Water Resources of Sindh Province

Water plays an essential role in the livelihoods of the population in Sindh, driving both agricultural productivity and socioeconomic development. The transformation of vast areas in Sindh from a dry alluvial plain of the Indus River to fertile, cultivable lands highlights the region's reliance on water resources for agricultural activities, which form the backbone of its economy. Sindh's prosperity in terms of food production, industry, and rural livelihoods is intricately tied to the management and use of its water, particularly through the extensive irrigation systems fed by the Indus River. Effective water governance is therefore critical to sustaining these livelihoods and ensuring long-term development.

The water resources available to the people of Sindh are limited, with the province receiving an average annual rainfall of only 100 to 200 mm. The primary water source for Sindh is the Indus River, which is channeled through a vast hydraulic infrastructure developed over the past century, known as the Lower Indus Basin Irrigation System (IBIS). Water from the Indus River is distributed to users via a canal system that branches out from three major barrages: Guddu, Sukkur, and Kotri. These barrages divert water into 14 main canals, which further distribute it through a complex network of 117 branch canals, 1,400 distributaries and minors, and 44,000 watercourses.

Sukker Barrage

Kotri Barrage

A significant concern for Sindh is its status as the lower riparian region within Pakistan. This brings multiple challenges, including worries about reduced surface water inflows, the risk of uncontrolled flood releases during periods of flooding, and the deteriorating water quality in the main Indus River. Outside the coverage of the IBIS, surface water resources are even more scarce. They primarily depend on runoff generated in catchment areas during rainfall. Another important and increasingly relied upon source of water, both in the dryland and canal areas, is groundwater. Groundwater resources serve as a crucial complement to the available surface water in Sindh.

The largest water use in Sindh is agriculture, accounting for around 95% of total consumption, with evapotranspiration ranging from 26.6 to 41.7 MAF. Annual water demand for domestic use is 1.2 MAF, for industry 0.5 MAF, and livestock use is minimal[1]. Maintaining the Indus Delta's ecosystem is also crucial, with the Indus River Accord recommending annual flows of 10 MAF, though actual flows often fall short of environmental needs. Sindh boasts of a number of wetlands, but they have largely been left unmanaged and, in some cases have been degraded

[1]*Sindh Water Policy 2023*