

**Administration Outlines
Technology Goals for the Future**

The Clinton Administration's report *Technology in the National Interest* traces the U.S. history of support for technological innovation, overviews past and present contributions of technology to society, and outlines goals for the future. The five goals detailed in the report are for the United States to (1) create a business environment in which the innovative and competitive efforts of the private sector can flourish; (2) encourage technology development, commercialization, and use; (3) invest in a world-class infrastructure to support U.S. industry and facilitate commerce; (4) promote integration of the military and civilian industrial bases; and (5) ensure that the United States has a world-class workforce capable of participating in a rapidly changing, knowledge-based economy.

Among several initiatives designed to identify and reform regulations that prevent the private sector from investing in environmental technologies is the Common Sense Initiative (CSI) that involves six areas of industry participants: automobile manufacturing, computers and electronics, iron and steel, metal finishing, petroleum refining, and printing. To encourage technology development and commercialization, the Department of Energy's Industry of the Future Program works with various industries including steel, metal casting, glass, and aluminum "to develop advanced manufacturing technologies for improved process and materials efficiency that will reduce the consumption of energy and resources used in production," according to the report.

The report can be obtained from the Office of Technology Policy, U.S. Department of Commerce Publications Request Line 202-482-3037 or from the World Wide Web at <http://www.ta.doc.gov/techni/techni.htm>.

**NRC Highlights
Cold-War Cleanup**

A National Research Council (NRC) report concludes that government officials should refrain from making a final decision on how to clean up radioactive and chemical waste from plutonium production in the tanks at the Hanford nuclear reservation until more is known about technology options, future land use, and potential risks to human health and the environment. Not enough information currently is available for choosing the best long-term strategy for tank wastes at the government site, located on 560 square miles along the Columbia River in south-central Washington state.

The report recommends that the feder-

al government should adopt a phased decision strategy in which some cleanup activities would move forward while more research is done to evaluate various remediation strategies for the long term. This would provide flexibility in the event that some approaches do not perform as anticipated or if promising new waste management and remediation technologies emerge in the future.

This phased strategy should be part of a comprehensive plan developed to define programs for waste management, remediation, and future land use for the Hanford site. Plans for building a pilot plant for treating waste from some of the tanks should proceed so long as the design is flexible enough to accommodate a variety of new and developing technologies.

The Research Council report was prepared in response to a request from the Department of Energy (DOE) for an independent review of a draft environmental impact statement it prepared jointly with the Washington State Department of Ecology. The draft statement evaluates options for managing and disposing of wastes from the Hanford tanks as well as for highly radioactive cesium and strontium stored there in capsules.

According to the report, the magnitude of the Hanford cleanup effort might require either clarification of which regulations apply to the site, or changes in policies concerning issues such as whether some wastes could be disposed of "in place" by treatment and by sealing some tanks. The report said that DOE, Washington State Department of Ecology, and other regulatory agencies should continue to discuss this and related issues.

The Hanford Tanks: Environmental Impacts and Policy Choices is available from the National Academy Press, 2101 Constitution Avenue, NW, Washington, DC 20055; 1-800-624-6242; <http://www2.nas.edu>.

Understanding Risk

When considering decisions about human health, safety, and the environment, policymakers and interested citizens often face the same perplexing dilemma: They lack formal scientific training but must understand detailed scientific and technical analysis in order to participate effectively in the decision process. A report from a National Research Council committee emphasizes the need to involve interested and affected parties early in the process so that the scientific analysis addresses their concerns, reflects their perspectives, and incorporates their knowledge.

The report advocates carefully integrating scientific and technical analysis with a deliberative process that both guides the

analysis and is informed by it. Such deliberations help identify the outcomes that matter to the people who will be affected by the decision. They also can check the plausibility of the assumptions that underlie the scientific analyses. In many controversial risk decisions, such as those involving hazardous waste disposal or cleanup, public officials and concerned citizens have raised important issues and questions that had not been considered part of the problem as originally formulated and had not been analyzed.

The committee pointed to five key objectives necessary for success in risk characterization:

- Getting the science right. High scientific standards must govern the analytic methods, as well as the measurements, databases, assumptions, and treatment of uncertainty.
- Getting the right science. The analysis must address the concerns of scientists, public officials, and a broad range of affected parties. Those concerns may include health and safety, as well as economic consequences, ecological risks, and social well-being.
- Getting the right participation. The participants in the process should cover all the information and perspectives that are relevant to the decision.
- Getting the participation right. The process must satisfy both policymakers and affected parties that they have been adequately represented and that their participation has been able to affect the way a risk decision or problem is defined and understood.
- Developing an accurate, balanced summary of information. The risk characterization should reflect the state of knowledge, uncertainty, and disagreement about the risk situation being examined. Participants should feel assured that they have been adequately informed.

Different kinds of risk decisions require different types of characterizations, said the committee. For example, routine procedures may be appropriate for repetitive decisions, such as those for testing new drugs. However, these routines should be reviewed periodically to ensure that they are appropriate. At the opposite end of the spectrum are decisions for such complex or controversial situations as disposal of radioactive waste. For these types of decisions, a broad representation of affected parties may be needed at every stage of gathering information.

Understanding Risk: Informing Decisions in a Democratic Society is available from the National Academy Press, 2101 Constitution Avenue, NW, Washington, DC 20055; 1-800-624-6242; <http://www2.nas.edu>. □