Teams: Storm decisions flawed

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Their theories on how levees failed during Hurricane Katrina differ, but two investigative teams agree on at least one thing: The U.S. Army Corps of Engineers must change its method of deciding how much protection is needed for big cities like New Orleans.

“The cost-benefit process that continues to be used by the Corps of Engineers to justify protection expenditures and recommendations to Congress is very seriously flawed,” said Bob Bea, a member of a University of California Berkeley-led levee investigation team.

Members of the corps’ own Interagency Performance Evaluation Task Force conceded as much last week.

Bea released his comments Tuesday in a written review of IPET’s report.

In general, the “cost-benefit ratio” method compares how much a project will cost to how much benefit — usually in dollars — it will provide. The benefits must outweigh the costs for the corps to proceed.

But Bea said that isn’t good enough when a levee system is being built to protect a major metropolitan area.

He said the Berkeley-led levee investigation team found the direct and indirect costs of the levee failures are about $400 billion, 100 times more than the cost estimated in the corps’ original studies.

If the true, higher cost had been used, the hurricane protection built by the corps would have been much stronger, he wrote.

Ed Link, IPET project director, made similar comments during last week’s release of that group’s levee investigation report.

Link said the levee system needed to be built with more back-up protections and with a better ability to suffer minor failures without giving way completely.

However, those kinds of resilient systems are difficult to justify under a cost-benefit ratio method, he said.

IPET recommends using a risk-and-reliability method that could take into account more
variables than just dollars spent and dollars protected.

“It’s a much richer planning and decision-making environment,” Link said.

IPET team members are continuing to develop that type of risk-and-reliability method, he said.

Bea and the IPET team also agree that levee failures can be traced partly to the corps’ failure to incorporate new research and techniques into their levee design and construction.

Basing engineering decisions on older information made the hurricane-protection system more vulnerable than it should have been, Bea wrote.

For example, the corps continued to use 1965 methods for measuring levee elevations even after those methods changed.

“Although the ‘dots’ were clear, they were not connected,” Bea wrote.

The IPET report included similar criticisms. The corps failed to measure how far levees had sunk in elevation over the years due to natural subsidence and other factors, and also failed to change how those elevations were measured, IPET said.

“This resulted, in the case of the outfall canals, in structures built approximately 1 to 2 feet below the intended elevation,” the report said.

Bea and IPET agree that most of the flooding could have been avoided if the levees had held. But they disagree over how much of the New Orleans area still would have flooded if all pumps had worked and all levees had held.

IPET attributed two-thirds of the flooding to breaches. Bea said his team calculated that up to 90 percent was caused by such failures.

“Our work indicates that IF everything &hellip had worked properly and as we wanted it to work, then we would have had some minor flooding; some soaked carpets, missing shingles and window glass,” he wrote. “We would not have had the single most catastrophic failure of an engineered system in the history of the United States.”

Lt. Gen. Carl Strock, commander and chief of engineers with the corps, has said the levee failures and resulting reports make it clear that changes in the agency are needed.

He said altering the cost-benefit ratio requirement for the corps would have to be done by Congress and other policy makers.

He also agreed that the corps isn’t designed to adapt quickly to some types of changes. Strock said he’s drafted a 12-point plan that addresses some policy questions but isn’t
comfortable releasing details on it yet.