



RiverINFEWs: Workshop to explore the nexus between food, energy and water in a large international river system.

Workshop Structure and Agenda

The goal of the workshop is to find the key intersections and interactions among the food, water, and energy systems in the Mekong from multiple disciplinary perspectives derived from physical, biological, and social sciences. To find these intersections and interactions we plan to first have individuals with specific expertise from each of the disciplines, and in each of the systems, present their perspectives on the most critical FEW mechanisms and processes related to their disciplines and the most pressing issues and needs for the future. For example, an individual speaker might focus on the socio-economic aspects of rice agriculture, or the biological/ecological basis for fisheries productivity, or the current hydro-climate forecasts of future hydrologic regimes. We are planning for 3-4 of these keynote talks.

We will then form breakout sessions organized at first by discipline (physical, social, and biological). These groups will be tasked with mapping out key processes and linkages across the food, water, and energy system from the perspectives of their own discipline. Report backs to the full group will occur and then new breakout sessions will be formed, this time organized around the three FEW systems (food, energy and water) with participants interacting across discipline. These groups will have the same tasks of mapping linkages and processes, and will also report back to the larger group. The full group will then meet again for synthesis and discussion, which is meant to coalesce the discussions around single conceptual framework that would be applicable to all riverine systems. The final aspect of the workshop will be to identify key interactions and their knowledge base through small group and large group discussion. Topics for these sessions may include: obtaining group consensus on the most important scientific research questions pertaining to FEW riverine systems both for the Mekong and more universally; identification of key areas for needed future research or data; and listing of key relevant existing datasets. Ultimately we intend to produce a suite of hierarchical conceptual models with the first level of the hierarchy based on the disciplinary- and systems-level analyses, and the upper level of the hierarchy consisting of the synthetic combined model.

Workshop Objectives and Outcomes

NSFs stated goals for the INFEW workshops

- “Intended to facilitate partnerships among researchers in the natural sciences, physical sciences, social and behavioral sciences, and computing and engineering.”
- “find innovative approaches to understanding food-energy-water systems, such as those found in the changing conditions of California, and in large international river systems.” Takes a specific science and engineering perspective.

Stated objectives/goals for the RiverINFEWs workshop

1. Generate a scalable and testable conceptual model of the physical, biological, and social mechanisms that interconnect systems involving food, energy, and water in large river basins.
2. Within this polycentric framework, identify sets of linkages and flows among basin-scale food, water and energy sectors likely to be critical in maintaining environmental sustainability and local livelihoods in the Mekong and more broadly.
3. Identify key research needs for quantitatively predicting riverine FEW responses to future stressors including data gathering, modeling, or conceptual advances.
4. Evaluate current scientific capacity to understand and predict how the riverine FEW system is likely to respond to future environmental stressors and how this will impact environmental sustainability and local livelihoods in the Mekong and more broadly.

Expected products/outcomes

1. A journal article and associated white paper to NSF describing the frontier of FEW research in large river ecosystems. These documents will synthesize the multi-disciplinary perspectives of key FEW interactions identified at the workshop and place them into a common language and framework.
2. New multi-disciplinary partnerships among researchers/stakeholders leading to new working groups seeking to address specific riverine FEW questions and projects.

Organizing Committee

- Matthew Andersen, Senior Science Advisor, U.S. Geological Survey, International Programs
- Thomas Cochrane, University of Canterbury (New Zealand), Department of Civil & Natural Resources Engineering
- Tracy Farrell, Senior Technical Director, Conservation International Mekong Program
- John Felkner, Florida State University, Department of Urban & Regional Planning (co-chair)
- Gordon Holtgrieve, University of Washington, School of Aquatic and Fishery Sciences (co-chair)
- Alan Kolata, University of Chicago, Department of Anthropology
- Rebecca Newman, University of Washington, Civil & Environmental Engineering
- Sabina Shaikh, University of Chicago, Program on Global Environment and Public Policy Studies