Sustainability for the Nation: Resource Connections and Governance Linkages

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The legendary ecologist John Muir said in 1911 that "when we try to pick out anything by itself, we find it hitched to everything else in the Universe." His perceptive statement applies to water, land, wildlife, and other aspects of the natural world, but also to the interactions that link human activities to nature. Many decades after Muir, it has become obvious that the statement is also relevant to how the nation governs its resources.

As federal agencies work to ensure sufficient fresh water, food, energy, housing, health, and education for the nation while trying to maintain its resources for future generations, they discover that they are not well organized to address the crosscutting nature of sustainability issues, because governing for sustainability requires considering *connections* across resource areas.[1] What important sustainability topics are examples of such issues? Four high-priority sustainability challenges of national importance, in our view,[2] involve connections among many social and natural resource areas. They are Connections among energy, food, and water; Diverse and healthy ecosystems; Enhancing the resilience of communities to extreme events; and Human health and well-being.

Sustainability challenges cannot be effectively addressed by a single agency acting alone, but will require strengthening *linkages* to enable greater interagency cooperation. However, several barriers impede agencies' ability to fully consider the connections among resource areas and to build the linkages needed to manage them:

- **The separated and dispersed authority that results from the basic legal framework of government.** Many of the laws that authorize agencies focus on a single mission or a single domain—water or energy, for example—even if the domain is part of an interconnected resource system.
- **Funding mechanisms that favor short-term, single-agency initiatives rather than longer-term, cross-agency projects.** Budgets are prepared on an agency-by-agency basis, and agencies typically promote and defend their own initiatives. In addition, Congressional appropriations committees are reluctant to appropriate funds for matters they view as the responsibility of another committee, even if those matters relate to the mission of an agency within their jurisdiction.
- **A lack of access to or coordination of foundational elements such as research and information/data.** Agencies have traditionally compiled only data they need or have undertaken research for activities they view as their own.
- **The culture of government**, which tends to encourage agencies and their personnel to avoid getting involved in sister agencies' activities. Rather than encouraging risk-taking or collaboration, this culture tends to offer rewards based on an employee's advancing an individual agency's agenda.

In a recent report,[2] we recommended several steps to be taken by the U.S. government and its agencies to overcome these obstacles and create structures and incentives to enable greater collaboration where it is needed or beneficial:

RECOMMENDATION 1: THE FEDERAL GOVERNMENT SHOULD ADOPT A FRAMEWORK FOR SUSTAINABILITY

The federal government should adopt a practical tool that agencies can use when approaching sustainability issues and projects: a structured decision framework that reflects relevant connections and helps agencies strengthen linkages. Figure 1 presents a graphic representation of such a decision framework, which should be used on sustainability issues that are complex enough to warrant a multiagency approach.

RECOMMENDATION 2. AGENCIES SHOULD SUPPORT INNOVATIONS IN EFFORTS TO ADDRESS SUSTAINABILITY ISSUES BY IDENTIFYING KEY ADMINISTRATIVE, PROGRAMMATIC, FUNDING, AND OTHER BARRIERS AND BY DEVELOPING WAYS TO REDUCE THESE BARRIERS

Agencies should aggressively seek opportunities to strengthen their capacity to address sustainability issues.

RECOMMENDATION 3. AGENCIES SHOULD LEGITIMIZE AND REWARD THE ACTIVITIES OF INDIVIDUALS WHO ENGAGE IN INITIATIVES THAT "CROSS SILOS" IN THE INTEREST OF SUSTAINABILITY, AT BOTH THE STAFF AND LEADERSHIP LEVEL

Agencies should nurture "change agents" both in the field and at regional and national offices, and better align policy tools to support collaboration.

RECOMMENDATION 4. AGENCIES SHOULD SUPPORT LONG-TERM, INTERDISCIPLINARY RESEARCH UNDERPINNING SUSTAINABILITY

Robust research is needed over long time scales (decades) to provide the necessary fundamental scientific understanding of these challenges.

RECOMMENDATION 5. AGENCIES THAT SUPPORT SCIENTIFIC RESEARCH SHOULD BE INCENTIVIZED TO COLLABORATE ON SUSTAINED, CROSS-AGENCY RESEARCH

A broad spectrum of federal partners should become engaged in science for sustainability.

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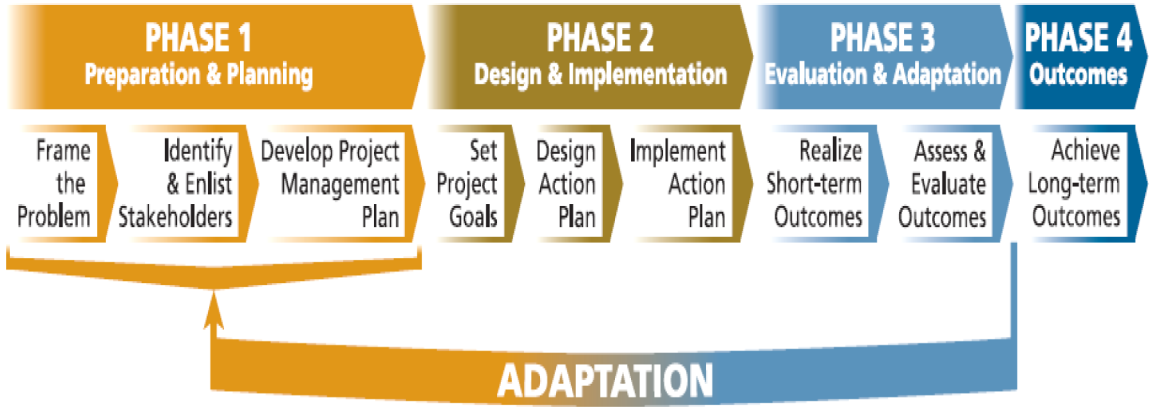

Figure 1. Decision framework for multiagency sustainability programs and projects.[2]

RECOMMENDATION 6. THE FEDERAL GOVERNMENT SHOULD DEVELOP A NATIONAL SUSTAINABILITY POLICY

A National Sustainability Policy could help break down barriers and enable initiatives that cut across jurisdictions and resource areas. The objective of the policy is to

- Encourage and promote coordination among agencies
- Reduce siloed decision making and improve integration of research and operations across the government
- Enhance communication among agencies and between the federal government and stakeholders at national, state, and local levels
- Reduce duplication of efforts and improve cost effectiveness
- Enhance the use of existing laws by providing guidance on how to incorporate sustainability goals and linkages into federal decision-making processes

An optimal National Sustainability Policy would promote the long-term sustainability of the nation's economy, natural resources, and social well-being. Such a policy would set out broad general objectives, management principles, and a framework for addressing sustainability challenges, but would not be prescriptive in nature.

All interested stakeholders should contribute to the development of the National Sustainability Policy, and agencies should develop specific implementation plans. The policy should create open and transparent oversight involving the public, state legislatures, the Congress, and the President.

Several models exist for developing a National Sustainability Policy. For example, in 2010 President Obama, building upon efforts begun by President George W. Bush, signed an Executive Order developing a National Oceans Policy.[3] The policy speaks to the need for linkages similar to those required for sustainability in that it establishes a national framework to address cross-governance challenges.

The sustainability of the nation's interconnected environmental, economic, and social systems, which is vital to the United States over the long-term, cannot afford to be constrained by fragmentation of authority or the culture of government. A National Sustainability Policy would surmount these barriers and help facilitate sustainability initiatives that cut across jurisdictions and resource areas while establishing the fundamental principle of promoting the long-term sustainability of the nation.

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Notes

Views expressed in this editorial are those of the authors and not necessarily the views of the ACS.

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(2) National Research Council. *Sustainability for the Nation: Resource Connections and Governance Linkages*; National Academies Press: Washington, DC, 2013.

(3) The White House. *National Oceans Policy*, 2012; A http://www/whitehouse.gov/administration/eop/oceans/policy. The policy includes a set of overarching principles to guide management decisions, with the goal of ensuring that the nation's oceans, coasts, and Great Lakes are healthy, resilient, safe, and productive in both the present and the future.

NOTE ADDED IN PROOF

Reference 2 was cited incorrectly in the version of this paper published June 9, 2014. The correct version published June 12, 2014.