Dams, Engineering, and Technology

Making Water Useful to More People

A government official adjusts an irrigation door in southeastern Australia.

Photograph by Amy Toensing

In the developed world there is really nothing natural about the way we get our water. Dams produce hydroelectric power and the reservoirs behind dams store water supplies for the long haul. Infrastructure, such as levees and canals, channel water to our homes and fields, and keep rivers running the course we want them to.

Dams, levees, and canals dot the developing world too. In some areas communities still use ancient water storage infrastructures and rely on centuries-old canals for irrigation.

While most agree that water infrastructure—either large- or small-scale—is critical to human civilization, there is also a theory that much of our large-scale water-related infrastructure—such as dams and levees—is not worth the environmental costs, which include fish kills, altered floodplains, increased flooding, and degraded water quality.

Dam building has experienced a resurgence, while at the same time a dam removal movement is gaining momentum in some areas. Over the last decade, some 430 dams have been removed from U.S. rivers, opening up habitat for fisheries, restoring healthier flows, improving water quality, and returning life to rivers.

Infrastructure may help us deal with the effects of climate change—rainstorms becoming more intense, but less frequent—by providing increased storage capacity and flood control, but we need to find ways to use dams, canals, and levees, that don't harm aquatic species and ecosystems, and jeopardize our long-term safety.

Fast Facts

- Since 1950, the number of large dams has climbed from 5,000 to more than 45,000—an average construction rate of two large dams per day for half a century.

- Globally, 364 large water-transfer schemes move 14 trillion cubic feet (400 billion cubic meters) of water annually from one river basin to another—the equivalent of transferring 22 Colorado Rivers.

- In the ten years since the Edwards Dam was removed from the Kennebec River near Augusta, Maine, populations of sturgeon, Atlantic salmon, and striped bass have returned in astounding numbers, reviving a recreational fishery that adds $65 million annually to the local economy.

http://environment.nationalgeographic.com/environment/freshwater/dams-engineering/