

# Municipal Water Leader

April 2016  
Volume 2 Issue 4



**Good Business Sense, Exceptional Public Service:  
A Discussion With Eastern Municipal Water District's Paul Jones**

APRIL 2016

# Municipal Water Leader

VOLUME 2 ISSUE 4

*Municipal Water Leader* is published 10 times a year with combined issues for July/August and November/December by  
Water Strategies LLC  
4 E Street SE, Washington, DC 20003

**STAFF:**

Kris Polly, *Editor-in-Chief*  
John Crotty, *Editor*  
Valentina Valenta, *Writer*  
Robin Pursley, *Graphic Designer*  
Capital Copyediting LLC, *Copyeditor*

**SUBMISSIONS:**

*Municipal Water Leader* welcomes manuscript, photography, and art submissions. However, the right to edit or deny publishing submissions is reserved. Submissions are returned only on request. For more information, please contact Valentina Valenta at (202) 544-4348 or [valentina.valenta@waterstrategies.com](mailto:valentina.valenta@waterstrategies.com).

**ADVERTISING:**

*Municipal Water Leader* accepts one-quarter, half-page, and full-page ads. For more information on rates and placement, please contact Kris Polly at (703) 517-3962 or [Municipal.Water.Leader@waterstrategies.com](mailto:Municipal.Water.Leader@waterstrategies.com).

**CIRCULATION:**

*Municipal Water Leader* is distributed nationally to managers and boards of directors of water agencies with annual budgets of \$10 million or more; the governors and state legislators in all 50 states; all members of Congress and select committee staff; and advertising sponsors. For address corrections or additions, please contact our office at [Municipal.Water.Leader@waterstrategies.com](mailto:Municipal.Water.Leader@waterstrategies.com).

Copyright 2016 Water Strategies LLC. *Municipal Water Leader* relies on the excellent contributions of a variety of natural resources and water industry professionals who provide content for the magazine. However, the views and opinions expressed by these contributors are solely those of the original contributor and do not necessarily represent or reflect the policies or positions of *Municipal Water Leader*, its editors, or Water Strategies LLC. The acceptance and use of advertisements in *Municipal Water Leader* do not constitute a representation or warranty by Water Strategies LLC or *Municipal Water Leader* magazine regarding the products, services, claims, or companies advertised.

*Eastern Municipal Water District's General Manager Paul Jones and his Executive Team at the district's purple pipe and solar facilities.*

## C O N T E N T S

- 2 The Importance of Diversifying Water Supplies and Educating the Public**  
*By Kris Polly*
- 4 Good Business Sense, Exceptional Public Service: A Discussion With Eastern Municipal Water District's Paul Jones**
- 12 Clean Water Act Citizen Suits**  
*By Chris Carr*
- 18 A Lot of Ingredients in This Year's WRDA**  
*By Stephen Martinko, Jim Sartucci, and Sarah Beason*
- 22 The Contributions of the Corps' Planning Process: Reducing Hurricane and Flood Risks to the Nation**  
*By G. Edward Dickey, PhD*
- 28 Eastern Municipal Water District and General Electric Test Promising New Water Recovery and Brine Reduction System**
- 30 Turning Water Challenges into Opportunities in the Southeast: A Discussion With Atlanta Regional Commission's Katherine Zitsch**
- 34 Beyond Flint: A Conversation With George Hawkins About Keeping Drinking Water Safe in the District of Columbia**

# The Contributions of the Corps' Planning Process: Reducing Hurricane and Flood Risks to the Nation

By G. Edward Dickey, PhD

## Overview

From the very beginning of the program, U.S. Army Corps of Engineers' civil works projects have been developed based on situation-specific studies resulting in recommendations tailored to particular circumstances. These studies incorporate hydrologic; engineering; economic; and, for several decades now, ecological, cultural, and other environmental knowledge and analyses. The Corps' feasibility study process has served the nation well and has provided us with extensive infrastructure that is essential to the effective functioning of our economic system and continuing economic growth. However, it has not been perfect.

Not all projects have performed as predicted or have been as productive as anticipated. Structural or operational modifications have been required to accommodate changing economic conditions, new scientific knowledge, technological change, and changing public values. The Corps and nonfederal project sponsors historically paid insufficient attention to the interactions between engineering structures, which extensively modified hydrologic regimes, and the physical and biological environment. Equally important, insufficient attention continues to be paid to the effect of hazard reduction on human behavior.

## Lessons From Southern Louisiana

These shortcomings have been amply demonstrated in southern Louisiana. Extensive engineering works for managing the Mississippi River and numerous large-scale coastal navigation and storm damage reduction projects have caused widespread and ongoing changes in physical landscapes and ecosystems. The Corps and project sponsors did not foresee these changes, or if they did anticipate them, they considered such changes to be a necessary consequence of economic advancement. In addition, these works allowed new patterns of economic activity and changed where and how people live and work.

The historic focus of storm and flood damage project development was on reduction of inundation damages to property. Clearly, as in the case of New Orleans, the Corps, nonfederal sponsors, and those who lived in protected areas paid insufficient attention to residual risk and to the vulnerability of the occupants of protected areas when the provided project protection proved inadequate. The potential for disruption of human activity within protected areas and the economic consequences to the rest of the nation were not addressed in any detail. The devastation wrought by Hurricane Katrina is a compelling demonstration of the reality of residual risk and the necessity to include its management in water resources planning and project implementation.



## The Value of Civil Works Planning

The Civil Works Program has always been at the forefront of situation-specific planning. The major outputs of water projects—flood and storm damage reduction, navigation, and water supply—lend themselves to monetary benefit estimates. Most project costs can be quantified in monetary terms as well. Comparisons of benefits and costs of specific project possibilities are readily made. Moreover, each planning situation is unique in terms of the issues to be addressed and the opportunities to address them. There are no cookie-cutter, one-size-fits-all, environmentally sensitive solutions to flood and storm threats or any other mix of water-related issues. Congress has long recognized that fact and has generally required the submission of a Corps report before it takes action to authorize and fund a project. This approach to public investment decisionmaking allows government to function at its best: making informed choices among competing values as identified in a feasibility study.

Situation-specific feasibility studies are important from several perspectives. Not enough resources are available to produce all the goods and services we value. This is true at all decision levels, public and private. As individuals, we must make tough choices about how to use our incomes. Businesses cannot do all that they might want to do in order to increase their profits. Federal, state, and local governments not only face conflicts among competing values in resource management, they also confront the fact that there are more demands for their respective budgetary resources than they can satisfy.

As Congress works toward fiscal year 2017 appropriations and moves forward on the Water Resources Development Act of 2016, it must justify allocating available program funds in one direction or another. The reality is that many problems must remain unaddressed or incompletely solved, and many opportunities are left to the future. It behooves us, therefore, to make the best use of what we have. Scarcity must be addressed in individual project planning and at the program level, where the competing budgetary demands of meritorious projects across the nation are balanced in the most responsible way possible.

## The Corps' Planning Process as It Relates to Individual Project Decisions

Analysis plays an essential role in decisionmaking throughout the water resource planning process. The Corps is required to go well beyond the calculation of a benefit-cost ratio for a recommended project. Incremental analysis is at the heart of the Corps' plan formulation process. Projects of different scales and scopes are systematically considered so that tradeoffs among alternative mixes of project purposes and alternative solutions can be identified and the relative merits of

different plans for resource use can be systematically evaluated in light of prevailing economic, environmental, and social values.

The Corps has been a pioneer in applying incremental analysis to develop ecological restoration plans and multiple purpose plans to provide a mix of economic and ecological outputs. In situations where benefits are not monetized, as in the case of ecological restoration, costs of successive increments of output are identified with the goal of weeding out unproductive project features for which the expenditure of resources does not produce commensurate benefits. In short, tradeoff analysis is essential to informed choice among competing alternative plans regardless of the nature of the alternative plans' outputs.

Sometimes significant aspects of a comprehensive plan are not captured in a cost-benefit or cost-effectiveness analysis. Regional and social impacts not contained in the plan's economic analyses can be significant in decisionmaking. An appropriately constructed display of tradeoffs provides a framework for consideration of these impacts. Congress and a project's nonfederal sponsor should be able to understand the price, in terms of both benefits foregone and additional costs incurred, of accommodating these kinds of concerns. Again, the Corps' analytic framework assists informed decisionmaking by both the federal government and the project's sponsor regardless of the complexity of the issues and the possible tradeoffs among competing values.

## Programmatic Benefits of Corps Project Planning

Sound, situation-specific feasibility studies are essential from the programmatic perspective as well. Well-crafted, situation-specific planning helps ensure that the Civil Works Program is as productive as possible. State and local governments, in their role as project sponsors, clearly influence federal spending priorities by their willingness to contribute their funds to project implementation. However, the effective limit on the size of the Civil Works Program is federal funding.

Federal appropriations have not kept pace with the willingness of nonfederal project sponsors to contribute funding. Because of the constraints on the overall Civil Works Program imposed by federal funding limitations, expending funds on projects that contain unproductive elements imposes a major cost to the nation in terms of the benefits foregone. Construction of other productive Civil Works projects is delayed or eliminated. Tradeoffs among projects are real at the programmatic level and at the project level.

The scarcity of federal appropriations is not reflected in individual Corps feasibility studies, but the limited availability of federal funds certainly should be an essential consideration as project proponents select their preferred damage mitigation strategies.

## Climate Change and Its Effects

Recent scientific evidence has made water resource planning even more challenging. Global warming and its effects, including sea level rise and changing weather and storm patterns, will make traditional Corps feasibility studies more complex. Sea level rise brings an added consideration to many types of planning studies, not just Corps studies, in coastal areas. Climate change may influence estimates of benefits and costs, and project designs may be influenced substantially as a result of climate change and its effects. As scientific information continues to be developed, the effects of climate change should be incorporated into feasibility studies.

## New Policy Directions

I believe that the Corps' traditional planning approach offers the best hope for responding wisely to evolving hurricane and flood threats.

Four programmatic policy changes that would improve Corps feasibility studies and project implementation warrant the attention of Congress. They are briefly summarized below. The first three pertain directly to the Corps' planning process. The fourth addresses a larger policy issue.

First, Corps planning should be focused on managing the total flood risk rather than on developing a federal project to manage a portion of the risk. There will always be a flood risk after any plan is implemented. Both Congress and the nonfederal sponsor should be given a plan for managing the total risk. Congress should ensure that every plan that it authorizes is complete in that structural measures are accompanied by appropriate local and regulatory management measures. While it is not a new idea (see, for example, section 202(c) of WRDA 1996), Congress and the administration have not reviewed the effectiveness of floodplain management plans required of project sponsors and adjusted the program accordingly.

Second, the Corps needs to do a better job of identifying and quantifying the benefits of its projects. We can now fully appreciate that large-scale, albeit infrequent, events like Hurricane Katrina have economic and social costs that extend beyond the standard project benefit calculations typically contained in Corps reports. Expansion of benefits calculations will require development and use of new techniques and expertise and will require added resources for individual studies and for research that can support the uses of broader benefit calculations.

Third, the effects of new water resource infrastructure on the location of human activity should be explicitly addressed in the planning process. Since the 1960s, resource investment and management planning has increasingly recognized and addressed interactions between federal projects and ecological systems. Project-induced effects on human activity continue to be largely ignored

in Corps feasibility studies. Congress should require that the Corps and its nonfederal sponsors evaluate changes in the location of human activity and private investment that are likely to be induced by a damage mitigation project. Management actions, such as zoning and building codes that minimize undesirable effects, should be required of the sponsor as an integral part of the plan's implementation.

Fourth, National Flood Insurance Program policy should be altered. Civil works planning takes place in a larger federal policy framework. Properties located outside the 100-year floodplain are not subject to the requirements of the National Flood Insurance Program. Communities sometimes see the objective of a civil works storm or flood damage reduction feasibility study to be to find the cheapest way to remove the community from the requirements of the federally mandated flood insurance program rather than how to provide the best flood damage reduction plan for its inhabitants. Such thinking distorts project decisionmaking and shifts attention away from the issue of residual risk. Congress should require properties that benefit from a federal storm or flood damage reduction project to maintain policies that would insure them against residual flooding risk. This requirement would promote better plan selection decisions and better use of the lands afforded a degree of flood protection by a project.

## Summary

Congress should continue to rely on situation-specific water resource studies when deciding to authorize and fund measures to reduce the evolving hurricane and flood threat. Sound water resource planning considers the economic, environmental, and social conditions of a particular place and allows the inevitable tradeoffs among competing values to be addressed in an informed way. Sound planning also helps ensure that Congress will make the best use of available federal funds as it allocates resources across competing projects nationwide. More comprehensive analyses, the management of residual risk through flood insurance requirements, and other actions by project sponsors that complement a federal investment can further improve our nation's ability to protect floodplain residents from hurricane and flood threats.

*Dr. Ed Dickey is a water resources policy and project development and management consultant and a senior advisor at Dawson & Associates. During his long career in the Army's Civil Works program, Dr. Dickey served in several capacities, including as deputy assistant secretary and acting assistant secretary for civil works. He can be reached at [gedickey@verizon.net](mailto:gedickey@verizon.net) or (202) 486-8955.*

