

Climate resilient development for sustainable water security for India

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Much of the impact of climate change on humanity will be through changes in the quality and quantity of water. Impacts will be exacerbated due to increasing population, land-use and land-cover changes, high economic growth and the inherent nexus between water, food, and energy security. Current water development pathways in India are not resilient since, at times, hydro-projects are unable to provide reliable services and water security in extreme events. In the event of a failure, the system may take a long time to recover. Further, the reliabilities of the systems are likely to degrade in the future when the magnitude, intensity and variability of hydro-climatic processes will be higher. The present article describes current and future challenges in water resources management in India. Considering the current scenario and threats to water security, the present study suggests climate-resilient development (CRD) to create water infrastructure and sustainable management. A resilient system rapidly recovers after failure and tends to be more sustainable. The study also emphasises that CRD requires enabling laws, policies, and plans; good water governance at different scales, proper pricing, better data collection and analysis, institutional strengthening, resilient infrastructure, recycling and reuse, environmental protection, and integrated water resources management. Since the current state of the environment is unhealthy, due care is needed to rejuvenate the environment and biodiversity. CRD pathways can be evaluated using sustainable development goals and their indicators for India.

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