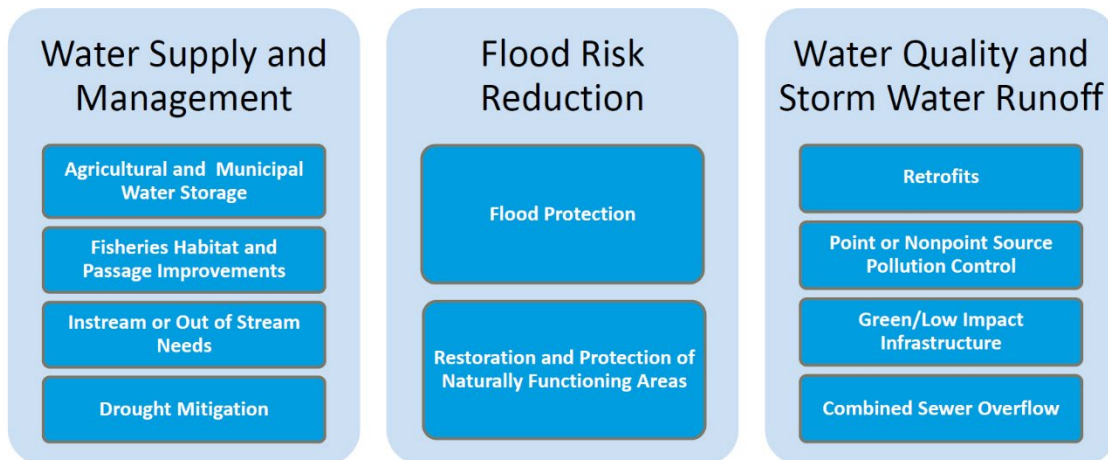


Water Resources Management

Greene Economics has worked for over 20 years in water resources management. This includes:

- extensive work **forecasting water demand**, for domestic, commercial, municipal, and industrial purposes (DCMI), agriculture, and for planning purposes, as well as,
- conducting **water supply security** analyses for businesses and governments, and
- **water rights assessments and applications** for basin adjudications, and for new water rights applications, and for litigation and negotiation purposes, and
- **flood damages assessments** using tools such as the HEC-FDA model and incorporating climate change adaptation.

From mining companies to Indian Nations to environmental organizations to municipalities and federal agencies, Greene Economics brings a deep understanding of water-related issues and adds value to the decision-making process. We help clients navigate strategies for water management by forecasting water demand; evaluating optimal water use; valuing water rights; and understanding water supply security and the role of uncertainty in planning. In particular, Greene Economics has expertise in the decision to invest in water infrastructure. For example, each of the topics in the figure below represents different types of water infrastructure investments; and each has associated benefits and costs.



In addition to thinking about benefits and costs, Greene Economics knows that how benefits and costs are distributed across different groups within a community is essential to thinking about fairness in public investments. A few examples of our experience are highlighted below and for more information please see our website and/or contact Greene Economics.

- Analyzed the water infrastructure [stormwater management, water supply, flood damage reduction and habitat restoration](#) needs in eight basins in Washington State for a period of 20 years.
- Supported the U.S. Department of Justice [forecasting long run DCMI water demand](#) on Indian Reservations throughout the western U.S. including Hopi, Navajo, and Lummi Nations.
- Developed user-friendly planning tools to capture [water supply uncertainty in a changing climate](#) in support of resilient water infrastructure investment decisions.
- Conducted [due diligence](#) for clients concerned about the future of availability of secure water resources.

Project Examples

Water Security Analyses

As droughts occur more frequently and at a higher severity, and as climate change alters hydrologic processes, water security concerns become increasingly important. Greene Economics continues to conduct these assessments both separately and as part of larger due diligence projects for clients concerned about the future of availability of secure water resources.

- Analyzed the water infrastructure investment needs for stormwater management, water supply, flood damage reduction, and fisheries for 20 years from 2017 to 2036 for the State of Washington.
- Assessed water rights and security at various recreational properties with high water usage in 16 US states and Canada as part of the due diligence process. The team worked with hydrogeologists and analyzed trends in changing water availability under the different state and regional regulatory agreements.
- Evaluated water resource security identifying the risks associated with recurring drought conditions, as well as other factors for several beverage manufacturers in California.
- Identified the water supply risks associated with expanding a large data processing facility in Oklahoma.

Water Demand Forecasting

Our experts have extensive experience with water demand forecasting, including DCMI and agricultural demand, using innovative methodologies. Greene Economics develops tailored population projection models and evaluates water use trends for DCMI. Recent work also includes developing and updating irrigated crop budgets and analyzing market opportunities and limits for irrigated crops.

- Provided a water storage concept analysis for a reservoir in Central Oregon.
- Assessed population projections for Red River Valley counties and municipalities (2000–2050) for the Bureau of Reclamation.
- Provided expert witness support on the effects of conservation on urban water demand in the matter *New York City v. Hess Corporation*.

Water Rights Assessment and Water Allocation Decisions

Our team is experienced estimating the value of water, using financial models for the purpose of outlining draft terms of contracts between water rights holders and potential buyers or lessees. We have a comprehensive database of water transactions in several western states, have analyzed current and future market values, and have wide-ranging experience with determining present use and future water use.

- Assessed reserved water rights for the Fort Belknap Indian Reservation in Montana.
- Prepared the FERC license application (water rights application) for the Enloe Hydroelectric Project.
- Assessed reserved water rights for the Duck Valley Indian Reservation in Idaho and Nevada.
- Supported the Bureau of Land Management in determining the economic impacts of restricted water deliveries in the Klamath Basin.
- Conducted a valuation of Olympia Brewery Water Rights in Washington.
- Performed an economic analysis of water allocation alternatives for the Gila River Indian Reservation in Arizona.

