

Household & Community Response to Annual Flooding in Rural Bolivia

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Abstract

The rainy season in South America results in flooding that devastates communities by destroying homes and spreading illness and disease. The small, rural village of Villa Alba-El Beni, Bolivia experiences annual flooding but has little way of preparing for the damage. The housing of the village is destroyed each year and never quite rebuilt, and with each exposure to the dirty floodwaters, more individuals become ill. After two subsequent years of record-breaking floods, I travelled to Villa Alba during the summer of 2008 to interview ten households about their experiences with and reactions to the flooding. The parallels between conversations with residents of the village and information found in literature review suggest that a household and community response to the flooding would dramatically decrease the negative effects on both housing and health.

Background

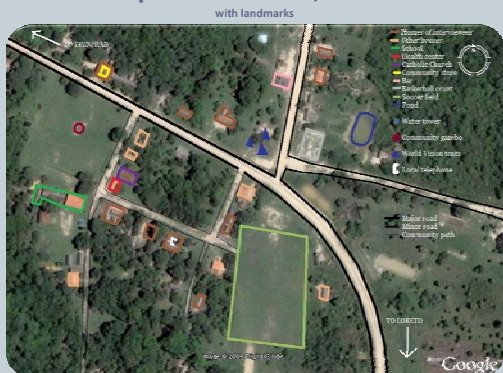
The South American rainy season devastates the poor country of Bolivia in the first few months of each year. Certain areas of the country, particularly the central and eastern portions, are extremely susceptible to flooding during that time. The heavy rainfall, low flood plains, and numerous rivers lead to a buildup of water that does not go down for months. After flooding begins, Bolivian communities such as Villa Alba suffer a loss of housing and infrastructure and, consequently, experience health issues. As seen in Table 1 below, the consequences of flooding have worsened in the past few years. Rural villages such as Villa Alba are even more at risk as they are extremely impoverished and lack basic resources. The housing of Villa Alba is unstable and easily damaged, and health care is nearly non-existent.

Table 1.
Effects of flooding in Bolivia during month of February

Year	Reported deaths	Affected families	Other notes
2006	13	30,000	
2007	40	n/a	Reported as worst flooding in 25 years; outbreak of Dengue Fever
2008	60	60,000	Bolivian government called state of emergency

Source: BBC News

Map of Villa Alba, Bolivia



Methodology

The purpose of this research is to identify the housing and health related consequences resulting from annual flooding in rural Bolivia, analyze the implications of those issues, and recommend solutions for the future. Research was conducted through interviews (approved by the Institutional Review Board) and literature review. The author spent five days in the community of Villa Alba during July of 2008 interviewing households and researching the community. Ten households responded to survey questions and engaged in conversation concerning recent flooding in the community and the resulting consequences.

Results

According to interview results, the majority of households are suffering in some way due to consequences of flooding. Families are displaced, lose housing and resources, and suffer from serious health complications. Table 2 to the right displays where households went when the floodwaters displaced them. Only two of ten households remained home, and the remaining eight had to suffer the stress of displacement.

Table 2.
Where interviewed households went during flooding

Place	# of Households	%
Local school	6	60%
Rural, elevated camp	4	40%
Another local home	1	10%
World Vision tents	2	20%
Never left home	2	20%

Effects on Housing

Table 3.
Housing damage from flooding

Type of Damage	# of Households	%
Cracks and holes in floor	4	44%
Walls washed partially away	6	67%
Walls washed bare	1	11%
Debris in home	4	44%
Water stains	9	100%
Home is uninhabitable	1	11%

Nine out of ten households reported damages to their home. Table 3 to the left lists the common problems with post-flood housing. One household was still not living in their home at the time of the interview, as it was uninhabitable. These damages allow water, mosquitoes, and other elements to invade families' homes.

Effects on Health

Each household identified at least one illness that family members had suffered during or after flooding. The stagnant water filling the community caused sickness and attracted mosquitoes that spread disease. Table 4 to the right displays the health problems described by residents. Two individuals had become ill enough to leave the village and had not yet returned. These symptoms indicate a variety of illness and disease, for example, dengue fever.

Table 4.
Health problems resulting from flooding

Health issue	# of Households	%
Skin irritation / infection	4	40%
Diarrhea & vomiting	5	50%
Fever	2	20%
Coughing	2	20%
Eye irritation / infection	1	10%
Specified sick child	2	20%
Unknown illness (serious)	1	10%
Concern for water quality	3	30%

Recommendations

Appropriate responses to the devastation of flooding can lessen both future risks and the suffering of victims. Methods of either flood prevention or control may be utilized to protect communities from damage and the residents from health risks. Flood control may be structural or non-structural and be implemented by the government or by other organizations. The most effective forms of flood response are done by community organizations through non-structural methods. For the community of Villa Alba, I recommend a community- and household- based approach to preparing for and living with flooding. Slight structural changes may be made to the homes to elevate important resources or beds and other furniture. Further, the community can construct a simple shelter on the most highly elevated land to provide a place to live during the flooding, while still within the village. Use of canoes and rafts would allow for transportation within the community or to neighboring areas. These adjustments would make living with floodwaters possible. Further, adaptations such as livelihood diversification would make the consequences of the flooding less devastating. If different households in the community have different forms of livelihood, they will not all experience joblessness and loss of resources at the same time. Finally, providing immunizations to community members will reduce the risk of disease and illness.

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