

AROUND THE GLOBE

Afghanistan: Water Resources and Challenges

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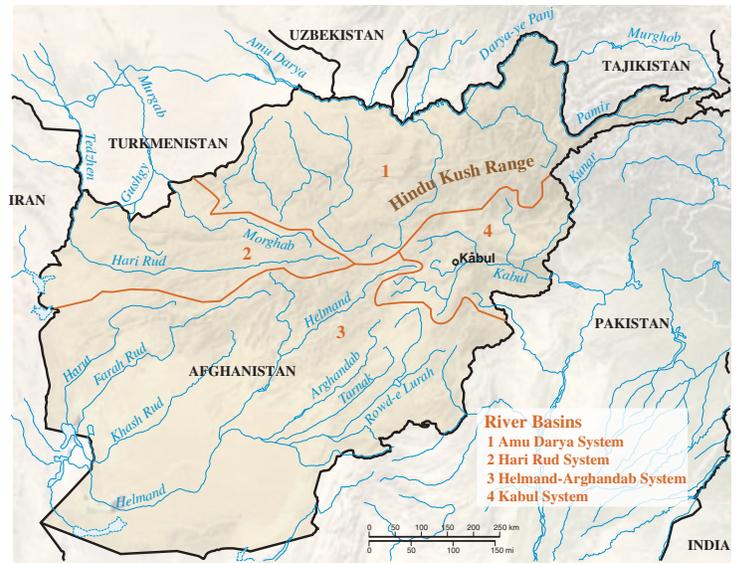
Afghanistan is characterized by extensive desert plains, high mountain ranges, and scattered fertile valleys along the major rivers. Most of the cities, towns, and villages are along river valleys. The Hindu Kush, the westernmost extension of the Himalaya-Pamir Mountain Range, divides the country from northeast to southwest (see map).

Afghanistan has a dry continental climate. Ninety percent of the annual precipitation occurs between December and April, mostly falling as snow. In the summer months Afghanistan receives warm, dry air from the north and northeast with little precipitation. Precipitation correlates directly with altitude, varying from less than 100 mm per year at altitudes below 1,000 m in the southern, northern, and

western parts of the country, to over 1,000 mm at altitudes above 4,000 m in the northeast.

Agriculture (crops and livestock) comprises the main economy of Afghanistan. Surface water accounts for over 80 percent of the water supply for irrigation in the country.

Groundwater has traditionally been developed for irrigation purposes through the use of karez, springs, and shallow, hand-dug wells. A karez is a horizontal well in which the discharge of an aquifer system is brought to the surface using a tunneled conduit



River systems of Afghanistan.

system. As many as 5,000 karezes are operational in the country.

Most of the urban centers and towns also depend on groundwater for their drinking, commercial, and institutional water supply needs. In recent years, deeper drilled wells have become a more common means of extraction for irrigation usage, particularly in the Tarnak, Ghazni, Kabul, and Loghar river valleys.

River Basins

Most rivers in the country, including all the perennial ones, originate in the mountains of the Hindu Kush range in central Afghanistan and flow toward the international borders. Most river systems have maximum flow in the spring and early summer months due to snowmelt.

The Hindu Kush Mountains decrease in altitude from northeast to southwest. Rivers originating in the higher northeast part of the range demonstrate more sustained flow compared to those originating in the central and lower areas.

The four major river systems and their respective contributions to overall flow in the country (shown in parentheses) are:

- northern-flowing rivers, including the Shirin Tagab, Sare Pul, Balkh, and Khulm rivers and the Amu Darya River and its tributaries,

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