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OBSERVATIONS BY THE CONSULTANT

The GEIS study process has raised the public's level of understanding about Minnesota's forest resources and expectations for follow-up. The study is also a model for other states or units of government pondering the rising interest in their forest resources. In light of this, the following comments may be helpful, as they are aimed at improving the understanding of the process and improving the process itself.

9.1

Objectivity

The study team, like many others, began this project with individually held beliefs. However, the team also made a commitment to objectivity. That commitment forced the team to develop an appreciation of the technical and philosophical concerns and points of view germane to all aspects of the study. That objectivity is clearly demonstrated in the GEIS. As the study concludes, the subject will return to the realm of politics but with an increased level of understanding. The following sections discuss some concerns as the consideration of Minnesota's forest resources moves to the next phase.

9.2

Interpretation of Significance

When interpreting the study results, certain definitions and the process should be kept in mind. Significance was a concept defined by the study process itself. This was based on knowledge of the type of changes that might take place as a result of timber harvesting and forest management activities, and judgement on the importance of change of certain levels of magnitude. These results, in turn, have influenced recommendations for mitigations. Additionally, impacts were often judged significant by ecoregion, but the number of such geographic breakdowns can influence the number of results subsequently found significant. Whether the subject is economic or ecological impacts, increasing the number of breakdowns generally leads to an increase in the number of significant impacts. It also follows that the more ecoregions where a result is noted as significant, the greater the likelihood that the situation is widespread. Conversely, fewer breakdowns usually means fewer significant impacts.

9.3

Minnesota's Forests in a Global Context

Minnesota's air, water, diversity of plant and animal species, and other resources do not belong to Minnesota alone. These resources are both shared and important well beyond the state's boundaries. Moreover, actions in Minnesota can have positive or negative impacts on the environment outside its

borders. Nor does Minnesota's resources management operate in a vacuum. There are many outside factors that will influence policy here. For these reasons, consideration of global consequences of proposed local actions and/or policies regarding natural resources, and vice versa, are extremely important.

Two interdependent issues are paramount: biodiversity and the social and economic health of society. The biodiversity analyses in this study indicate that few species in Minnesota are imperiled by current timber harvesting and forest management practices. Minnesota is in a position to avoid a future decline in biodiversity by introducing some mitigation strategies that are relatively minor, compared to what would be needed in the future if forest biodiversity is not considered at this time. Forest management in Minnesota may even be able to partly compensate for problems elsewhere, for example, with migratory bird species.

What is needed is, in fact, a balancing act—Minnesota must manage for biodiversity yet avoid treating its other resources in such a protective manner that resource supply problems and their consequences are exported to other states and countries less prepared to deal with those problems. Minnesota's forests, and all U.S. forests are an important source of raw materials. Driven by concerns for survival of specific plant and animal species as well as entire ecosystems, lawmakers, agency administrators, and others are continually increasing both the number and scope of constraints under which land managers must operate—especially when it comes to raw materials extraction or consumption. The effects of these constraints are likely to directly impact raw materials availability and cost, and indirectly, materials selection as well as regional environmental impacts.

Environmental implications of materials production have only recently begun to receive serious attention. However, the gathering of raw materials through forest harvest operations and managing the forests for timber production is viewed negatively by many. A narrow statewide-only consideration of materials and environmental impacts lacks the broadscale, global thinking that realistically examines the raw materials options available to society. Instead, the tendency has been to look at raw materials gathering operations in isolation, and to compare the environmental impacts of such operations with those of not mining or not harvesting. Not surprisingly, in this narrower context, findings usually showing the environmental impacts of doing nothing are less than the impacts of timber harvesting or forest management activities. The problem is that this kind of comparison is not very meaningful, since doing nothing is often not a realistic alternative.

Additionally, science is not always advanced enough to ascertain the real consequences of doing nothing. There may, in fact, be environmental impacts of doing nothing at a given point in time. Raw materials demanded by society must come from somewhere. Note that:

- populations are increasing significantly in both developing and developed nations;
- because of increasing population, needs for industrial raw materials worldwide are likely to double or triple in the next century;
- Minnesota and the U.S. are net importers of almost all categories of materials used in construction and in production of durable and nondurable goods;
- transferring raw material gathering activities to regions outside Minnesota or U.S. borders through materials imports does not necessarily mean that environmental impacts have been eliminated—they may have just been shifted elsewhere. Furthermore, substitution for wood often leads to other significant and negative environmental impacts, not the least of which are likely attributable to large demand increases for primary energy associated with substitute raw materials gathering and processing.

It is a matter of concern that the subjects of biodiversity and timber supply and their regional and global implications were not more fully developed in the FSD; however, there was a practical need to limit the scope of the FSD to ensure a manageable process and study. Nevertheless, these additional concerns should be considered in the future.

9.4 Additional Study Areas

The study team noted that impacts from human activities other than timber harvesting and forest management often had far more profound effects on the environment than timber harvesting and forest management activities. Among those activities are agriculture and urban development. In the areas of water quality and biodiversity, these two areas of activity have enormous cumulative impacts. In some cases they were more pervasive than timber harvesting and forest management activities, and served to defeat many mitigations developed for forests in this study. Consequently, it is recommended that these two areas receive consideration for GEIS examination in the near future.

Additionally, the sum total of all the mitigations suggested here is substantial and is likely to have a negative impact on the economies of private forest management. This is especially true in comparison to competing urban and agricultural land use. The consequence may be reductions in timber supply, reduced levels of forest management, or simply loss of forest land to development or agriculture. Clearly, the state will need to consider economic incentives to level the economic playing field across land uses or forest

management and many forest resource values will suffer. Consequently, it is recommended that the area of incentives receive careful examination in research and state policy formulation.

9.5 Study Process

This study is a potential model for the breadth and depth of its treatment of forest resources, timber harvesting, and forest management. However, in retrospect the study was limited by an unrealistic timeframe. This came about from several sources: (1) the full funding and therefore scoping of the study was delayed, (2) the advisory committee took a much more active role in study direction than was anticipated, and (3) more time was required than planned for data collection and synthesis, including interaction among study groups. Additionally, the process did not provide for full development of policy aspects of the study.

9.6 Concluding Remarks

The Minnesota GEIS study took three years to complete. The final GEIS report represents a significant milestone in the efforts to bridge the needs for forest fiber production and consumption and a vibrant, healthy forest environment. However, the GEIS study is only one step in the establishment of a working system for bridging these needs. The next step rests with the people of the State of Minnesota. With the proper initiative, this potentially very constructive process will continue unimpeded.