



HYDRO-ECONOMICS

The earth's freshwater resources and ecosystems are natural assets and their value to society depends on how they are managed and protected. Stakeholders—including water utilities, hydropower generators, local governments, and conservation organizations—share a common interest and need to identify where future damages and costs can be avoided through nature-based and other investments.

One primary challenge that decision-makers face is how to maximize water's value for current and future use when faced with limited budgets, uncertain future conditions, and competing demands. The RTI Center for Water Resources helps address these challenges by providing sophisticated, practical decision-support tools and analyses. We develop hydro-economic solutions through our combined expertise in both the natural and social sciences and can help you evaluate economic trade-offs and optimize the management of water and other natural resources. This integrated approach is essential for capturing the connections between humans and natural systems and for analyzing the value of water resources and aquatic ecosystems to society.

Evaluating the value of water to society and economic trade-offs for water-related decisions





FEATURED PROJECT

Hydro-economic Analysis of the Food-Energy-Water Nexus for Pernambuco, Brazil

Client: Inter-American Development Bank (IDB)

Country: Brazil

Sector: Water Supply

Related Services: Climate Resilience, Planning and Allocation, River Basin Operations



RTI developed a hydro-economic framework that included an economic optimization model to capture differences in physical output (e.g., temporal flows) at the basin scale, local economic benefits, and other key variables (e.g., agricultural production, household water consumption) across a wide range of climate and infrastructure development scenarios. This study illustrates the usefulness of hydro-economic analysis for evaluating the economic implications of alternative infrastructure investments or management options. More simply, it shows how an increased water supply might affect economic welfare and influence the allocation of water between competing uses such as domestic consumption and irrigated agriculture.

ADDITIONAL HYDRO-ECONOMIC SERVICES

Economic valuation methods for measuring water resources benefits and ecosystem services, including nonmarket valuation approaches

Watershed-based hydrologic, ecological, and water-quality modeling

Economic simulation and optimization modeling

Cost-benefit and return-on-investment analyses for evaluating water infrastructure, management, and policy decisions

Econometric methods for analyzing micro-level, spatial, and time-series data



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