foundation's India programs, in his book reflecting on the Ford Foundation's work in South Asia, explains that in the Foundation's programs and more generally in development work: "the religious basis for the activity had been abandoned, to be replaced by a secular moral imperative that emphasized direct economic and social change. *The science of economics had replaced medicine as the spearhead of the attack on poverty*" (Rosen 1985: 7).

⁸⁵⁵ (Subramaniam1979: 54).

⁸⁵⁶ A slightly more nuanced version of this is offered, for example by John Lewis Gaddis in his forward to Michael Latham's seminal text on the geopolitics of development in the Cold War "*Modernization as Ideology*." As Gaddis characterizes:

Ideologies make it easier than it might otherwise be to cope with reality. They provide simple models of complex phenomena. They suggest directions in which history is moving. They generate rhetorical justifications for action. And because ideologies perform these tasks, they tempt the leaders of states into relying upon them as guides to action (Gaddis, in Latham 2010: x).

This view presumes that the leaders who rely on and mobilize these claims do so for a distinct and larger end project; for something else, outside of what they say, and that the ideological claims they make to get them there are simply that, a means.

⁸⁵⁷ In an effort to turn previous understandings of ideology, particularly those in Cold War scholarship, on their head—scholarship that saw ideology as something “they” have (read: the USSR), while “we,” on the other hand, the implicit claim is, have the truth. Aiming to expand this understanding of ideology, Gaddis asks:

Historians of the Cold War have been reassessing the role of ideology in the former Soviet Union, its Eastern European satellites, and the People's Republic of China. New archival sources suggest that within these states ideology played all of these roles: that Marxism-Leninism frequently determined foreign policy priorities.

But what about the United States? Was there a comparable American ideology during the Cold War? (Gaddis, in Latham 2010: x).

The essential limitation, however, remains, as the basic understanding of ideology that he takes is still the same; this view is the idea that ideologies are “false,” that their main work is in masking reality, and correspondingly that there is a concrete reality that is entirely different, waiting to be unmasked and revealed. As such, while this view is here expanded to *include* the United States as also using and buying into an ideology, the problem is that this not only deploys a gods-eye-view understanding of the world, it is also enabled by, reliant on, *and reinforces an understanding of objective knowledge that is part of the very modernist ideology they seek to critique*.

⁸⁵⁸ That is, “ideology” must be understood as functioning *in and through its practices and mechanisms*. As such, the relation between ideology and acts/action is regulated through material practice.

⁸⁵⁹ As such, this is integrally bound with the understanding of reading discussed in Chapter 4. Ideology is what makes possible the creation of particular kinds of subjects—not only the subject of development, but (given how development has since come to be defined) more specifically “modern market subjects.” This is not simply because of the view of the market or people's relation to it; much more foundational than that, it is because ideology is characterized by “creating *certainties as certainties*”—that is, by making and securing the very foundations of meaning and their referents as solid and beyond question. Ideology also performs more than a “naturalizing” function; ideology, creates the very foundations on which things can then come to be naturalized, it allows for us to understand things as naturalized.

⁸⁶⁰ (Althusser 1965; Cultural studies now 2011).

⁸⁶¹ (Althusser 1969: 233).

⁸⁶² While there is an extensive literature on both food and agricultural aid, much of this focuses on the *practices of aid and its effects*, largely neglecting *the logic of aid*. In doing so, these works miss (a key component of) the “larger picture,” or context, which is necessary to understand the geopolitics of aid in development. Agricultural aid cannot be fully understood without addressing its functioning as a knowledge project. I explore the epistemologies propagated through these projects. For, it is through these—their practices and effects—that particular forms of knowledge come to be produced, legitimated, and become dominant. *Hence, it is in these practices and effects that the processes and assumptions of these forms of knowledge can be observed, pried open, and unpacked. The core aspect of development aid has been the expansion of the reach of the market; during the GR this was promoted under the banner of*

fighting Communism, and today neoliberal development discourse proclaims that this project of market expansion is itself a means to alleviate poverty.

⁸⁶³ (Ahlberg 2008; Juma 2005; Seshia and Scoones 2003; Krupadanam 1985; Kux 1992; Prasad 1980; Wallerstein 1980).

⁸⁶⁴ “India's most pressing economic need in late 1949 was for food assistance to stave off a possible famine. With this in mind, Nehru asked the President for a million tons of wheat to provide a stronger food reserve” (Kux 1992: 79).

⁸⁶⁵ (Ahlberg 2008; Juma 2005; Seshia and Scoones 2003; Krupadanam 1985; Kux 1992; Prasad 1980; Wallerstein 1980).

⁸⁶⁶ US Public Law 480, later known as “Food for Peace,” was created in 1954 under US President Eisenhower. At the time Europe no longer wanted US post-War food aid, and as the US had massive surpluses, it sought new places to ship this food. This food aid was part of the 1954 bill for massive US food-aid to the ‘Third World’—known as the PL 480, or ‘Food for Peace’— which was integrally about fighting the ‘spread’ of communism (Ahlberg 2003; Perkins 1997).

⁸⁶⁷ (Krupadanam 1985).

⁸⁶⁸ By 1960, the PL 480 food aid transaction had been expanded to a four-year agreement which required:

[T]he creation of a national food reserve with one-fourth of the wheat and all of the rice [from the US] set aside by the Indian Government for this purpose.

“For a country as large as ours with a population of over 400,000,000 people and a history of recurring food shortages, a national reserve is of paramount importance,” said Food Minister Patil in signing the agreement (Patil, 1956; as quoted in McGovern 1964: 88).

⁸⁶⁹ The following images from a USIS (United States Information Services) pamphlet titled “Overcoming India’s Food Problem” distributed in India depict the process of US food aid disbursement (courtesy of Bowles files, Yale Library Archives).



⁸⁷⁰ GoI archival records clearly explain that maize could be attained cheaper from Africa, and often at better quality and likewise with rice from Thailand and other less expensive Asian countries (Ministry of Food, NAI, 1957).

⁸⁷¹ India was bartering mainly with manganese ore, tea, jute, cotton, indigo and a few other raw commodities (Ministry of Food, NAI, 1957, 1958).

⁸⁷² Beyond this, since the surpluses were a side-effect of propping up farm prices at home, Cullather (2010) explains that the US promised access to the surplus food for as long as India wanted it. However, the notes of negotiation reveal that the terms of this promise were always at least somewhat conditional; the US and Indian Governments at this time were trading 450,000 metric tons of foodgrains (in exchange for the equivalent value of ore). Because this was a trade relation, no foreign exchange was involved except for the freight on the wheat. As India sought to increase the amount of wheat, the US initially said no and suggested the allotted wheat should be enough for the year and India needed to get any more wheat somewhere else. As India continued to request more wheat, the US implied to India that their PL480 prospects would be better if the bartering deals were concluded—apparently to help counter domestic arguments that the US was just giving food away. Food aid rather than food barter or trade moves forward, but as it does all kinds of other little issues come up, like shipping and interest rates on the shipping and the speed at which the wheat being sent, what type of wheat, etc.) (Ministry of Food, NAI, 1957, 1958).

⁸⁷³ But even the US could not provide sufficient quantities of food under PL480, and bartering (for manganese ore) remained a method India pursued to attain supplementary food grain (Ministry of Food, NAI, 1957, 1958).

⁸⁷⁴ Moreover, the US specified that they in turn use these rupees to “promote India’s development” and that they sought to promote India’s trade and role in the global economy instead: “America does not use

rupees from PL 480 shipments to purchase India's goods and import them to the United States. This kind of barter programme would deprive India of needed currencies she can earn with her goods on the world market" (USIS, NAI, 1964: 5). Instead, the rupees were used as part of aid as a larger knowledge project to provide grants and loans for development and to establish agricultural universities based on the US Land-Grant model.

⁸⁷⁵ One of the main debates around PL 480 in India became its "inflationary effects;" this policy was later changed (both in India and the) after which the US accepted only US dollars in the 1970s (Laliwala 1968; GoI, Department of Economic Affairs, 1968; Desai 1973).

⁸⁷⁶ (Patel 2008).

⁸⁷⁷ (Cullather 2010; Rosen 1985).

⁸⁷⁸ The approach of redressing uneven land distribution seemed necessary to many, and was advocated by various bodies ranging from USAID to several Indian task forces that had been established to study the issue, including those disbursed to China in an attempt to determine why China's yields were so much higher than India's, it was found that yields increased following land reform.

⁸⁷⁹ (Cullather 2010; Rosen 1985).

⁸⁸⁰ For example:

Hubert H. Humphrey, one of those most responsible for P.L. 480, saw its potential this way: "I have heard . . . that people may become dependent on us for food. I know that was not supposed to be good news. To me that was good news, because before people can do anything they have got to eat. And if you are looking for a way to get people to lean on you and to be dependent on you, in terms of their cooperation with you, it seems to me that food dependence would be terrific (Humphrey 1955, as quoted in Omvedt 1975: 15).

⁸⁸¹ (Cullather 2010; Ahlberg 2008: 108; Gupta 1998; Gunder Frank 1973).

⁸⁸² (RAC 1951a: 4).

⁸⁸³ (Rockefeller, Nelson 1951: 523).

⁸⁸⁴ Another prominent international actor during the Cold War era, the Ford Foundation, largely shared this perspective. Two years earlier in 1949 the Ford Foundation set about to more specifically delineate its aims, focusing on "human welfare" and the existing state of knowledge to determine "where problems are most important and where additional efforts toward their solution are most needed" (Ford Foundation 1949: 9). Repeatedly assessing that "today's more critical problems are...social rather than physical in character—those which arise in man's relation to man rather than in his relation to nature" (Ford Foundation 1949: 14), the Gaither Report then—seemingly contra its own assessment—declares that the issue that is "[f]undamental to any consideration of human welfare is human survival. All efforts to prolong life, to prevent malnutrition and famine" are necessary (Ford Foundation 1949: 17). The report is largely "rights"-based and repeatedly asserts of the need to solidify liberal values, with less commentary of the specifics of the programs to come. This most often articulated in a technocratic faith:

Ford Foundation officer Melvin Fox commented that people at the foundation believed that they could transfer to developing nations the technology and the conceptions about modernization that they had helped to popularize. They assumed that the transference of the concepts and techniques necessary for modernization would quickly result in full-blown development. Indeed, once the transference was accomplished: "modernization, it was felt, would flow like water over a dam automatically." There was a genuinely held belief at Ford during the 1960s Fox continued, that by "transferring some of our know-how, we would enable [those] countries to, if not take off in the sense in which that term was used by Walter Rostow some years ago, at least begin the climb toward modernization (Berman 1983: 164; quoting his interview with Melvin Fox).

South Asia became a major cite of focus and the sector of concern was village development. In 1950-51 India had a very low agricultural output; "the country was in the grip of a serious food shortage and food prices were ruling at high levels" (Rosen 1985: 9; quoting from GOI Ministry of Food & Agriculture, Report of the Food Grains Enquiry Commission, 1957). In this context, the Ford Foundation went to India with big dreams: they thought that *villagers' incomes could be raised by 50% in 3-4 years* (Rosen 1985:

15-16). They set about to begin this endeavor by “*start[ing] in the field of village development, since such ‘a development program in India might have some effect in warding off the political crisis which is bound to come... at a future time if economic conditions continue to deteriorate as they have so far’*” (Rosen 1985: 9; quoting from Howard’s report to Chester Davis). And, also in part because there were not private American parties there yet, they essentially sought to create a *privately led* Marshall Plan for India. The project in India was deeply entwined with fighting the specter of Communism (represented both by the Soviets, China and in general). Citing “the Marshall Plan as ‘*the most spectacular demonstration of what economic aid can contribute by helping people to help themselves*’. ... economically as well as in terms of resisting communist political control” the Ford Foundation’s Paul Hoffman advocated the same in India (Rosen 1985: 11; quoting Hoffman).

⁸⁸⁵ This notion—of an “enlightened self-interest”—remains a central tenet of US liberal expansion to this day (see for example Obama’s 2013 Inauguration speech).

⁸⁸⁶ (RAC 1951a: 4).

⁸⁸⁷ In the 1940s, the Rockefeller Foundation’s international efforts had been largely confined to Europe, but in the 1950s it became increasingly concerned with the non-European world—not only with the issue of hunger and food but also as it tied to concerns with development and poverty more generally. Hunger and overpopulation were credited as root cause of political instability, the Rockefeller Foundation program directors argued:

What now are the great enemies of the welfare of mankind? Hunger, the incapacity of the hungry, the resulting general want, the pressures of expanding and demanding population, and the reckless instability of people who have nothing to lose and perhaps something to gain by embracing new political ideologies designed not to create individual freedom but to destroy it—these seem to be basic dangers of our present world (RAC 1951a: 1).

In 1951 the Rockefeller Foundation, laying out its program philosophy, declared the largest problem facing humanity to be hunger, and that the main problem driving hunger was population growth. Diagnosing hunger in a simplistic Malthusian framework of people outpacing resources (rather than as having political, economic, social or other drivers), the Foundation resolved to modernize India’s agricultural production. The RF summed up the root of the hunger problem as “(population)/(resources) = (well being);” their faith in the social as itself regulated by science shone through. But, while they saw population as essential, they came to the conclusion that they it was not going to be feasible to directly intervene to limit India’s population growth, as such they focused heavily on modernizing India’s agricultural sector (RAC 1951a).

⁸⁸⁸ (Unger 2011; Brinkman 2009).

⁸⁸⁹ (Rockefeller, Nelson 1951: 526).

⁸⁹⁰ (Rockefeller, Nelson 1951: 525).

⁸⁹¹ “But the aim of our foreign economic policy should remain constant in peace, in emergency, or in war, if war cannot be avoided. we live up to our pronouncements, we shall conduct our economic affairs as a whole in a way to further the healthy, balanced development and the progressively larger yield of the economies all peoples who elect to belong to the free-world trading system” (Nelson Rockefeller 1951: 526).

⁸⁹² (Rockefeller, Nelson 1951).

⁸⁹³ “The rudimentary character of manufacturing and industry in the underdeveloped world explained why the first objective was to be a drive to increase food production. Of course this would be costly, but he pointed to the annual US military budget of \$60 billion: the cost of conquering hunger would be lower he [Rockefeller] said, than the cost of military control, and his strategy might even reduce military budgets” (Anderson et al 1991: 22-23).

⁸⁹⁴ (Millikan 1957).

⁸⁹⁵ (Rostow 1960).

⁸⁹⁶ (Hirschman 1958).

⁸⁹⁷ (Shils 1963: 8).

⁸⁹⁸ “The United States could “offer the example of a successful colonial revolution against imperialism; it could offer the continuing effort to keep many ethnic strains from living together in peace in a complex

society; it could offer finally, the image of the independent farmer and of the career still largely open to talent” (Lerner 1957: 894).

⁸⁹⁹ (Lipset 1963).

⁹⁰⁰ American experts were convinced that *technology itself could bring the revolution* they aimed to instigate—it “could inspire changes in behavior and thought, it could instill a sense of rationality, efficiency, and respect for empiricism in contrast to native passivity” (Latham 2003: 3).

⁹⁰¹ “The key, Mahalanobis concluded from his studies of the USSR, was steel. It was steel, he claimed, that turned underdeveloped Russia into an economic power in less than four decades” (Engerman 2004: 33; Mahalanobis 1985: 5).

⁹⁰² (Bowles 1968: 12).

⁹⁰³ Bowles explains: “The United States and other developed countries have a massive stake in India’s survival as a democratic nation offering increasing opportunities to its people. America’s legitimate national interest is to assist India’s economic progress and support India’s own drive to achieve political stability, with a growing measure of social justice” (1968: 11). But, he worries, as: “The Export-Import Bank and one or two members of the [Western aid to India] Consortium are already taking more money out of India than they are putting in. unless the net assistance to India can be maintained at an adequate level for a few more years, *India will almost certainly be forced to reverse the present trend toward a dynamic, market-oriented economic operation within a free society*” (1968: 12).

Bowles continues, saying if India were to decline or collapse the impact would be comparable to China becoming communist. And that “No person who understands *America’s long-range national interest in a stable Asia will deny that an independent democratic India... is at least as vital as Southeast Asia*” (1968: 12). But Bowles is concerned with how much the US spends in Vietnam compared to the pittance in India: if the US were to spend over a full year what it spends in a mere 10 days in Vietnam, then it could “also provide a persuasive demonstration that developing nations do not need to follow in the bloody, totalitarian steps of Communist China to achieve political stability and rapid economic growth” (Bowles 1968: 13).

⁹⁰⁴ (Bowles 1968: 6).

⁹⁰⁵ (Bowles 1968: 7).

⁹⁰⁶ (Bowles 1968).

⁹⁰⁷ (Bowles 1968).

⁹⁰⁸ (Bowles 1968: 13).

⁹⁰⁹ (Bowles 1968: 13).

⁹¹⁰ (Bowles 1968: 13).

⁹¹¹ (Bowles 1968).

⁹¹² (Bowles 1968).

⁹¹³ (Bowles 1968: 7; my emphasis).

⁹¹⁴ (Rostow 1955: 30).

⁹¹⁵ (Rostow 1955: 30).

⁹¹⁶ (Rostow 1955: 30).

⁹¹⁷ (Rostow 1955: 30).

⁹¹⁸ (Rostow 1955: 30; my emphasis).

⁹¹⁹ India had a commitment to emphasizing this in the first plan, “There was a new approach. Emphasis was to be placed on the rapid development of heavy machine building, heavy electricals, steel and non-ferrous metals, and energy to supply a sound foundation for economic self-reliance” (Mahalanobis 1961: 5). Likewise:

...in the Second Five Year Plan, which marked a radical break with the old way of thinking. It was realized that unemployment and poverty can be cured only through rapid industrialization. ... It was necessary to increase the supply of energy and of machinery and tools of production to create more employment. ...the only way to do this in a big country like India was to establish, as rapidly as possible, the basic steel, heavy machine building, and heavy electricals, industries and chemical engineering (Mahalanobis 1961: 95).

Hence, while “[i]n India the highest priority must be given to the establishment and expansion of the basic industries” this is not all that the Planers were focused on. Agriculture remained a significant concern. The approach to reforming agriculture however, was to try to address social and political aspects (hindering production) rather than a capital intensive approach. He continues that: “in India, the production of an agricultural surplus is the key to industrialization. It is ... necessary to produce a surplus ... land reform and the organization of village cooperatives are urgent and essential needs for increasing agricultural production” (Mahalanobis 1961: 95-6). Thus, while the US saw itself as a model, the realities in these places were of course very different.

⁹²⁰ (Dowie 2001: 109).

⁹²¹ (Rosen: 1985).

⁹²² The “problem” was identified and defined based upon what the institutions wanted these changes to look like and how they wanted (the eventual GR) to transform society. These changes were based in ideas that had been laid out years earlier, ideas which themselves were deeply limited. It was not a lack of knowledge as much as an inability to think otherwise that defined poverty and its solution in this way. A foundational premise was the view that increasing capital and technology in themselves constitute development, resting on the idea that development and modernization needed to take a particular path. Both of these perspectives continue to underwrite development assumptions.

⁹²³ As Nelson Rockefeller—chairman of the US’s International Development Advisory Board, tasked with expanding the Marshall Plan and Truman’s Point Four activities beyond Europe to encompass a global scale—argued (in his article “Widening Boundaries of National Interest” where he suggests the establishment of the agency to carry these tasks out):

3. Since the security and continued prosperity of the United States and other relatively industrialized nations can be maintained only if there is complementary progress in the economically backward areas, we should assume the leadership in a concerted productive effort which will promote both their interests and ours.

4. *Basic to the accomplishment of this purpose is a flow of investment capital, carrying with it technical and managerial skills, to create and harness mechanical power and production tools and equipment so that they supplement the work of human muscles. Our policy should focus on creating conditions that permit and encourage such transfers, under procedures that avoid imperialism* (Rockefeller, N. 1951: 523; my emphasis).

⁹²⁴ (Galbraith 1979: v-iv).

⁹²⁵ American experts were convinced that *technology itself could bring the revolution* they aimed to instigate—it “could inspire changes in behavior and thought, it could instill a sense of rationality, efficiency, and respect for empiricism in contrast to native passivity” (Latham 2003: 3).

⁹²⁶ (USDA FAS 1965: 12).

⁹²⁷ Similarly “The Rockefeller Foundation adopted a “technology first” approach—articulated in “the firm belief that new technology is the leading factor in the process of desired social change *because technology is also the locomotive of economic growth*. RF officials understood the importance of demonstrating the efficacy of technology in the field, visible to governments and publics. But their approach was always in a measured relation their attempt to reform existing institutions or create new ones. In the RF’s immediate environment, there was also a compelling attraction to the prospect of ‘behavior science,’ a kind of science which would permit social engineering comparable to biological engineering being proposed for agriculture which actually was being tested in the RF’s project in Mexico. ... *But despite this interest in social engineering there was the perception that eventually the new technologies could be applied to the solution of the problem of insufficient food production with little reference to the less tractable problem of food maldistribution or the thorny issue of land reform*. Technology would be the leading factor in the profound changes which governments appeared to desire and which the RF believed to be inevitable” (Anderson et al 1991: 31).

⁹²⁸ (Anderson et al 1991: 31).

⁹²⁹ (Ford 1959: 14).

⁹³⁰ (Ford 1959: 14).

⁹³¹ (Ford 1959: 21).

⁹³² (Thorner 1959: 904; my emphasis).

⁹³³ (Cullather 2010).

⁹³⁴ (Kennedy 1963).

⁹³⁵ “The real goal, therefore, must be to produce more food in the nations that need it. Know-how is not the problem. For the first time in the history of the world we do know how to produce enough food now to feed every man, woman, and child in the world, enough to eliminate all hunger completely. Farm production has undergone a scientific revolution which is dwarfing the industrial revolution of 150 years ago, but this means that agricultural departments and ministries and governments and citizens must make a greater and more systematic effort to share this knowledge. For the first time to know how to conquer the problem and not conquer it would be a disgrace for this generation. We need to help transmit all that we know of farm technology to the ends of the earth, to overcome the barriers of ignorance and suspicion. The key to a permanent solution to world hunger is the transfer of technology which we now have to food deficit nations, and that task, second to none in importance, is the reason for this Congress” (Kennedy 1963: 2).

⁹³⁶ (Kennedy 1963).

⁹³⁷ Similarly, “The Rockefeller Foundation adopted a “technology first” approach—articulated in “the firm belief that new technology is the leading factor in the process of desired social change *because technology is also the locomotive of economic growth*. RF officials understood the importance of demonstrating the efficacy of technology in the field, visible to governments and publics. But their approach was always in a measured relation their attempt to reform existing institutions or create new ones. In the RF’s immediate environment, there was also a compelling attraction to the prospect of ‘behavior science,’ a kind of science which would permit social engineering comparable to biological engineering being proposed for agriculture which actually was being tested in the RF’s project in Mexico. ... But despite this interest in social engineering there was the perception that eventually the new technologies could be applied to the solution of the problem of insufficient food production with little reference to the less tractable problem of food maldistribution or the thorny issue of land reform. Technology would be the leading factor in the profound changes which governments appeared to desire and which the RF believed to be inevitable” (Anderson et al 1991: 31).

⁹³⁸ While India was not the first developing country to use HYVs, the National Commission on Agriculture maintains that India was the first to use HYVs specifically as a tool *for development* (National Commission on Agriculture, GoI 1976).

⁹³⁹ As Minister Food and Agriculture Patil had explained earlier on upon signing an agreement for food disbursement “*Freed from the anxiety of food shortages we shall be able to concentrate our efforts and energies to the all-around development of our country*” (Patil, 1956; as quoted in McGovern 1964: 88).

⁹⁴⁰ (Cullather 2010).

⁹⁴¹ The PL 480 (Food for Peace) program eventually tapered off not because of its effects on suppressing domestic production, but because of US mandates; there became more and more “strings” or the conditionalities on this food aid—in the name of “self-help” and national food security.

⁹⁴² “Self-help,” as US Secretary of Agriculture Orville Freeman explained:

Unless we can call up the will to bring about a better balance between food and population, modern civilization will be racked by increasing turmoil and unrest... When this happens, a world based on reason and reasoned action will be gravely threatened.

Who should produce food for our hungry world?...

To date the United States has been the only country willing to pay its own producers to grow food to give away in significant quantities over a sustained period. But, even with our large resources, we cannot afford to continue such a policy indefinitely. Moreover, it is very likely that exploding populations in the less developed countries will outrun the productive capacity of the United States and other developed nations before the turn of the century.

Instead of trying to feed the world, we must work at top speed and with tireless determination toward the only possible long term answer: the bulk of the world’s food must be produced where it is consumed. Countries with capital and know-how and

countries with hungry people must form a partnership to mobilize the resources needed to increase total food production... Meanwhile, we buy time with food aid. The problem facing us is more than national or regional; it is world-wide. Its solution demands great international effort (Freeman 1968: xi).

⁹⁴³ (Ahlberg 2008; Prasad 1980; Wallerstein 1980).

⁹⁴⁴ (Sharma 1997; Majumder 2004).

⁹⁴⁵ (Johnson, 1965; US Congressional records 1966).

⁹⁴⁶ As Johnson's tapes and archives record:

Johnson was seriously concerned about "give-aways" at a time when the grain surplus in the United States was depleted and he was facing the prospect of a \$135 billion budget. In a follow-up conversation with Freeman on November 11, Johnson said that *in future food allotments he wanted to know what the United States was going to get in return for its food*. "Usually we just get kicked in the pants. That's what she [Gandhi] does to us. She'll call old Tito or somebody else and just give us hell. I don't want to write her foreign policy, but it looks to me the least they could do, right before our election, is quit kicking us." (FRUS 389 1966).

⁹⁴⁷ (Johnson 1971; Prasad 1980; Wallerstein 1980; Kux 1992; Ahlberg 2008).

⁹⁴⁸ "The Perkins Committee, a special presidential advisory group on foreign aid that included Gaud, Dwayne Andreas of Archer Daniels Midland, and David Rockefeller, urged that this momentary leverage should be used "to force India to increase her agricultural productivity." The force had to be subtle, however. "Any such use of our power must be done cautiously," the committee warned. "Such a policy has hazards and the powerful and rich cannot do this sort of thing too publicly" (Perkins Committee, "Minutes of Meeting with McGeorge Bundy," 12 October 1965, Foreign Relations of the United States, 1964–1968: 117; as quoted in Cullather 2003: 242).

⁹⁴⁹ (Kux 1992; Prasad 1980; Wallerstein 1980; Freeman 1968; McGovern 1964).

⁹⁵⁰ (Kux 1992: 242-3, referencing Johnson, L.B. 1971: 222-24.).

⁹⁵¹ (Cullather 2010; Ahlberg 2008; Cohen and Tucker 1994; Kux 1992; Prasad 1980; Wallerstein 1980; Freeman 1968; McGovern 1964).

⁹⁵² While the US vision seeks to provide an unshakable monolithic meta-narrative—something for societies to hold onto as they climb history, the vision was not as stark outside of US centers of thought and power. As Mahalanobis declared: "It is now accepted, ...that economic planning in the USSR ... has led to a far *more rapid rate of industrialization* than had been achieved in Western Europe and the United States in the past" (Mahalanobis 1985). "The key, Mahalanobis concluded from his studies of the USSR, was steel. It was steel, he claimed, that turned underdeveloped Russia into an economic power in less than four decades" (Engerman 2004: 33).

⁹⁵³ (FRUS 253 1965),

⁹⁵⁴ (ibid: 187; FRUS 253 1965).

⁹⁵⁵ "It was agreed that:

1. Investment in agriculture during the fourth Five Year Plan (1966–67 to 1970–71) would be 2,400 crore rupees (nearly 5 billion dollars) or more than double the investment levels during the third plan period ending this year.
2. Investment in agriculture during the coming year (1966–67) would be increased by at least 40 percent above the current year even though the emergency might require cutbacks in other areas of investment.
3. Investment in agriculture next year (1966–67) will be 410 crore rupees as against 304 this year." (FRUS 253 1965).

⁹⁵⁶ By the mid-1960s India received as much as 60% of its wheat from the US through PL480 (Sharma 1997).

⁹⁵⁷ As Kux explains "Not trusting the Department of Agriculture, the President had NSC staffer Robert Komer check out details of shipping grain from the Gulf of Mexico to India. According to Komer, the President wanted to know exactly how long he could delay shipments" (Kux 1992: 243; based on Kux's interview with Komer).

⁹⁵⁸ (FRUS 253 1965).

⁹⁵⁹ (FRUS 253 1965).

⁹⁶⁰ While US development approach was shifting somewhat from earlier modernization theory which focused on industrialization, it retained the same tenets and understanding of society, simply transferring these to agriculture. The Big Push that USAID is concerned with via the “New Strategy” is borrowed from modernization theory—as Rosenstein-Rodan (1961: 7) explains: “Proceeding ‘bit by bit’ will not add up in its effects to the sum total of the single bits. A minimum quantum of investment is a necessary, though not sufficient, condition for success. This, in a nutshell, is the contention of the theory of the big push.”

⁹⁶¹ (Rostow 1960: 4-16).

⁹⁶² As US aid projects aimed to scale back the amount of food disbursed they also increased the emphasis on agricultural technologies, as depicted in these images from the USIS (1965? (undated?): 3, 10) publication “Overcoming India’s Food Problem.”



⁹⁶³ The Green Revolution in India was pushed by the US through the tethering of food-aid to steps toward industrial (chemical-based) agriculture. The leveraging power was considerable as by the mid-1960s India received as much as 60% of its wheat from the US through PL480 (Sharma 1997). The US requirements stated that food aid disbursement was contingent upon India’s purchase of fertilizers, or domestic manufacture thereof, and also required that India liberalize its agro-input production sector (fertilizers, etc) and allow increased foreign investment (Wallerstein 1980). The US’s interests in the Green Revolution in India are generally understood within the geopolitical framework of the Cold War, and are primarily cited as containing the specter of Communism which the threat of widespread hunger seemed to evoke conjure. The goals of the Indian government and Planners during this period can be read, most benevolently, as framed within the Nehruvian commitment to self-sufficiency and access for all to development; this view is, of course, contested and problematized. While Nehru did emphasize the centrality of food security to successful development projects, agriculture in itself was not an area that was emphasized by the planning commission during this era. Initially emphasis was on land reform and social justice/redistribution efforts as the engine driving agricultural growth and increase agricultural production (while land reforms were attempted and some went through, predictably they faced opposition from the landed elite, who were still power brokers and had substantial sway in the Parliament).

There was a conjuncture between the Nehruvian faith in state-harnessed technology to bring about development alongside the resistance of the landed elite to land reform, and the heavy pressure from the US to increase agricultural production (through new seeds and chemicals)—a conjuncture which was under-

laid by groundwork of the Ford and Rockefeller Foundations' programs in India (which began with village-based efforts towards rural development in the 1950s and came to focus more heavily on 'intensive agriculture'). The Ford Foundation's 1959 Report, *India's Food Crisis and Steps to meet it*, laid the groundwork for the shift from growth through equity (tenure reform, etc) to growth through agrotechnology (Seshia and Scoones 2003; Ford 1959). This approach was taken up in the Third Five Year Plan, which introduced the *IADP* [the *Intensive Agricultural District Programme*], a program which the Ford Foundation introduced by grafting it onto its existing Community Development Programme (ibid).

⁹⁶⁴ As the US became dominant, food dependence on the US was fostered along with military and economic domination (McMichael 2005). In this, the US used food as a tool of foreign policy, the power of which was enabled by the widespread of the dependence on this food aid. As McMichael notes:

[T]he U.S.-centered food regime (1945-1970) pivoted on the contradiction between global integration and the coherence of national farm sectors. During this time, the U.S. deployed food aid to secure its geo-political perimeter in the Third World, underwriting industrialization in states such as India and South Korea as 'development showcases' (Grosfoguel 1996) in which Third World states depended on western foods to provision reconstructed urban diets (Friedmann 1982). By extension, the green revolution consolidated the global movement under the guise of addressing the question of national food security (McMichael 2004: 3).

⁹⁶⁵ (Ahlberg 2008; Gupta 1998; Wallerstein 1980).

⁹⁶⁶ President Johnson insisted this agreement be kept obsessively secret—telling Secretary Freeman “If anybody finds out about this, your ass will be hanging from a yardarm”—he reportedly did not trust anyone else in the US Government to assess India's progress or make food-aid disbursement decisions (Freeman as quoted in Kux 1992: 244).

⁹⁶⁷ The controversial nature of this path and the pressure to follow this path were significant, and exacerbated by the fact that India was not only dependent on the US for basic foodgrain supplies—by 1970, after years of using the Rupee to purchase increasing quantities of US food aid, the US owned a third of the Indian Rupee, giving it substantial control over the Indian economy (Patel 2008).

⁹⁶⁸ (Rajya Sabha, GoI, 1965, 1966).

⁹⁶⁹ (Ford 1959).

⁹⁷⁰ The US's interests in the Green Revolution in India are generally understood within the geopolitical framework of the Cold War, and are primarily cited as centering on containing the specter of Communism, which the threat of widespread hunger seemed to evoke/conjure. The goals of the Indian government and Planners during this period can be read, most benevolently, as framed within the Nehruvian commitment to self-sufficiency and access for all to development; this view is, of course, contested and problematized. While Nehru did emphasize the centrality of food self-sufficiency to successful development projects, agriculture in itself was not an area that was emphasized by the Planning Commission during this era. Initially, emphasis was placed on land reform and social justice/redistribution efforts as the engine driving agricultural growth and increase agricultural production. But while land reforms were attempted and some went through, predictably they faced opposition from the landed elite, who were still power brokers and had substantial sway in the Parliament; the latter were strongly against land reform, a position which their heavy over-representation in Parliament allowed them to hold sway over by stalling (Patel 2008; Bajaj 1982; Frankel 1971). This desire to not forfeit the power of landlordship, coupled with political elites' faith in science, and the demands of industrialists (and the state) for a reliable affordable food supply for the urban proletariat coupled with the specter of hunger in ushering in the green revolution.

⁹⁷¹ (Frankel 1971: 5).

⁹⁷² (Ahlberg 2008; Seshia and Scoones 2003; Shiva 1993; Bajaj 1982; Wallerstein 1980; Frankel 1973).

⁹⁷³ (Paarlberg 1970: 18-19).

⁹⁷⁴ (NAI 1964a; my emphasis)

⁹⁷⁵ Guhan explains:

The technical examination of the Durgapur fertilizer application does not seem to be complete yet. The Cochin fertilizer application has been filed very recently. In regard to both these projects, AID are under the impression that GoI are “shopping” for private

collaboration with the public sector. Minister (Economic) will recall that this point came up when Minister (F&A) met Mr. David Bell. As recorded in the minutes of that meeting, “in regard to Durgapur and Cochin fertilizers, he (Mr. Bell) understood that the Government of India had some ideas of financing them with private investment. Aid would prefer that these two fertilizer projects should be built with private capital.” AID’s stand appears to be compounded of (a) basic disinclination to finance public sector fertilizer projects in India. TO my query whether this was an *ideological inhibition*, I was told that it was on the “sound practical experience: *of our public sector fertilizer plants not being notable success and* (b) the anxiety that in any event we should fully explore the possibility of working out a joint venture with private foreign investors before going ahead with these two projects at 100% public sector plants. In other words, AID would want us to bear the onus of convincing them as to why we desire to have these two projects in the public sector. These views of AID are not just the personal views of Messers Lustig and Firstenburg but have been formulated in discussions with Mr. Bell and Mr. Gaud. Minister (Economic) has sent the record to the Minister (F&A)—Bell discussions to Economic Secretary. In view of the importance and priority of these two fertilizer projects, it is necessary that we should avoid any possibility of delay arising from GoI and AID not being on the same wavelength. We may apprise Delhi specifically of the AID position and request the to take a view on whether (a) while formally retaining these two application on the AID list, private collaborations will be explored; or (b) it will be conveyed to AID that we wish to pursue them as public sector projects—if so, for what special reasons—and would like AID to give us their definitive reaction on their willingness or otherwise to finance them as such as new commitments are resumed. Similar considerations might apply to Trombay III and for which the formal application has not yet been filed (NAI 1964a; my emphasis).

⁹⁷⁶ (Dated December 18, 1965).

⁹⁷⁷ (NAI 1965b: 2).

⁹⁷⁸ (NAI 1965b: 3).

⁹⁷⁹ (NAI 1965b: 3).

⁹⁸⁰ (NAI 1965b: 3).

⁹⁸¹ (Davis 2002; Lenin 1917).

⁹⁸² The green revolution project operated fundamentally through *governing knowledge* as much as deploying the materiality of food. In this process knowledge itself served as an internationally traded commodity that was leveraged to secure compliance with specific political-scientific understandings and agendas. For example, while imports of food aid were no longer needed—“however, [the] decreased imports of cereals *did not imply a decreased foreign dependence on agriculture*. What was gained in terms of reduced cereal imports was lost in terms of increased imports of agricultural requisites, especially fertilizer” (between 1960-1 and 1974-5, fertilizer expenditure skyrocketed from 13 crores in total to 532.5 crores on *imported* fertilizer alone (Bajaj 1982: 102). “Thus the import dependence of Indian agriculture had in fact been *rising quite fast*” (ibid: 103). That is, foreign dependence was not eradicated, but simply shifted to terms that—even while they did not deploy the actual food stocks themselves, deployed food’s materiality to rewrite the nature of food production and development in ways that were more powerful:

In addition to this dependence on tangibles like fertilizers, pesticides, seeds, etc., of the farmer on the Government and of the Government on foreign supplier, *an intangible*, but not any less important, *external dependence for knowledge* of the agricultural processes appeared. The farmer who till now was the expert on agricultural technology *became ignorant in one sweep*. He had to look up to the university expert to acquire knowledge of the correct processes. And those experts themselves looked to the so-called international community of agricultural scientists to learn the latest on the new technology (Bajaj 1982: 103).

These processes operated through the convergence of *epistemic and economic modes of power*. For instance, while the Planning Commission was the initial instigator of the intensive technology approach

that initiated the Green Revolution, the Planners and government economists became increasingly skeptical of the Green Revolution because of its effects on the balance of trade (Shiva 1992: 31). By this point, however, the rationality and power of this form of development had been secured—through the expertise produced by the educational institutions and exchanges that food aid conditionalities financed. *As the Green Revolution was fundamentally a knowledge project, the structures through which its knowledge was enacted served to consolidate the power of its governance.* Thus, despite the Planners’ concerns with financing it, the scheme was pushed through by the scientists that had been trained in the US under the exchange programs which India was required to fund to receive US food aid (Shiva 1992; Wallerstein 1980).

⁹⁸³ As the “Editorial Note” of FRUS document 389 explains:

On November 10, 1966, President Johnson told Secretary of Agriculture Freeman... : ‘You must’ve had two men write this memo. You gave the best damn arguments I ever saw for not giving it to them. *You said they hadn’t kept their agreement on investment and fertilizer. That it’s moving slowly. That they’re jockeying to try to get a deal that’s better for themselves. That they’re delaying. That they don’t have the follow-through necessary to do what they agreed to do... .* That they’re easing regulations and controls in the agricultural sector, which we’re concerned about. That the government is using the Foodgrains Corporation to procure them at below market price, discouraging food production rather than stimulating it as agreed to... . Therefore, I recommend we give them 1.2. (FRUS 389 1966: “Editorial Note”).

⁹⁸⁴ The US held that the terms of all of these projects were to be “confidential” (i.e. “not open for public discussion”), yet, the push for market expansion was not simply to serve as an instrument for advancing capital’s interests and cannot be read simply in today’s terms, it was regarded as one point among many in trying to ensure that India reach that critical moment of “take-off” (NAI 1966c, 1966d). The emphasis on removing restrictions on foreign private capital in fertilizer production was seen as necessary for the “take-off” of private enterprise, and importantly, a way around the perceived persistent “foot dragging” of the GOI (RAC, Cummings, 1967). For example, restrictions on fertilizers that were financed through US loans also stipulated that it “is not to be used for cotton and tobacco” (NAI 1964b). While this policy was meant to encourage India to emphasize food production (and also serve as a disincentive for competition with the US on non-food agricultural cash crops of cotton and tobacco), the US quickly realized this policy was not sufficient to have the intended effect. The GoI consistently took aid in a piecemeal form, arranged to the most advantageous effect.

⁹⁸⁵ (Brian Atwood, USAID Administrator from 1992-1998; interview by author, Minneapolis, November 13, 2009).

⁹⁸⁶ (Subramaniam 1972).

⁹⁸⁷ (Bowles 1968: 1).

⁹⁸⁸ (Bowles 1968: 1).

⁹⁸⁹ With the GR, agriculture was now on the path to becoming a “rational” economic sector, the modernization of the agricultural sector was to set the path for “take-off.”

⁹⁹⁰ (Frankel 1971, 2006; Patel 2008).

⁹⁹¹ For, these inputs affected the balance of trade with the US; by 1970, after years of increasing US wheat imports, followed by fertilizer imports, the balance of trade was becoming increasingly skewed, with the US owning a full third of the Rupee (Patel 2008).

⁹⁹² (RAC, Lewis, Undated-b (1965?): 3).

⁹⁹³ (Frankel 1971).

⁹⁹⁴ (RAC, Lewis, Undated-b (1965?): 3).

⁹⁹⁵ (Frankel 2006).

⁹⁹⁶ The Bell Mission of the World Bank’s aims were:

This study has a number of related aims[,] including appraisal of (1) the extent to which fiscal, monetary and financial policies and measures have served to maximize the flow of real resources to investment, as opposed to consumption; (2) the extent to which such policies and measures have maximized the use of existing real resources (3) the extent to

which they have facilitated and directed the use of such resources in the most productive manner.

These appraisals will consider not only the direct effects of the policies and measures adopted but also their wider effects upon incentives, efficiency, development of the capital market, the sectoral enterprise allocation of investment funds, etc. (NAI, Planning Commission, 1964c).

⁹⁹⁷ For example, on the question of:

Agriculture: The following is a preliminary listing of some of the major questions to which the Mission plans to address itself:

1. What were the factors responsible for the growth of agricultural output in the 1950's? What accounts for the apparent absence of growth of output in the several last years?
2. What were the contributions to increased output of the incremental physical inputs (land, water, fertilizer, improved seed, insecticides and fungicides, labor)? What has limited the supply of these inputs? Or the demand for them?
3. What are the critical constraints upon significant and sustained growth of agricultural output?
4. What are the Center and State Government programs directed toward reduction of these constraints? What are the objectives and what are the observed effects of these programs? What are the limitations on their effectiveness in expanding agricultural output?
5. What demands for materials, equipment and services (transportation especially) do the requirements of increased agricultural output impose on other sectors? To what extent are these demands not being met?
6. What input contribution does the agricultural sector now make to output in other sectors? To what extent has agricultural output been a constraint upon the output of other producing sectors of the economy?
7. To what extent has the allocation of investment (and of current) resources to agriculture been a factor in accelerating or retarding the growth of agricultural output? How have these allocations been determined? How have specific projects and programs been selected and designed? How has the distribution of additional inputs by area, crop or sector of the farm population been determined? What principles of selection and concentration have operated?
8. To what extent have increases in agricultural income, where they have occurred, stimulated the development of local or area supporting and supplying industries and services? What factors have contributed toward or militated against such development.
9. What is the magnitude and the seasonal distribution of unutilized labor in rural areas? What programs have been directed toward utilization of this supply of labor (if it exists)? And what have been the limiting factors in this effort? (NAI, Planning Commission, 1964c).

⁹⁹⁸ (FRUS 310 1966).

⁹⁹⁹ Shortly after this initial devaluation the rupee was again devalued by another 23%.

¹⁰⁰⁰ (Bowles as quoted in NAI 1966a; my emphasis).

¹⁰⁰¹ (Frankel 1971, 1974, 2006).

¹⁰⁰² (Lok Sabha, 1967: Vol. 1: 689-90).

¹⁰⁰³ (Lok Sabha, 1967: Vol. 1: 689).

¹⁰⁰⁴ (Subramaniam 1995).

¹⁰⁰⁵ (Subramaniam in Rajya Sabha December 7 1965: 4146-7).

¹⁰⁰⁶ (Freeman 1969 in his interview with Wallerstein, as recorded in Wallerstein 1980: 279 n 16).

¹⁰⁰⁷ Subramaniam takes ownership, arguing that he thought of and offered up all the terms and conditions in the Treaty of Rome. The (un)proveability of these claims is not the point (yes these terms were essentially what the Ford Foundation’s 1959 Report had laid out earlier); the point is that Subramaniam seems to have convinced himself, wrote in his memoirs, and testified to Parliament that these were his own ideas. Beyond such claims, he was indisputably their staunch advocate; he did (seem to) believe this was the solution. The work of ideology becomes particularly significant with the transition to the contemporary era—take for example PM Singh’s repeated assertion that India needs GM crops, and Agriculture Minister Pawar and Technology Minister Chavan’s even stauncher backing of this position. Clearly there may be some financial interests at play (as Wiki-leaks cables revealed), but more than that, this is an issue of knowledge and the production of knowledge about development; specifically, and subject creation, which is to say, the production of ideology.

¹⁰⁰⁸ (Subramaniam 1979: 52-3; my emphasis).

¹⁰⁰⁹ (Patel 2008).

¹⁰¹⁰ (Subramaniam 1979: 54; my emphasis).

¹⁰¹¹ (Subramaniam, Rajya Sabha, December 7 1965: 4152; my emphasis).

¹⁰¹² (Mehbub-ul-Haq (the founder/editor of the UN Human Development Report and the former Finance Minister of Pakistan); as quoted in Sharma 2000).

¹⁰¹³ (FRUS 304 1966).

¹⁰¹⁴ (FRUS 304 1966).

¹⁰¹⁵ That is, the goal of “self-sufficiency” here was being redefined—away from an autarkic understanding, self-sufficiency was not to be attained through self-reliance, but referred simply to food-output, regardless of how dependent or “self-sufficient” India was when it came to the inputs; these discrepant understandings were a major topic of debate in Parliament and one of the largest stumbling blocks that held back the GR implementation (see Subramaniam 1995; 1979; Rajya Sabha records Dec 6, 1965a: 3727-9; Rajya Sabha Dec 7, 1965b: 4073, 4138-66).

¹⁰¹⁶ “Vickery served as assistant secretary of commerce for trade development in the Clinton administration, focusing on India in the department’s Big Emerging Markets initiative. He also previously served as chair of the U.S.-India Business Council Working Group on Chemicals and Petrochemicals, working on tariff, liability and regulatory issues” (Vickery 2011: biography).

¹⁰¹⁷ (Vickery 2011: 238-9).

¹⁰¹⁸ (Bowles 1968: 1).

¹⁰¹⁹ (Singh 2005).

¹⁰²⁰ (Ford 1959, Thorner 1959; Bajaj 1982).

¹⁰²¹ (Thorner 1959; Bajaj 1982).

¹⁰²² (Singh 2005).

¹⁰²³ (GoI 2009, 2007, 2002; Kumbamu 2006; Brooks 2005; Seshia and Scoones 2003).

¹⁰²⁴ (Singh 2005).

¹⁰²⁵ (Bush 2006).

¹⁰²⁶ (Mishra 2006).

¹⁰²⁷ (Sahai 2006).

¹⁰²⁸ Critics charged that it trumped domestic regulations regarding the terms of agricultural production and access, as well as rights to traditional knowledge, handing over extensive powers to corporations (Mishra 2006; Kumar Anjaan 2006).

¹⁰²⁹ (Hindustan Times 2006a,b; Mishra 2006; Kumar-Anjaan 2006; Patel 2007; USDA 2006b).

¹⁰³⁰ By placing the most vulnerable producers—80% of those who are too poor to buy food are rural agrarian workers—under increased corporate pressure, the agreement threatens to deepen the chronic food insecurity of growing segments of the population as well as the unevenness of these divides (i.e. Muller and Patel 2004; Shiva and Jalees 2006; Mooij 1999; Swaminathan 2000, 1999).

¹⁰³¹ The rural bias of hunger and poverty has been clearly demonstrated—80% of rural residents are under-nourished, and the calorie intake per person in rural areas has been consistently declining since the 1980s, and over 95% of rural households spend more than half of their income on food (Swaminathan, 2000).

¹⁰³² (USDA November 2006: “Fact Sheet: U.S.-India Agricultural Knowledge Initiative”).

¹⁰³³ (USDA 2006a; USAID 2007).

¹⁰³⁴ That is, described as “the US’ payoff for its nukes deal with India,” The AKI was chartered by an initially undisclosed board including major American corporations (including Walmart and Archer Midlands). The agreement granted US corporations and universities “unhindered access” to push GM crops, to the Indian biotechnology market and to the intellectual property rights of Indian biodiversity (Mishra 2006; Anjaan 2006). The US was “clear from the beginning” that it would not be funding the agreement, and estimates—from a Ministry of Agriculture official are that the AKI will cost India over Rs. 1000 crores (or USD 215million) (ibid).

¹⁰³⁵ Over this relationship hunger (or, the management of hunger) has been deployed as a leveraging tool both in bilateral relations, and in corporate sales strategies of agri-technology inputs (Shiva 2000; Gupta 1998; Patel 2008). Following this, Prime Minister Singh’s introduction of the AKI as “a second Green Revolution” (Mishra 2006) is also a reminder that, the terms of the first “bilateral revolution” (Ambassador) while produced by geopolitical arm-twisting were publicly owned (Patel 2008; Ahlberg 2003) In fact, with the aim of addressing the ecological havoc wreaked by the Green Revolution through biotechnology, the AKI is blatantly ahistorical—continuing the bilateral discourses which have been marked by their attention to hunger as a technical issue of level of development, where political histories of trade and power relations (international or domestic) supposedly do not come into play (Shiva 1993, 1997).

¹⁰³⁶ The US Department of Agriculture (USDA) has been clear that “the US goal [in this initiative] is to make sure that Indian biotechnology markets remain open” (USDA 2005). Specifically, that Indian markets remain open to American agri-business corporation’s products and to American technology and grain exports.

¹⁰³⁷ (Mishra 2006, Noronha 2006).

¹⁰³⁸ (USDA 2005).

¹⁰³⁹ (Mishra 2006, Noronha 2006).

¹⁰⁴⁰ (Patel 2008).

¹⁰⁴¹ (Ferguson and Gupta 2002).

¹⁰⁴² (Bush 2006).

¹⁰⁴³ “This is not surprising, considering that the high point of Indo-US collaboration was always in the field of agriculture” (Hindustan Times 2006).

¹⁰⁴⁴ (Brown 1968: 16; my emphasis).

¹⁰⁴⁵ (Brown 1968: 16; my emphasis).

¹⁰⁴⁶ (USIS 2012; Feed the Future 2012).

¹⁰⁴⁷ (ABSPII 2009: 2).

¹⁰⁴⁸ (ABSPII 2006).

¹⁰⁴⁹ (ABSPII 2009: 3).

¹⁰⁵⁰ (ABSPII 2009: 2).

¹⁰⁵¹ (Dr. P. Balasubramanian, interview by author. Chennai, Tamil Nadu. January 25, 2011).

¹⁰⁵² The calls for a “Second green revolution” in themselves were not new. Such calls have been made consistently since the 1970s, through the 80s and 90s. It is a mantle that many projects seek to claim but few can fill.

¹⁰⁵³ (Vickery 2011: 238-9).

¹⁰⁵⁴ (Vickery 2011: 238-9).

¹⁰⁵⁵ (Vickery 2011: 240).

¹⁰⁵⁶ (Gupta and Sharma 2006; Gupta 2012).

¹⁰⁵⁷ (Gupta and Sharma 2006).

¹⁰⁵⁸ (Friedmann and McMichael 2005; McMichael 2009; Schneider and McMichael 2011).

¹⁰⁵⁹ (Juma 2005).

¹⁰⁶⁰ (Parayil 2003).

¹⁰⁶¹ Such technology driven approaches to development are widely invoked and critiqued: celebrated as the promise to a better future and the sole means of meeting the needs of the world’s poor (Paarlberg 2009; Serageldin 2003), and also extensively criticized by scholars across disciplines for writing out questions of

politics, distribution, and the realities of inequality, rendering them ‘technical’ matters of science (Nandy 2005; Watts 2000; Shiva 1993). As is well documented, hunger is a (bio)political condition; hunger is an issue of poverty, distribution and entitlements, not a question of supply or scarcity (Lappe 2006 [1998]; Rai 2005; Edkins 2000; Sen and Dreze 1989; Sen 1981). Hence, the relevant question with regards to hunger is not whether these technologies increase food output, but how they affect food distribution and accessibility.

¹⁰⁶² (Rajan 2005; Prakash 1999; Gupta 1998; Chatterjee 1993; Nandy 1988).

¹⁰⁶³ (Manmohan Singh as quoted in Bagla 2012; my emphasis).

¹⁰⁶⁴ (Vickery 2011: 240).

¹⁰⁶⁵ (Chatterjee 2008: 62).

¹⁰⁶⁶ (DasGupta 2013).

¹⁰⁶⁷ (UNCTAD 2013)

¹⁰⁶⁸ “The objective of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) was to assess the impacts of past, present and future agricultural knowledge, science and technology on the:

- reduction of hunger and poverty,
- improvement of rural livelihoods and human health, and
- equitable, socially, environmentally and economically sustainable development” (IAASTD 2009).

¹⁰⁶⁹ As Raj Patel summarizes, the IAASTD:

So how should we farm tomorrow? To answer this, we’ll need the very best independent and peer-reviewed science. In 2005, the World Bank’s chief scientist, Robert Watson, brought together leading natural and social scientists, representatives from government (including the U.S.), private sector and non-governmental organizations to ask how we’d feed the world in 2050, when there will be nine billion of us.

Over three years, more than 400 experts worked on a sobering report which has recently been published as “[Agriculture at a Crossroads](#).”

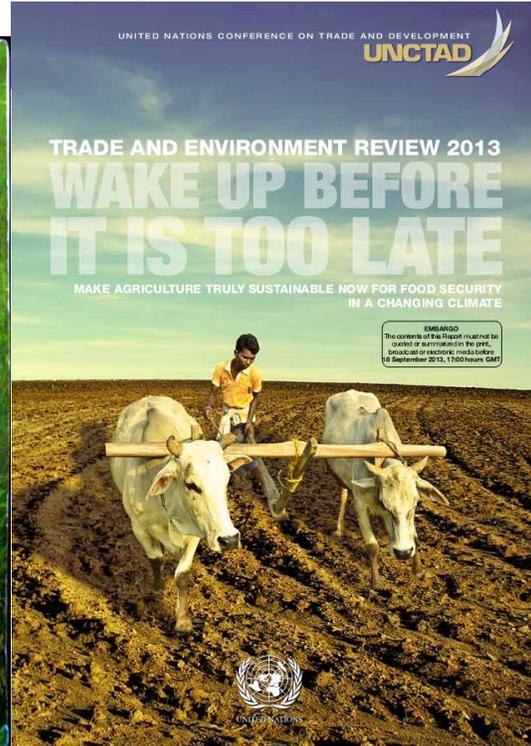
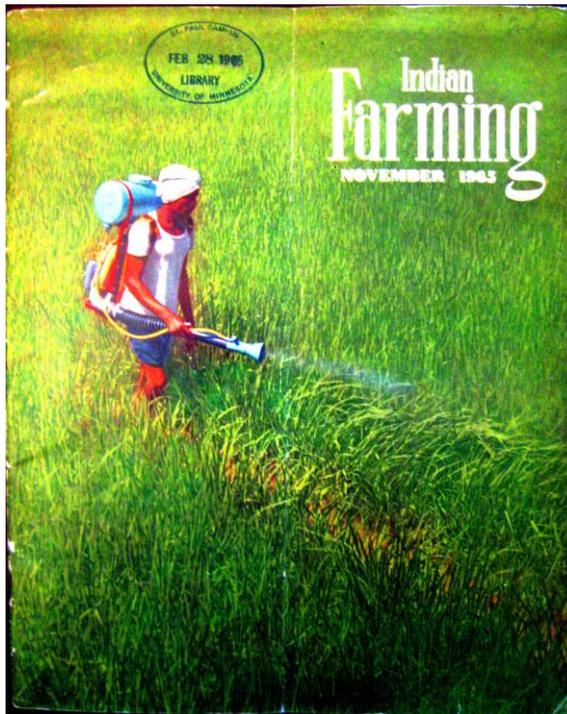
The scientists concluded that genetically modified crops had failed to show much promise in feeding the world. Instead, the study suggested that to feed the world, we need both political and technological change. Tomorrow’s agriculture will need to be much more regionally *controlled and locally adapted, and will need a diversity of approaches to meet the challenges of climate change and resource scarcity*.

Among the farming techniques endorsed by the report is agroecology, which builds soil, insect and plant ecology. The result is a farming system that uses water frugally, sequesters vast amounts of carbon and doesn’t require external inputs.

This is cutting edge science, but it isn’t terribly profitable for large U.S.-based agricultural corporations. Perhaps that explains why, despite strong support for this report among governments overseas, the U.S. government last year refused to endorse it (Patel in NYT Blog 2009).

¹⁰⁷⁰ Cover of November 1965 issue of the journal “*Indian Farming*” (caption: “spraying paddy with a power sprayer.” Photo Credit: Gurcharan Singh).

Cover of September 2013 UNCTAD “*Trade and Environment Review*.”



- 1071 (UNCTAD 2013).
 1072 (UNCTAD 2013).
 1073 (UNCTAD 2013).
 1074 (RAC 1952a).
 1075 (Saberwal, Vasant, interview by author. New Delhi. March 2, 2011).
 1076 (Bhutani, Shalini, interview by author. New Delhi. March 16, 2011).
 1077 (Dayal 1968: vii).
 1078 (Simon 1975).
 1079 (UNCTAD 2013: iii).
 1080 (Dayal 1968: vii).
 1081 (Dayal 1968: vii).
 1082 (UNCTAD 2013: iii).
 1083 (Kaufman 2010).
 1084 (Leigh 2004).
 1085 (Diamond 1987).
 1086 Bridging some divides, Spivak offers development as “aporetic”—that which one cannot *not* want (Spivak, Landry and MacLean 1996:28).
 1087 (Mitchell 2008; Chakrabarty 2000).
 1088 (Borlaug 1968; RAC 1952a, 1968).
 1089 As Cecil Rhodes famously declared:

I was in the East End of London (a working-class quarter) yesterday and attended a meeting of the unemployed. I listened to the wild speeches, which were just a cry for ‘bread! bread!’ and on my way home I pondered over the scene and I became more than ever convinced of the importance of imperialism.... My cherished idea is a solution for the social problem, i.e., in order to save the 40,000,000 inhabitants of the United Kingdom from a bloody civil war, we colonial statesmen must acquire new lands to settle the surplus population, to provide new markets for the goods produced in the factories

and mines. The Empire, as I have always said, is a bread and butter question. If you want to avoid civil war, you must become imperialists (Rhodes, as quoted in Lenin 1917).

¹⁰⁹⁰ (Friedmann and McMichael 1989; Weiss 2006).

¹⁰⁹¹ (Davis 2006).

¹⁰⁹² (Sen 1982).

¹⁰⁹³ (NYT 1943).

¹⁰⁹⁴ After all, these claims, in repeating this, are channeling their trumped up interpretation of Adam Smith, who famously diagnosed that

‘famine has never arisen from any other cause but the violence of government attempting, by improper means to remedy the inconveniences of a dearth’ and its corollary that ‘the unlimited, unrestrained, freedom of the corn trade...is the only effectual means privative of the miseries of a famine’ (Montag 2005: 14; quoting Smith 1981: 526-7).

The extension of and grafting of Smith’s logic onto the contemporary global food economy is based on many flawed and enabling assumptions.

¹⁰⁹⁵ These projects and programs were geographically uneven (not only by state, but within regions): agricultural development programs addressed rural areas whereas the food distribution programs targeted urban areas and urban populations. The Public Distribution System’s ration shops are in cities and towns, not in rural areas (Roose 1988). The programs’ discrepancies in access tie into larger shifts towards the needs of the urban consumer, shifts that I will argue were further consolidated by the Green Revolution.

¹⁰⁹⁶ The second Green Revolution as operationalized through the AKI is not a continuation of bilateral, or international, development-aid and transfers of technology. Rather, while it was negotiated by heads of state, it is a commercial project, driven by multinational and domestic corporate interests, and defrayed largely by Indian taxpayers (Sahai 2006; Mishra 2006). The AKI’s alliance of business, state, academic and NGO actors approximates what Ferguson and Gupta (2002) call “transnational governmentality”: a polity marked not by the withdrawal of the state, but by the increasing withdrawal of policy initiatives—in this instance, agricultural policy—from the recourse of electoral control and public accountability (Patel 2008, 2008b).

¹⁰⁹⁷ (AKI 2006; ABSP II 2009).

¹⁰⁹⁸ I read the project of development as navigating the founding contradictions and exclusions of liberal[capital]ism, operating at the convergence of notions of moral duty and governmentality (i.e. uplift and improvement), where these are operationalized through the rationality of the market as the driving structure.

¹⁰⁹⁹ (Time 1974: <http://www.time.com/time/magazine/article/0,9171,911503,00.html>).

¹¹⁰⁰ Clearly, the politics of “security” in the governance that is at stake here binds geopolitics and individual bodies as inseparable in efforts to understand the machinations of national food security. The government explains it thus: “A *nation of more than a billion people* cannot be dependent on imports for basic items like food-grains. The agricultural sector, therefore, acts as a bulwark in maintaining food security and, in the process, national security as well” (GOI 2002: 513; my emphasis). But, the agricultural sector is not only a bulwark of national security, it is also inseparably one of the prime negotiating grounds on the bargaining table for other national security concerns. As scholars and activists have noted, the Indo-US Agricultural Knowledge Initiative—inaugurated by Prime Minister Manmohan Singh as a “second Green Revolution”—made it “apparent that India has agreed to pay in the agricultural sector for the concession that it has sought from the US in the nuclear field” (Sahai 2006). While this sort of “willingness to sacrifice the agricultural sector to the interest of national development” is not new (ibid), the roles of “development” in relationships to national security, food security, vulnerability are shifting (ibid; Kuruganti 2006). While the work of food and food security (in national security and geopolitics) is also clearly distinct from the agricultural sector, more intriguingly, food security is also seeming distinct from governmental imperatives of the liberal state. For national food security in practice is not about all, or even most, of the one billion people: while they are invoked, their food-*in*security is effaced by rendering them into the nation itself.

¹¹⁰¹ (Chand 2008, 2005; Patnaik 2007; Swaminathan 2007, 2000).

¹¹⁰² (Chand 2008; Muller and Patel 2004).

¹¹⁰³ (Chand 2008: 14).

¹¹⁰⁴ (Chand 2008: 14; e.g. Patnaik 2004; Swaminathan 2000; Mooij 1999).

¹¹⁰⁵ (Muller and Patel 2004; World Bank 2003; Shiva 2002).

¹¹⁰⁶ Hunger deaths have increased greatly since the dismantling of social support networks—particularly the PDS (public distribution system)—and the concomitant (post-1994) liberalization of the agricultural sector under WTO agreements. The cuts in the PDS led to vast surpluses at the FCI (Food Corporation of India), which were disposed of as people could not afford to buy them (USDA 2007; Muller and Patel 2004; Sainath 2003; Swaminathan 2002).

Around the era of the Green Revolution India's Public Distribution System (the PDS) became the most extensive national system of food distribution (Mooij 1999; Swaminathan 2002). [It was linked with the Food Corporation of India (FCI), which was established in 1964 with two main roles: increasing domestic production towards reaching self-sufficiency and storing buffer stocks in case of hunger or a failed harvest (Muller and Patel, 2004). When the FCI was created the PDS was restructured under the FCI to distribute the massive US grain imports (Sharma, 1997).] However, as the bodies charged with the task of procurement and distribution of food grains, the FCI and its subsidiary the PDS—even and only 0.3% of the GDP—became favorite targets of liberalization (Swaminathan 2000, 2002; Muller and Patel 2004; e.g. Sharma 2007). Attendant with the World Bank's condemnations, the PDS was slashed, or 'targeted', in 1992 and restructured again for the 1997 elections (Muller and Patel 2004; e.g. World Bank 2003). (The "systematic dismantling" of the PDS in the 1990s—through dramatic reductions and a new 'targeted' approach—was conceived under the leadership of then Finance Minister (and now Prime Minister) Manmohan Singh (Patel, 2008).)

Under the new 'targeted' PDS (the TPDS), the number of people the PDS reaches has been halved, food-prices have doubled, and incidents of hunger and starvation have become increasingly widespread (Muller and Patel 2004). While the TPDS has received celebrated endorsement from the Bank (World Bank 2003), the government has been more reluctant to dismantle the FCI—demonstrated by the fact that as the PDS' budget was 'targeted' for restructuring the FCI's budget has increased (Muller and Patel 2004; Swaminathan, M. 2000). (Post-liberalization, both the PDS and the FCI have shifted tactics and concentrate more on guaranteeing minimum prices for farmers than on distributing food to the poor.) While FCI stocks have increased—the FCI procured twice as much food in 2001 (40 million tons) as it had in 1997 (Muller and Patel 2004), and its "food-subsidy"—ostensibly for the poor and hungry (Dreze 2003)—in 2007 is two and a half times what it was in 2001 (Rs. 24,000 crores compared to 10,000) (Goswami 2007). Yet the scope and acuteness of hunger have also continued to increase. In fact the Government was reported to be spending more on *storage* of the "surplus" food than on agricultural and rural development programs, irrigation and flood control together (NYT 2002).

¹¹⁰⁷ (GoI 2007).

¹¹⁰⁸ (Patnaik 2008 2005; 2004; e.g. Swaminathan 2000).

¹¹⁰⁹ Patnaik explains that while the government reports rural poverty at 28.3% in 2004-5, using a method that takes nutrition into account she finds rural poverty to be 87% (Patnaik 2007, 2005).

¹¹¹⁰ (GoI 2002).

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