

## Potential effects of human and climate change on freshwater resources in Pakistan

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**Abstract** Pakistan is facing severe degradation of freshwater resources, threatening its environment and economy. Among the freshwater resources, rivers particularly are facing multiple problems such as; trans-boundary water exploitation, pollution, diversion and climate change. Water utilization agreements and practices have tremendously reduced the flow of the rivers and disrupt the aquatic ecological integrity. The water harvesting policy for hydropower generation and irrigation adopted by India and Pakistan has greatly influenced and disturbed the natural flow of rivers. The controlled and regulated water bodies, such as dams and barrages make the rivers poor in biodiversity through habitat fragmentation. The situation is further aggravated due to pollution stress, ill-planned industrialization, urbanization and agriculture. These factors have fragmented the populations of different endemic species such as Mahsheer (*Tor putitora*, Hamilton), Palla (*Hilsa ilisha*, Hamilton) and the Indus blind dolphin (*Platanista minor*, Owen) to the verge of extinction. Similarly, significant reduction in the annual catch of commercial fishes from rivers and lakes has been recorded. Pakistan is experiencing a change in rainfall pattern resulting in frequent floods and drought. Heavy rains, floods and drought destroy the agriculture and infrastructure putting unaffordable stress on the economy of Pakistan and affecting the ability of government to deal with the crisis. There is an urgent need to focus on the impacts of anthropogenic stress and climate change on aquatic organisms in the rivers of the Pakistan. This paper is an attempt to highlight the impacts of human and climate change on water resources and aquatic fauna.

**Key words** human activities; climate change; habitat fragmentation; water resources