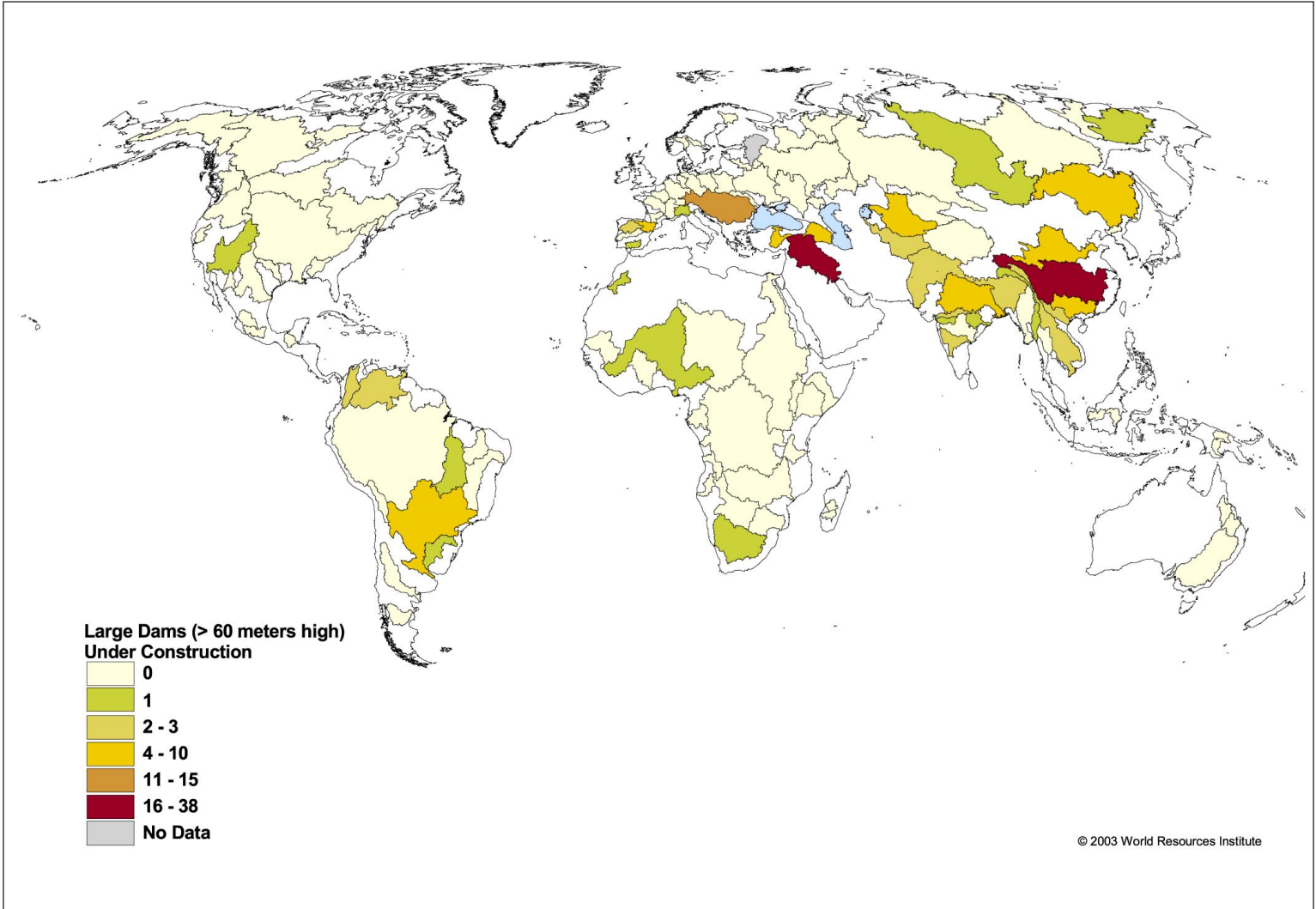


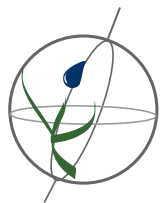
17. Large Dams Under Construction by Basin



Map Description

Of the many ways in which humans alter freshwater ecosystems, the most widespread and significant in their impact is the building of dams, water diversions, and canals. Humans have built large numbers of dams all over the world, most of them in the last 35 years. Today, there are more than 45,000 large dams (more than 15 meters high) in the world, with more than half of these in China alone (ICOLD 1998). Rivers with multiple dams, canals and water transfers, or those that have considerable water withdrawals for irrigation and industrial use can become little more than chains of connected reservoirs, with consequent changes in the living functions of the riverine ecosystem. Waterfalls, rapids, riparian vegetation, and wetlands are some of the habitats that disappear when dams impound rivers. These habitats are essential feeding and breeding areas for many aquatic and terrestrial species, and also help to remove pollutants and maintain water quality (Revenga et al. 2000).

Dams provide unquestionable benefits to society—from water supply to power generation—but they disrupt the hydrological cycle profoundly, suppressing natural flood cycles, disconnecting rivers from their wetlands and floodplains, disrupting fish migrations, and altering the deposition of sediments downstream. By slowing the movement of water, dams prevent the natural downstream movement of large amounts of sediment to deltas, estuaries, flooded forests, wetlands, and inland seas. This retention can rob the downstream areas of the sediments and nutrients that they depend on, affecting species



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composition and productivity. Coastal fisheries, for example, depend on upstream inputs to replenish nutrients. Sediment retention also interferes with dam operations and shortens their useful lives. In the United States, about 2 km³ of reservoir storage capacity is lost from sediment retention each year, at a cost of US\$819 million annually (Vörösmarty et al. 1997.)

Even though dam construction has greatly slowed in most developed countries, the demand and untapped potential for dams is still high in the developing world, particularly in Asia. This map shows the number of large dams under construction around the world. As of 1998, there were 349 dams over 60 meters high under construction (IJHD 1998). The countries with the largest number of dams under construction were Turkey, China, Japan, Iraq, Iran, Greece, Romania, and Spain, as well as the Paraná basin in South America. The river basins with the most, large dams under construction were the Yangtze in China, with 38 dams under construction, the Tigris and Euphrates with 19, and the Danube with 11.

Mapping Details

This map was created by georeferencing the locations of dams under construction. Data were compiled from the World Atlas and Industry Guide of the International Journal of Hydropower and Dams. The map includes only those dams higher than 60 meters that were under construction in 1998 and were reported by IJHD. The number of dams was later aggregated by river basin to create the global map.

Map Projection

Robinson

Sources

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