Publications

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Estimated Benefits of IBWC Rio Grande Flood-Control Projects in the United States

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- Full Text

The International Boundary and Water Commission (IBWC) is responsible for maintaining a series of flood-control projects beginning in New Mexico and extending along the Rio Grande's international border dividing the United States and Mexico. A review by the USIBWC indicate that, over time, the flood-control capability of the levees has been compromised, possibly to the point where the level of protection is below original-design capacities. Prior to investing federal monies in the rehabilitation of major flood-system infrastructure, the U.S. Office of Management and Budget requires an economic analysis of expected benefits, or losses avoided with implemented protection

measures. Recent flood events along the international border, resulting in significant economic damages and loss of human life, emphasized the need for a timely assessment of impacts of potential flood-control failure. Given a short project time line mandated by IBWC and the large geographic extent of the river- and floodway-levee system, innovative methods were developed to conduct a rapid and preliminary economic assessment of the flood-control infrastructure. Estimates for four major project areas relating only to the U.S.-side of the border only (stretching from Caballo Reservoir in New Mexico to the Rio Grande's mouth, near Brownsville, TX.) comprise the study's focus.

Millions populate the cities and towns along these economic reaches of the Rio Grande where extensive housing, commerce, industry, tourism, and irrigated agricultural production exist. Areas susceptible to flooding, along with land-use, were identified and quantified through high-resolution map imagery. Estimates of representative residential, commercial, and industrial property values and agricultural production values were developed from property assessment records, economic development councils, crop enterprise budgets and cropping patterns, census data, previous U.S. Army Corps of Engineers' flooding studies, etc. Gross economic values of flood-control benefits for a sample of each of the land-use types were determined and extrapolated to similar land-use areas in the flood zone. This analytical method provides a rapid assessment of potential flood-control benefits for a single event for each of the four IBWC designated flood-control project areas. An aggregate estimate arrived at by summing the potential benefits across all four project areas assumes avoidance of, or protection against, a simultaneous breach in all areas.

Baseline economic benefits for agriculture and developed property along the Rio Grande Canalization project are estimated at $13.7 million (basis FY 2004). Comparable estimates for the Rio Grande Rectification project are $139.1 million, while those for the Presidio Valley Flood Control project amount to $2.9 million. The Lower Rio Grande Flood Control project is estimated to provide $167.2 million in flood-control benefits.

Combined, the four project areas provide $322.9 million in flood-control protection benefits in the baseline analysis. When preliminary estimates of $183.0 million in other costs (i.e., emergency, roads, utilities, and vehicles) are added to the baseline estimate, the total floodcontrol protection benefits provided by the four project areas increases to $506.0 million.

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