

Forecast Mekong: 2011 Update

In 2009, U.S. Secretary of State Hillary R. Clinton joined with the Foreign Ministers of Cambodia, Laos, Thailand, and Vietnam in launching the Lower Mekong Initiative to enhance U.S. engagement with the Lower Mekong countries in the areas of environment, health, education, and infrastructure. Part of the Lower Mekong Initiative, the U.S. Geological Survey's Forecast Mekong project is engaging the United States in scientific research relevant to environmental issues in the Lower Mekong River countries and is staying the course in support of the Mekong Nations with a suite of new projects for 2011.

The USGS is continuing to support local research efforts by conducting scientific training, working collaboratively with scientists in Southeast Asia, and building a geospatial database for the Mekong Basin. The USGS project team is also developing a graphic visualization tool (GVT) and sharing lessons learned on the long-term effects of multipurpose dams and river engineering projects in the Mississippi River Basin, which can inform water-resource managers and decision makers in other major river deltas, such as the Mekong Delta in Vietnam.

The project provides a forum for regional partners, scientists, and engineers in the Lower Mekong River countries to share data and support local research efforts and elevate knowledge about the vital importance of the Mekong River and Delta in maintaining food security and livelihoods in Southeast Asia. Ultimately, Forecast Mekong will lead to more informed decisions on how to make the Mekong and Mississippi Deltas resilient and sustainable in the face of climate change, economic stresses, population growth, and other impacts.

General Information Product 130

Continued Success

As Forecast Mekong continues to blossom, activities focus on the following cooperative efforts:

- Building Scientific Capacity
- Visualizing Data
- Transferring Knowledge
- Sharing Data



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Building Scientific Capacity

USGS is providing the following technical expertise:

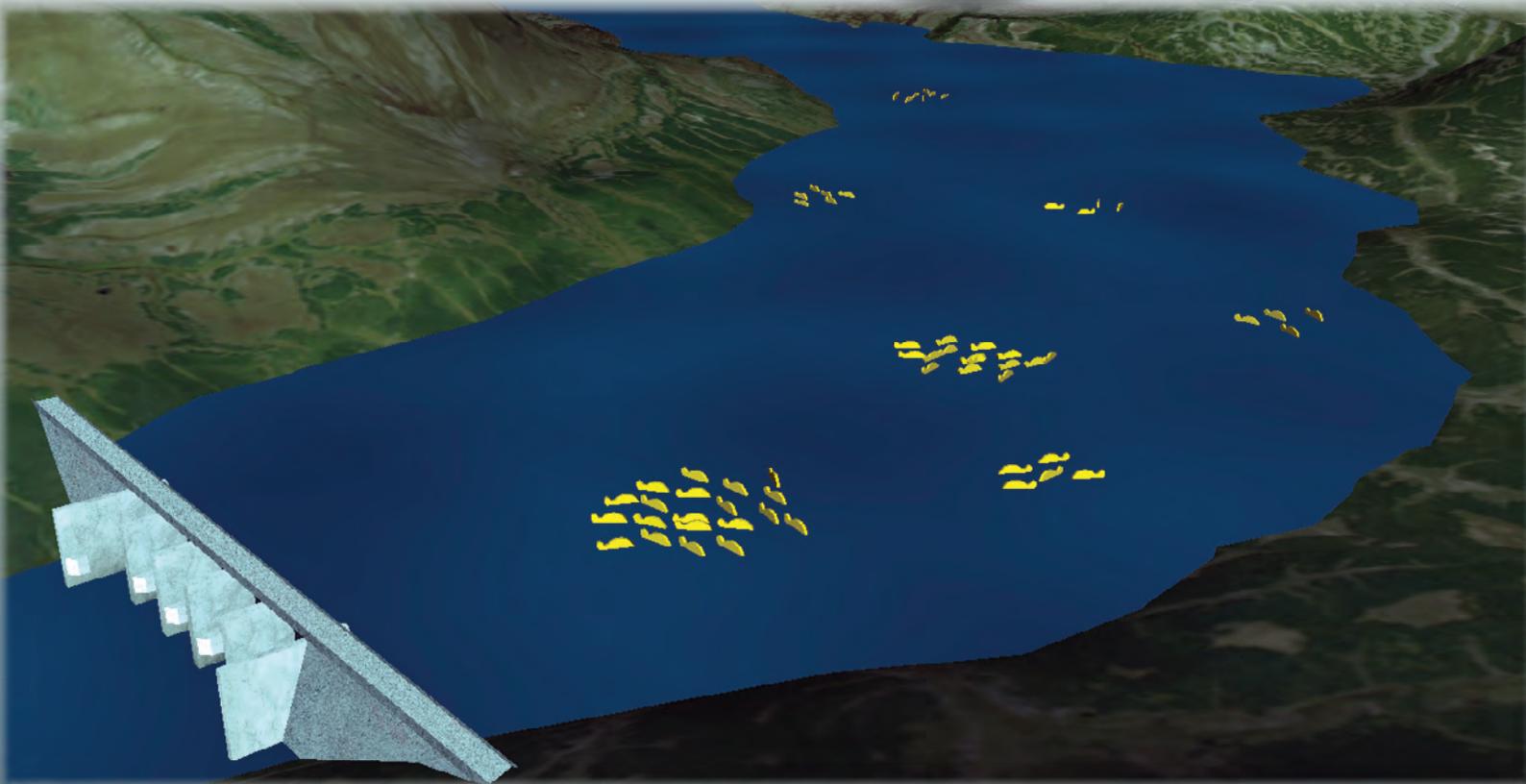
- technical support for a study of pollutants led by scientists from the International Crane Foundation and the University Network for Wetland Research in the Mekong Region,
- a senior-level groundwater hydrogeologist on a special detail to the Mekong River Commission to advise on groundwater issues,
- a geospatial scientist to be assigned to Can Tho University on a special detail for training and technical assistance,
- a hydrologist to teach one course on sediment transport and another on sediment sampling and lab analysis for the Mekong River Commission,
- geospatial scientists to lead a remote sensing workshop specifically for mapping landcover with radar data at Can Tho University,
- assistance with project development on fisheries research and community-based monitoring of water quality, and
- other scientists to provide training courses that are being identified and offered at conferences and workshops.



Visualizing Data

A GVT will simulate the potential effects of proposed hydropower and irrigation dams on tributaries of the Mekong River and will complement the Mekong River Commission decision support system. The GVT will be

- integrated with various hydrology models developed by the Mekong River Commission to visualize potential alterations in the timing, flow, and water quality of the Mekong River caused by tributary dams,
- used for a 3-dimensional animation showing river and reservoir characteristics and environmental changes before and after dam construction, and
- used to illustrate how changes in hydrology could affect food security of the region by projected alterations of fisheries, agriculture, and the ecosystem.





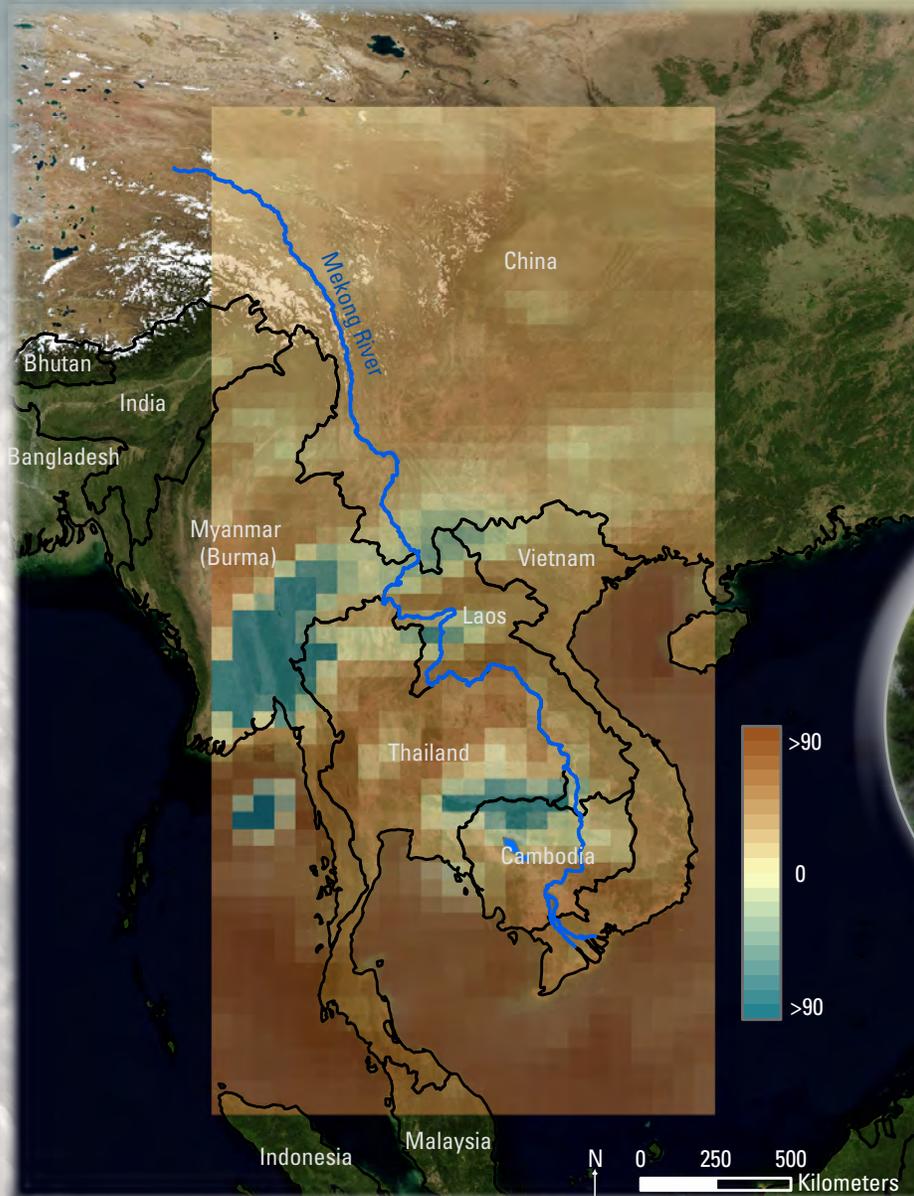
Transferring Knowledge

The USGS will use research and data on flow, water quality, ecology, and sediment in the Mississippi River Basin to

- summarize effects of dams, levees, and other river engineering structures on the ecology, hydrology, water quality, and sediment in those rivers,
- provide an opportunity to compare restoration, conservation, and management efforts with other major river systems such as the Mekong, and
- produce a synthesis document describing historical and current water-resources development in the Mississippi River Basin and the resulting lessons learned.



Sharing Data



A new Forecast Mekong Web site is available at <http://deltas.usgs.gov/fm/>.

This Web site includes

- an interactive mapping application with regional downscaled climate data for the Mekong River Basin to aid in climate research,
- monthly cloud-filtered and monthly averaged moderate resolution imaging spectroradiometer (MODIS) images for bird's eye views of the basin to develop baselines of conditions for vegetation indexes, and
- the Forecast Mekong video that describes the ecology and importance of the Mekong River in five languages, project plans and fact sheets, and a report on sea-level rise model projections for southern Vietnam.



Staying the Course

The initial effort of Forecast Mekong in 2009 highlighted the increasing cooperation between the United States and Lower Mekong River countries in the areas of environment, health, education, food security, and infrastructure development. An offshoot of the Delta Research and Global Observation Network (DRAGON) Partnership, Forecast Mekong was conceived as a platform for data integration, modeling, and visualization systems to help policy makers and the public understand and predict outcomes of water-management projects and climate variability in the Lower Mekong Basin. When fully developed by the USGS, in partnership with local governments and universities throughout the Mekong River region, Forecast Mekong will provide a valuable planning tool to visualize the consequences of climate change, water-resources development, and river management.

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