

Federal Leadership in Managing America's Rivers

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At the beginning of the twenty-first century, America's water developers and managers are challenged to meet increasing demands for more reliable, cheaper, and cleaner water and for more of all the services major rivers and their floodplains provide such as navigation, hydropower, recreation, flood peak mitigation, and wetland habitat. In addition to supporting various plant and animal communities, wetland habitats contribute to water quality improvement and provide food for commercial and recreational fish stocks. Meeting demands for these services requires a comprehensive systems approach to basin-wide management. The present approach to decision-making, and hence water management, is generally piecemeal, fragmented, local project oriented, and as a result not always as effective or cost efficient as it could be, but with enough money we mitigate damages and adapt.

Local decisions made today without consideration of how the entire system works can lead to tomorrow's problems. History points to many examples. The degradation of much of the Everglades unique ecosystem in south Florida over the past half century is now costing an estimated 8 billion dollars to restore. Without considering the root causes of stress on the Everglades, that 8 billion may be poorly spent. Sea level rise over that flat low land could negate much of any restoration effort in the next several decades. Land development may continue to encroach on the natural system, whether restored or not. The decision over the past decades to reroute river sediment at the mouth of the Mississippi River away from its delta has caused a loss (currently estimated at about two to three acres

per hour) of delta land. This delta supports a diverse ecosystem and an infrastructure used to offload from tanker ships and pump in from offshore oil platforms much of the oil that enters the United States. An estimated 14 billion dollars will be needed to protect and restore that subsiding delta. The excessive nutrient loads in runoff from farmlands throughout much of the Mississippi Basin have resulted in an over 7000 square miles (some 19,000 km²) hypoxic (dead) zone along the Louisiana coast in the Gulf of Mexico. Attempts to reestablish fish passage around dams throughout the Columbia River and its tributaries have already cost an estimated \$3000 per salmon that can be found in the river. The success at solving these and similar problems will depend on the extent they are viewed and managed as part of the entire river basin and on the extent of involvement of all impacted stakeholders.

Integrated Basin-Wide Planning and Management

To implement regional integrated water resources management, the participation and coordination of federal agencies is needed. Yet there are few advocates for this coordination, or indeed even for integrated management. Members of Congress at the federal level or their counterparts in legislative bodies in states and municipalities are interested in what projects can be implemented and who would benefit from them in their particular jurisdictions or districts. This is the information on which they base their decisions. And it is they who provide the funding for project implementation. The "golden rule" applies. Those who have the gold-rule. While

their constituents may include watershed associations, few politicians in the United States have constituents advocating for integrated management of interstate river basins. This seems to be the main reason why there is no government agency today that takes the broad multi-purpose, multi-objective system-wide view, even though there exists considerable professional support for such actions. While the professional water resources community seems to favor stronger federal leadership in facilitating interstate river basin planning and management, it is unlikely to happen, unless somehow some new and significant scientific, economic, environmental, and/or political event makes it worth reconsideration.

Clearly, no single federal agency or entity has the authority or assumes responsibility for promoting and facilitating basin-wide planning and management throughout the United States. When the responsibilities and authorities to address local or special interest water management issues and needs are distributed among multiple federal, state, and local government agencies, non-governmental organizations, and private companies, the results are typically fragmented. Instead of broadly supported regional solutions that identify and address efficient tradeoffs among multiple needs and competing uses, we get more narrowly focused and often more inferior, contentious, uncertain, and expensive solutions. Where river basin commissions exist, basin-wide coordination of multiple projects and management decisions is more evident. However, these commissions are typically underfunded to undertake the studies and analyses they would like to in concert with other stakeholders, in a participatory planning process, that could result in strategies for guiding the integrated and sustainable development and management of their river basins.

If any single federal organization is implementing water resources management, it is Congress. They have the "gold" and they dictate which agency will be able to spend how much money and on what activities or projects. Today, no law gives any single federal agency the authority to facilitate any top-down or even bottom-up multi-agency multi-organization effort towards developing more integrated and sustainable river basin management programs in America's major interstate river basins. Many agencies participate in and contribute to water management activities, yet many are increasingly

stalled by conflicts among various local interests and stakeholders. Lawsuits by any single stakeholder interest group can stop an entire basin-wide effort, such as the previously cited \$8 billion Everglades restoration project in South Florida. Some of these interest groups are economically and politically strong and thus tend to get the attention and support of members of state legislatures and Congress.

If mistakes are to be avoided by not taking into account the suite of needs and objectives of the entire basin when making local decisions, some entity needs to be responsible for providing this integrated perspective. Clearly, federal leadership and coordination are needed for integrated planning and management of multi-state river basins. Even if the management of water in multi-state river basins is overseen by river basin commissions, such commissions cannot function adequately without federal participation and the authority to coordinate the multitude of federal, state, and local agencies typically involved in water management. The alternative is management by lawsuits such as witnessed in the Missouri River in this past period of drought.

A Legislative Path to Better Management

Water resource professionals and the informed public are increasingly looking towards ways of identifying and implementing solutions to water resources problems that can be implemented faster and at a lower cost than traditional engineering projects. They are also looking for federal leadership, not in a dominating top-down planning and management process, but in facilitating through funding initiatives a multi-agency multi-stakeholder bottom-up process. Assuring the success of this approach, however, may require new legislation.

Major elements of potential legislation that could initiate this process might include:

- Organization of a federal agency or consortium of agencies to ensure unity of purpose and collaboration on river basin policy at the national level among the appropriate governmental departments and agencies.
- Establishment of basin-wide or regional resource teams to facilitate integration and collaboration among federal, state, local and tribal agencies and non-government interests within river basins.

- Establishment of procedures that promote inclusion by individuals and non-government organizations at local levels in watershed resource planning and management decisions.
- Innovative resource management and implementation of solutions involving the full spectrum of public and private sector stakeholders.

One can envision a legislative scenario in which the Congress and the administration relieves the U.S. Army Corps of Engineers Civil Works program of its current regulatory and permitting functions and the maintenance and operation of Corps projects and lands. Regulatory and permitting functions could be taken over by other governmental agencies or assigned to quasi-federal organizations (public corporations). Other maintenance and operating functions could be given to private companies but with government oversight. Private vendors were successfully building and operating canals, toll roads, bridges and airports long before the government did. Currently, a few large corporations (mainly from France, Germany, and the United Kingdom) are buying up the world's water supplies in expectation that they will make money distributing them to retail utilities. Inland waterway users could be required to pay fees to private companies for the upkeep of river facilities. This is not to argue that the outcome is or would be better, or even cheaper, but just to say it could be considered. There is still the opportunity for the "new" Civil Works program of the Corps of Engineers to become the most professional public works and water resource planning, development and management agency in the United States.

The new federal river basin planning, granting, coordinating agency would exist to provide a strategic perspective as it supports and facilitates local water resources management initiatives (USACE, 2002). Legislation could be written, for example, that would allow personnel in this federal agency to be temporarily assigned to regional planning and management organizations, such as river basin commissions, to add to their expertise as well as facilitate coordination and communication, as appropriate for specified planning and design projects. This scenario envisions the federal agency or entity providing leadership and coordination among

all applicable governmental and non-governmental organizations:

- developing and implementing integrated multi-disciplinary approaches,
- building productive partnerships,
- using and modernizing systems approaches and modeling methods for planning and decision making, and in
- facilitating the grass-roots development of sustainable and adaptive river basin development plans and management and monitoring policies.

Could such a National Water Resources planning and management entity be implemented? Would anyone but professionals care? Based on history, such organizations of various types, including the past National Water Resources Council, the answer is not an optimistic one. But just maybe by being an agency that facilitates integrated bottom-up planning and management rather than being seen as a big brother performing top-down planning and management, it might work. Congress and the administration in the White House might see it as supporting and resolving potential conflicts among their constituencies, not constraining them. The public might see the efficiencies to be gained to them by taking a holistic, basin-wide management approach. If such visions can be created, the Congress, the administration, and the public might all work together to identify better options for meeting needs and better ways to address and solve problems rather than react negatively to them.

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DANIEL P. LOUCKS serves on the faculty of the School of Civil and Environmental Engineering, Cornell University. He has been teaching and conducting research in the application of economic theory and systems analysis methods to the solution of environmental and regional water resources problems. He has authored articles and book chapters in these subject areas. During periods of leave from Cornell, he has held appointments at other universities in the United States and abroad, at the World Bank, at the International Institute for Applied Systems Analysis, and in various UN agencies. Loucks has served on various scientific committees and boards of professional organizations including those of NATO, the National Research Council and the US Army Corps of Engineers. He prepared this paper while holding a Maass/White Fellowship at the Corps' Institute for Water Resources in Alexandria, VA.

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