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Seasonal Floods in the Coastal Megacities of India: Challenges in Urban Management under a Changing Climate

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Millions of poor with low adaptive capacity living in slums and coastal zones make Indian coastal megacities highly vulnerable to the impacts of climate change. Extremes in climate together with anthropogenic activities cause severe floods in Mumbai, Kolkata and Chennai, resulting in casualties and large-scale damage to infrastructure. Uncontrolled growth in urban population due to migration from rural areas makes flood management complicated. Indiscriminate encroachment into waterways, inadequate capacity of drains and improper maintenance of the drainage infrastructure creates severe floods in every rainy season. These cities also face threat from the sea level rise, increased wave action and increasing frequency and severity of cyclones. Waves and storm surges contaminate the coastal water resources. Rising sea level may further deteriorate it. Destruction of wetlands, paddy fields and canals in and around the cities aggravate the flood conditions. Release of solid wastes into sewage channels results in flash floods, leading to serious environmental and health issues. Flooding creates socio-economic issues such as mass migration to the interior leading to competition and conflict over resources and large investment required for adaptation and impact mitigation. This paper analyses the impact of floods in the coastal megacities and critically reviews the current policies and adaptation strategies. Analysis shows an increasing trend in rainfall seasonality and intensity, and proneness to floods. Current measures for the flood impact mitigation and climate change adaptation in the cities are poor. National Disaster Management Authority is yet to release guidelines for urban flood management. Climate policy doesn't consider urban water issues seriously. Suggestions for an appropriate urban policy and flood impact mitigation strategy have been provided, considering the present scenario and possible changes predicted by models.