

TRANSPORTATION AND A SUSTAINABLE ENVIRONMENT

Origin and Mission of TRB Study

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Recognition that humans may be influencing environmental systems and processes on a global and lasting basis has fostered interest in the concept of sustainable development. The basic premise of this concept is that each generation should seek to provide for its own needs in ways that do not compromise the ability of later generations to meet their needs. The concern is that the global and potentially long-term environmental effects of current human activities are endangering the welfare of future generations. International efforts were initiated in the 1980s to control depletion of the stratospheric ozone shield. These efforts were followed by the broader United Nations Earth Summit in Rio de Janeiro in 1992. More recently, representatives from countries around the world, meeting in Kyoto, Japan, agreed to reductions in carbon dioxide and other lasting greenhouse gases that threaten climate change.

During the past several years, many segments of society and sectors of the economy—from agriculture to manufacturing—have begun evaluating their activities in light of concerns about various environmental risks in an effort to achieve a more sustainable form of development. Because of transportation's integral role in society and the economy, together with its significance as a user of energy and a source of environmental disturbances, interest in sustainable development has been an important influence on research and policy debates in this vital and far-reaching sector. As has been the experience elsewhere, however, the application of such a broad and complex concept to a single sector has proved controversial and difficult. Nevertheless, the basic trade-off faced by the transportation sector—that of striking a balance between the mobility and access needs of people on the one hand and environmental and resource imperatives on the other—is not unlike those trade-offs that must be considered in other sectors. Perhaps the most immediate challenge is to build a broader consensus on the key environmental issues that need to be addressed and on the range of options for doing so.

Transportation activity is increasing worldwide, and many of the associated environmental effects are best considered within a global context, especially because transportation systems, technologies, and practices often transcend national boundaries. Yet it is important to acknowledge that the United States is in a position to initiate many important changes on its own, some having broad influence. The U.S. transportation sector is by many measures the largest and most technically advanced in the world, a source of many new transportation services and technologies. In this leadership capacity, it has the potential to be a role model for good policy and practice.

The TRB study, *Transportation and a Sustainable Environment*, had its genesis in discussions I initiated in 1993, as executive director of the Transportation Research Board, with members of

the TRB Executive Committee. The Executive Committee concluded that the transportation community would be well served by a study designed to (1) foster understanding among the professional and public policy communities about the long-term environmental disturbances due to transportation, and (2) identify opportunities and options for improving recognition of those disturbances and reducing the associated risks through research, technological innovation, and changes in transportation practices and policies. In particular, the Executive Committee believed such an effort could play a valuable role in helping to:

- Inform the transportation and public policy communities about the scientific background of several important environmental risks to which transportation is a contributor.
- Inform the scientific and public policy communities about some options available for reducing transportation's contribution to these risks, as well as the technical, political, and economic challenges that must be confronted.
- Identify the kinds of research needed to better understand the risks and inform public policy so that options for addressing these risks will continue to become available.

The National Research Council appointed a study committee of 18 experts under the leadership of James D. Ebert. The committee members have expertise in environmental sciences, economics, transportation, and public policy. Many of the committee's early deliberations involved identifying the issues most relevant to transportation with regard to long-term environmental risks and sustainable development. Clarifying the study scope in this way proved difficult because there is no consensus within the transportation community, or generally, about the array of environmental risks and other issues germane to the concept of sustainable development.

As a guiding tenet, the committee repeatedly returned to the fundamental notion that current generations should not compromise the ability of later generations to meet their needs. On the basis of this concern, the committee refrained from conducting a far-ranging assessment of all of transportation's environmental effects. Instead, it elected to focus its attention on transportation's contribution to those long-term environmental risks that have potentially large and permanent adverse consequences. The committee believes these uncertain and sometimes imperceptible risks pose particular challenges to public policy making and efforts to maintain a sound environment for future generations.

Thomas B. Deen is former executive director, Transportation Research Board, and served as a member of the Committee for a Study on Transportation and a Sustainable Environment.