



An assessment of the impact of extreme weather on socio-economic conditions in India

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Extremes in weather are serious challenges to food, water and energy securities in India. Extremes in monsoons always affect the Indian economy and life of millions that depends on agriculture. One-sixth of the country is already drought/flood-prone and any further extremes would affect the water availability and food and energy production. Changing frequency and intensity of severe weather systems and possible changes in sea level are major threats to the thickly populated coastal zones. Changes in upwelling pattern and ocean circulation may affect fish population and the life of communities depending on marine resources. With extremes, new health issue are also emerging. This paper assesses the impact of weather extremes on food, water, energy, and ecosystem and their reflections on different facets of Indian society. Extremes and shifts in regional climate during the last 100 years and their relationship with global anomalies have been examined. Changes in water availability in an altered climate predicted by models have been estimated. Results show considerable changes in rainfall amount and seasonality and drastic reduction in water availability. Impact of extremes is already evident. High seasonality of summer monsoon and failure in winter monsoon create floods and reduce summer water availability. West and east coasts experience high rainfall intensity and shift in peak rainfall period. Mumbai witnessed the world's record daily rainfall in 2005. Increased intensity of rainfall in the Western Ghats cause more sedimentation, reducing summer water flow in rivers. Casualties from heat waves increase and spread to new areas. Shifts in regional climates indicate proneness to droughts. Climate change impacts on water and power create conflicts over allocation. Shortage of water is reflected in agriculture and rural job op-

portunities, inviting social unrest. Massive investment will be required to implement adaptation mechanisms. India urgently needs an appropriate management strategy and an updated policy to face challenges associated with extremes. Guidelines for this have been provided, considering the economic, social, environmental and political scenarios.