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Sommario/riassunto

Reducing flood damage is a complex task that requires multidisciplinary understanding of the earth sciences and civil engineering. In addressing this task the U.S. Army Corps of Engineers employs its expertise in hydrology, hydraulics, and geotechnical and structural engineering. Dams, levees, and other river-training works must be sized to local conditions; geotechnical theories and applications help ensure that structures will safely withstand potential hydraulic and seismic forces; and economic considerations must be balanced to ensure that reductions in flood damages are proportionate with project costs and associated impacts on social, economic, and environmental values. A new National Research Council report, Risk Analysis and Uncertainty in Flood Damage Reduction Studies, reviews the Corps of Engineers' risk-based techniques in its flood damage reduction studies and makes recommendations for improving these techniques. Areas in which the Corps has made good progress are noted, and several steps that could improve the Corps' risk-based techniques in engineering and economics applications for flood damage reduction are identified. The report also includes recommendations for improving the federal levee certification program, for broadening the scope of flood damage reduction planning, and for improving communication of risk-based concepts.