

## Working Draft

### A Framework for Nutrient Reduction Strategy Collaboration: the Role for Land Grant Universities

**Mississippi River/Gulf of Mexico Watershed Nutrient [Hypoxia] Task Force.** States in the Mississippi/Ohio River Basin are developing and implementing strategies to reduce loadings of nitrogen and phosphorous to their local surface waters and ultimately to the Gulf of Mexico in an effort to reduce the size of the hypoxic zone. These efforts are being integrated through the Hypoxia Task Force (HTF), a collaborative mix of environmental quality, agricultural, and conservation agencies from twelve of the basin states and five federal agencies. The strategies are comprehensive in nature and address both point and nonpoint sources of nutrient pollution. Point sources are regulated under EPA's NPDES program while nonpoint sources, mainly agriculture, are largely unregulated. Both sources must significantly reduce the loss of nitrogen (N) and phosphorus (P) from the landscape for the strategies to be successful.

**Land Grant Universities.** Land Grant Universities (LGUs) are uniquely positioned to assist each state within the basin and the HTF as a whole in the development and implementation of the state level nutrient reduction strategies. These institutions conduct research ranging from basic discovery to on-the-ground applications of the science of soil conservation, nutrient movement, water quality and human behavior. The extension specialists and educators put the science into practice by educating farmers and agribusinesses, conducting on-farm research, and understanding farm level economics and farmer decision making. LGUs in each state have expertise in the local soils, climates, people and solutions, and are a highly trusted source of objective research-based information helpful to all entities actively exploring solutions to nutrient pollution. In addition, through USDA's National Institute for Food and Agriculture (NIFA) and formal and informal committees, faculty in LGUs regularly collaborate on multi-state research and extension education projects.

**Proposed Concept.** This proposal provides a framework for greater collaboration at various levels among Mississippi/Ohio River Basin states tasked with developing a nutrient reduction strategy for their state with their LGU that has research and extension education capacity to address agriculture's contribution to excessive nutrient loadings. The framework includes the following elements:

1. **Formation of a network of LGUs among the twelve HTF states that focuses on the development and implementation of nutrient reduction strategies and for the activities of the HTF.** Many individual states already collaborate with their LGU on water quality research and extension programming, but to date there has not been a specific focus on the goals and activities of the HTF. This network will bring focus to reducing N and P loss and can serve as a trusted advisor to the HTF and national policy makers. Leadership of this effort would be provided by Mississippi and Iowa through the existing HTF agencies from the two respective states (i.e., MS DEQ and IA Agriculture and Land Stewardship). Such a structure reflects and supports the established HTF organization. This network would also work with the established LGU regional structure already in place.
2. **Organization and engagement of appropriate LGU faculty to work with its HTF member agency within each state.** Organization and engagement of LGU faculty is needed to provide HTF member agencies with a range of available services that could include a science-based foundation for a baseline assessment; evaluation and modeling of established and innovative nutrient reduction practices; cost analyses for policy makers; and training for agency and extension staff that will ultimately work with and educate farmers.
3. **Outreach and education to the agricultural community at the state and national levels.** Through the forums described above, LGUs will advance science-based, solution-oriented conversations addressing point and nonpoint sources of N and P, and will reach out to the agricultural community at state and

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national levels to support the development and implementation of state nutrient strategies. The extension system in each state has the capacity to engage and educate agribusinesses, farmers and urban and urbanizing communities about water quality and the state's nutrient strategy.

**Next Steps.** The following process is suggested to continue to advance this proposed concept:

1. The HTF member states of Mississippi and Iowa will work together with their LGUs, EPA, and regional LGU coordinators to fully develop this concept. Mississippi and Iowa HTF members will work through the HTF and at the state level to advance this concept through use of this white paper.
2. EPA will work with federal HTF agencies to solicit support for this concept.
3. In addition to addressing organizational, leadership, and process details related to this proposed concept, it will be necessary to identify and solicit funding sources to support all three elements of the framework. This will be accomplished as part of the organizational effort. It is anticipated that a funding application will be developed in the coming months.
4. Once the concept has been more fully developed, the regional LGU coordinators will work with Mississippi and Iowa LGUs and HTF representatives to engage the remaining HTF states and encourage participation in this proposed concept. State Departments of Agriculture and Environmental Quality/Protection should both be included. Each LGU will identify a team leader for their state that will coordinate LGU activities.
5. An organizational face-to-face meeting should then follow with HTF members and LGU team leaders from all HTF states to garner buy-in, develop a cooperative agreement, share strategies, and develop coordination protocols. Funding is being sought for logistics for the meeting; however, it is likely that travel will need to be supported by each participant.
6. The HTF-LGU team leader network will continue to communicate by conference calls and working meetings over the next several years as the nutrient reduction strategies are developed and implemented.