



PROMOTING THE SUSTAINABILITY OF OUR NATION'S WATER RESOURCES

A LAUNCHING DEVICE TO DEMONSTRATE EARLY OUTCOMES

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Securing Our Water Future

The Horinko Group's Water Division and its partners have closely examined the imperative and opportunity to bring together programs that influence resource outputs on both private and public lands and waters. It is our belief that we are approaching a tipping point where collective water resource interests and concerns can gain traction and common direction, eventually culminating in a National Water Strategy and perhaps more importantly a commitment to scalable action and system outcomes.

In order to be functional and effective, a National Water Strategy for the United States must be founded on the principles of collaboration, civic engagement, and community-based grassroots recognition of the importance of source protection and control. A civic commitment must be fostered to move us into an era of resolve regarding the stewardship of our nation's water resources. We must acknowledge the nexus of water, land, energy, and the economy, and the central role of this connection to the environmental health and economic future of our nation. Ultimately, water resources sustainability can only be attained if water quality and regional water availability are addressed in a manner that is measurable, effective, and holistic.

Integration of Water Resources Management – The Starting Point

Initially, an integrated framework of existing federal water resources management programs will need to be established. More often than not, federal resource managers are engaged in fragmented, yet overlapping, water practices and programs. Only by moving away from the current piecemeal, stove-piped approach can we ensure long-term water resources sustainability utilizing a federal platform that encourages civic, community, and corporate stewardship.

The White House's Council on Environmental Quality (CEQ) and the Congressional Science and Technology Committee, in collaboration with the Interstate Council on Water Policy, could provide a guiding hand in shaping the preliminary structure for achieving integration across the federal sector. A foundational piece of this structure is

currently in place – the established Healthy Watersheds Initiatives of the US Environmental Protection Agency (EPA) and the US Department of Agriculture’s Natural Resources Conservation Service (NRCS).

From this starting point, additional structure can be built out horizontally to fully incorporate other Federal programs, including the US Army Corps of Engineers (USACE), the US Fish and Wildlife Service (USFWS), the Bureau of Reclamation, the Tennessee Valley Authority, and the Federal Emergency Management Agency (FEMA). These federal agencies would be greatly served, and be able to better serve, by advancing informed decision-making, utilizing scientific support from the federal laboratories, the Cooperative Ecosystem Studies Units, and major land grant universities. Community colleges could assist with educating the local community about water issues, while anchoring the effort to advance green technical job training at the community level.

This overall effort must recognize the importance of regional networks of governance to accomplish on-the-ground results, flexibility, and efficiency of an adaptive management systems approach. Therefore, a meaningful role should be established for communities and non-governmental agencies. Informed grassroots consensus on goals, both on establishment and methods of attainment, is critical. This level of consensus must reflect commonly held community values and aspirations promoting the stewardship of water and our aquatic ecosystems and its link to more livable communities. These goals and values must serve as the driver for community participation in near-term, output-driven results.

10 Actionable Objectives – Establishing a Foothold While Identifying the Path Forward

The following recommended *10 Actionable Objectives* would utilize existing institutional frameworks as a launching point. Tackling near-term objectives that are measurable would build community and practitioner confidence. We believe the integration of these ten components could evolve into a system-based, regionally governed, integrated platform of stewardship.

1. Water Resources Development Planning

The White House’s CEQ is currently leading a benchmark update of the Principles and Guidelines utilized by USACE for Federal Water Resources Development planning. A federal standard could emerge that could be employed across the federal sector. New standards must better account for the social costs attendant to projects. Projects must be viewed in a system context and advance system values. Ecological services and sustaining the natural capital of aquatic ecosystems must be effectively accounted for and valued.

2. Integration of Federal Programs

Active and immediate measures must be taken to ensure that all federal water programs are effectively integrated across the public sector. Discussion has occurred to select and anoint a single agency with primary governance of aquatic ecosystems. This effort would result in considerable pushback, confusion, and require significant retooling of current institutional arrangements at the federal level. By comparison, integrated water resource management with a commissioned approach to regional networked governance could mobilize earlier results without loss of current capabilities and expertise. Resource planning objectives should be measurable and not limited to traditional place-based actions, but rather promote system process-

based approaches implemented within an adaptive management framework. Basin, sub-basin, and reach plans need strong federal and regional advocacy. Reach planning and project priorities cannot be set by special interest agendas advancing constituent and funder-friendly projects too often mislabeled as stewardship and restoration. In the future, plans must be informed by science, and designed for affordability, low maintenance, and long project life with outputs directly linked to scalable outcomes and a goal of system resilience.

3. Establishment of Specific Authority

Reauthorization of existing USACE Civil Works Water Resource Development Projects should be pursued, adding water quality and water supply to the currently authorized project purposes. Greater emphasis should be placed on water quality, shifting the public works focus from simple water quality compliance to water resource stewardship. A separate water supply authority could become a strong water availability mandate that repositions USACE to advance a more natural hydrologic condition. This authority would not limit itself to meeting the demand for industrial, agricultural, and municipal uses but would balance a consideration of water availability critical to maintaining system ecological services. Managing for water availability would further enable USACE to build on past experience with localized operational Environmental Management of navigational pools and flood control reservoirs and Corps stewardship of operational projects lands that can and do provide an important buffer function to foster greater protection of project waters and water capture by infiltration of permanent vegetative cover. Reauthorization with a focus on ecological services necessary to deliver water quality and quantity will encourage a beneficial shift in program emphasis favoring long-term water resources stewardship and ensure that USACE outputs achieve desirable system-based outcomes.

4. Floodplain Management

If we are going to revitalize our nation's river systems, we must better protect the floodplain. USACE, FEMA and State Floodplain Managers are engaged in a dialogue to update and reenergize the spirit of Executive Order 11988 on Floodplain Management. Remaining undeveloped open space is the last line of defense for infiltration, flood storage, and forest recovery to support carbon sequestration and improve water quality while reducing losses due to recurrent flood damage. There must be an increased recognition of the importance of floodplain hydrology and land cover in overall river health.

The benefits of traditional local flood protection works cannot outweigh the broader social cost attendant to incentivizing development in areas that are either flood prone and subject to recurrent losses or require significant annual operational commitments to maintain their state of flood protection and preparedness. We need to thoughtfully test past assumptions regarding public subsidy of federalized flood insurance when 95% of the continental United States lies above the 100-year floodplain. Public investment to push additional human development into the remaining 5% land base that makes up our important riparian stream corridors has to be seriously questioned and a moratorium on such activity considered. Our past uses of floodplains stands as a classic example of shortsighted, non-sustainable behavior.

5. Recognition of the Importance of Federal Open Space Footprint

Formal recognition of the valuable role that federally managed lands play in riparian corridors is necessary. Federal open space, in addition to state and local parks, provide significant economic benefit to waterside communities that are promoting nature-based tourism while also providing an important protected corridor of permanent vegetative cover and water quality buffer. An example can be found along the Upper Mississippi River (UMR). Federally owned floodplain tracts along the UMR, though fragmented, are managed principally by two federal agencies, the USACE and USFWS, exceeding 300,000 acres in fee title, much of which is forested. However, funds allocated to manage these public lands have been minimal and certainly not reflective of the important function they play in anchoring stewardship of the overall corridor.

Lands management and stewardship efforts on these federal lands in the floodplain will ensure we maintain a baseline buffer of healthy floodplain forests and ecological return. A greater portion of floodplain terraces would benefit from reforestation to restore species diversity but also to increase infiltration. Efforts by FWS and USACE on public lands could be effectively integrated to USDA-NRCS Conservation Program improvements on adjacent private lands. This would create a foothold for integrated water resource management that begins with sound soil management promoting source control of non-point sources of water quality contaminants while also providing habitat and open space. Public lands stewardship should align with and support private lands programs, creating important incentives and opportunities for state and local government, NGOs, and private individuals to assist in efforts to reforest a greater portion of major floodplains.

6. Farm Practices – New Incentives for Sustainability

Historic agricultural practices and programs must be reexamined. The recently announced NRCS Healthy Watersheds Initiative and Farm Bill Program could present the agricultural industry and family farmer with a new generation of sustainable incentives that may prove workable for landowners. Traditional crop production in our floodplains should be reviewed and new farmer and taxpayer friendly outputs examined including nutrient farming to establish a market for water quality trading.

7. Compliance Enforcement

The USEPA and their regional and state counterparts must establish a stronger presence to achieve state water quality compliance to lessen the sources of water quality impairment. Strong federal leadership in data collection and monitoring, both on the quantitative and qualitative side, will be essential. A greater focus on nutrients in farm conservation programs and in the implementation of numeric criteria for water quality standards and permitting will also be a critical component. Watershed-based permitting should be considered to capture multiple environmental benefits as well as cost savings in both the rural and urban contexts. Targeting combined sewer overflows with storm retention, encouraging communities to invest in green infrastructure, and advancing catchment planning is imperative to the maintenance of regional water quality. By establishing effective incentives, existing enforcement programs can be expanded to address non-point sources of impairment, while simultaneously providing pollutant reduction incentives.

8. Civic Engagement and General Water Awareness – Moving Beyond Public Involvement

There must be an elevation of the popular awareness of water resources functions, values, and concerns. An earnest campaign of civic engagement and social learning must be aggressively pursued to expand the water conversation and improve watershed literacy. As more individuals and interest groups join the water conversation, a commitment should be made to ensure they can effectively contribute and inform the conversation. Likewise, our leaders need to become more water wise. Communities must move beyond the role of water users and become informed water stewards.

Social capital, as it applies to water stewardship and individual and civic responsibility for our common water future, are under-appreciated in their importance. This effort should extend to bringing a water resources curriculum into our schools to foster next generation water leadership at the community level. Such a curriculum should be vetted, piloted, and marketed to school administrators. The curriculum could foster improved math and science literacy and encourage pursuit of engineering and science careers making our students more competitive, our communities stronger, and the next generation more sustainably focused.

9. Community Livability and Grassroots Water Leadership

Thoughtful consideration must be given to the role that trusted community institutions and leaders can play in presenting the water story in a socially relevant context. A sustainability network of river basin community colleges could be established to support green job training around the protection and management of our water assets. A large iconic system like the Mississippi River Basin could present a great starting place to test drive and refine this approach. It is recommended that a community college network be linked to major land grant universities in river bordering states, and then further linked to the Great Rivers, Great Lakes, and Gulf Coastal Cooperative Environmental Study Units, and Federal water resource professionals. This group could make a major contribution toward bringing the principles of a healthy watershed and a grassroots perspective to bear on building more livable communities that in turn could promote communities reconnecting with their water resources in more resource compatible ways. State universities should build on such efforts by encouraging students to pursue science and engineering degrees to further advance national excellence in these highly sought-after fields.

10. Realizing the Potential of Our Nation's Water Systems as Travel Destinations We should endeavor to make our nation's aquatic ecosystems iconic destinations for nature-based, resource compatible tourism. Establishing and promoting gateways to water-based outdoor experiences can at once build a greater appreciation for the cultural and natural heritage of our natural water features, while also creating a greater sense of place among the people who live closest to major water features and have perhaps the most vested in securing their future. We should give more thoughtful consideration to the role that campaigns like the Discover America Partnership could have toward this end, while working closely with the US Travel and Tourism Advisory Board, the Department of Commerce, and the Businesses for Diplomatic Action Initiative to establish and promote water-based destinations for foreign travel. The Department of Commerce should be more actionably positioned to assist local communities to establish and market their waterside communities

within a consolidated, regional approach. Expertise in destination marketing and brand building must be offered to reestablish America's brand as a leisure travel destination. Water-based leisure travel experiences are highly sought after by domestic and international travelers. Communities should be provided with informational tools that educate their citizens on the value of tourism as an alternative economic base.

It is recommended that a hearing overseen by the Congressional Committee on Science and Technology and the Tourism Caucus be conducted to gain stakeholder and water resource practitioner input in bringing this discussion forward to actionable recommendations.

Sustaining the Natural Capital of Our Aquatic Ecosystems – The End Game

Over the past twenty-five years, much deliberation has taken place to sustain the natural capital of our water resources, resulting in a growing list of regional expressions of restoration, reclamation, and rehabilitation. Too often, these efforts are placed-based rather than natural process-based. Because of the work of dedicated water professionals, we now have a better understanding about what works and what does not, further reinforcing the importance of replicability, scalability, and resilience. However, sufficient attention to performance analysis continues to be sorely lacking. Many of the outputs have not contributed to scalable outcomes. Efforts have been fragmented, without recognition of cumulative effects, bearing extraordinary capital and operational costs that produce local outcomes that are not sustainable.

While these project outputs have provided important opportunities for collaboration, public awareness, and lessons learned, we now must take the next step to harness this information and apply it in a systems-wide context with a programmatic approach to interjurisdictional stewardship. Individual project planning must transition into thoughtful reach planning, employed using principles of adaptive management and adhering to long-term stewardship objectives. Only when incremental efforts are undertaken that are system-based and informed by sound science, performance analysis, and implemented with an adaptive management approach will our best efforts on behalf of our nation's water resources and their recovery and sustainability gain a lasting foothold.

Thoughtful recognition must be given to the economic driver that eco-based tourism offers in rural landscapes and waterside communities. As more international and domestic leisure travelers seek heart-healthy, nature-based recreational destinations, the nation's waterside communities are emerging as significant travel destinations, and an economic engine of community revitalization. Redirection of funding priorities within many federal programs could immediately aid in rebuilding America's brand as a travel destination.

A civic engagement process that reaches deep into watershed communities to inform and engage the citizenry should be developed to enrich the water resource conversation and ensure grassroots ownership of the entire undertaking. Only through community education, public support, and a public watershed awareness campaign will sustainable outcomes be assured.

America is a maritime nation. Our lakes, rivers, bays, and estuaries are national assets and should be afforded respect and proper stewardship. We are well into the 21st century

and have yet to advance a popular dialogue on the importance of a strong water future founded on a basic understanding of what is needed, what is sustainable, and the sequencing of a sustainable response.

There are many voices joining the water conversation, and the federal government should assume a leadership role in fostering this civic spirit and dialogue. Nothing could be more timely than beginning a sustained effort to thoughtfully steward our nation's water resources.