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Climate change and disaster management in India: special reference to water resources

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Climate change is expected to increase the frequency and intensity of current extreme weather events, greater monsoon variability and also the emergence of new disaster i.e. sea level rise and new vulnerabilities with differential spatial and socio-economic impacts on communities. This unprecedented increase is expected to have severe impact on the hydrological cycle, water resource (drought, flood, drinking water, forest & ecosystems, sea level/coastal area (losses of coastal wetlands and mangroves), food security, health and other related areas. The impact would be particularly disasters for developing countries, including India and further reduce the resilience of poor, vulnerable communities, which make up between one quarter and one half of the population of most Indian cities. In the process of development, rapid development of coastal areas, urbanization, agriculture expansion, increasing population, rapid industrialization, and , more areas/populations are becoming vulnerable to climate risk and many have no choice to migrate to safer places. On the contrary, the 'safer places' are itself getting reduced. Today, the hydrological cycle is being modified quantitatively and/or qualitatively in most agro climatic regions and river basins of India, by human activities such as land use change, water uses, inter-basin transfers, cropping pattern, irrigation and drainage. Many of the areas are getting transformed from safe zone to dark zone with the fall in water table. In view of this, sustainable management of surface and ground water and the supporting natural environment have gained considerable importance in recent years. An assessment of the availability of water resource in the context of future national requirements taking particular account of the multiplying demands for water and expected impacts of climate change and variability is critical for resource planning and sustainable development as a basis for economic and social development. This study will focus on availability of surface and ground water resources and the potential for water related developments keeping in view the possible impacts of climate change to meet the foreseeable demand in India. The study will also focus that how the socio cultural and economic life would go under change in such circumstances. The coping and adaptability mechanisms of the vulnerable communities would be studied as how with acute shortage/surplus in India at the micro level is getting affected and how communities are adjusting in all through changing climatic process. The paper is intending to develop an integrated framework for addressing the issue of water, community adaptability and disaster risk reduction in India.