Future DAMS

Design and Assessment of
water-energy-food-environment
Mega-Systems

FutureDAMS is an interdisciplinary research consortium working to improve the planning and governance of integrated water-energy-food-environment systems. The project is developing the knowledge base, tools and approach to enable system interventions to better support resilient and sustainable development in a warming world.

FutureDAMS is co-developing a decision-making framework and online integrated assessment toolset with institutional and case study partners. Our aim is to help plan and design better infrastructure in complex natural resource systems, with a focus on developing countries.

Free, web based simulation tools for river basins and energy systems are available at www.hydra.org

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FutureDAMS

Design & Assessment of water-energy-food-environment Mega-Systems

Our inter- and cross-disciplinary research is identifying what has worked well historically and what needs to improve. A new framework for integrated system decision-making is seeking to enable effective design of complex systems. The proposed approach will use innovative and appropriate climate and hydrological science, engineering, economic, political-science and social analytical methods to assist in the development of water-energy-food-environment interventions that have high social and economic value, despite uncertainties about the future.

FutureDAMS is co-developing a state-of-the-art online integrated assessment modelling toolset for assessing and optimising system designs. Factors to be explored include alternative operating regimes, locations and sizes of new infrastructure, trade-offs and synergies between alternatives and links with wider regional energy, food and economic production, and ecological and social systems. The online software suite will facilitate collaborative working between diverse groups such as local, national and regional stakeholder and sectoral groups, investors, planners, consultants and academics.

The FutureDAMS decision-making framework and analytical toolset is being co-developed with partners in Myanmar, the Volta basin (West Africa), and the Nile basin.

Emerging findings

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- Resettlement and displacement of affected communities remains a challenge but some agencies are learning
- There is continuing evidence that the costs of dams tend to be higher than estimated and deliver fewer benefits than forecast
- Although decisions about dam building are political, technical analysis remains crucial to delivering success
- There are systematic barriers to learning from experience

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