

‘Kolkata and Climate Crisis’

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ABSTRACT

The location of Kolkata stretching along the northern fringes of the southern Gangetic delta - makes the capital city of the state of West Bengal vulnerable and prone to the shocks and stresses of climate change and natural disasters. The riverine location on one hand facilitates the economic growth of urban agglomeration, while on the other hand handicaps the city when coastal storms lash out with incessant rain showers and thunderstorms. The city is already at heightened risk of rapid sea level rise, periods of intense rainfall, cyclonic activity, and storm surges - funds, infrastructure systems and adequate capacity to make urban spaces ‘climate change resilient’ becomes domineering in such cases. Drying up of water-bodies (in parts the East Calcutta Wetland – a Ramsar site) and conversion into built-up space, loss of area under agriculture in peri-urban locales to construction, increased urban density, shrinking water surfaces, damages inflicted by soil salinization post-cyclones, have been significant problems in the Kolkata Metropolitan Area. Research reveals that urban sprawl, increased urban density, and shrinking water surface areas are the most important phenomena affecting the runoff and drainage of the city of Kolkata - these raise the potential extent of flooding in the city under climate-change scenarios. Abnormal rise of sea level and sea-water inundation in low-lying areas due to cyclones lead to loss of life and property, also causing loss of livelihood and damage to infrastructure, destruction of vegetation and erosion of embankments along the deltaic shoreline; post-landfall there are high chances of spread of communicable diseases. Destructive winds and thundershowers accompanying the cyclones in the last two decades namely Cyclone BOB 03 (2002), Cyclone Aila (2009), Cyclone Nilam and Phailin in 2012 and 2013 respectively, Cyclone Hudhud (2014), Cyclone Phani (2019), Cyclone Amphan (2020) and Cyclone Yaas in 2021 have been deadly. Vulnerability to tropical cyclones is a serious concern due to the rising population density in this coastal metropolitan region. The Intergovernmental Panel on Climate Change (IPCC) reports (2014, 2019 and 2021) have hastened research and assessment on the changes of tropical cyclonic activities in areas along the coast of the Bay of Bengal and its linkage with global warming. An analysis across three decades since 1970s to late 2000s suggests an intensification of cyclonic occurrences and spiralling damages on landfall. Patterns of urban settlement expansion, livelihood and consumption trend together with fuel burning and emission rates affect the magnitude of pollution and environmental disaster. Migration in the delta region often occurs as part of adaptation response to environmental threats like climate change. Studies predict that habitat loss and inundation due to sea-level rise and erratic climatic experiences in the coastal deltaic islands may result into loss of livelihoods. Communication through dissemination of research findings to vulnerable sections of population about climate change, and awareness on mitigation of disasters become integral to the urban planning process. The objective of this research will be to analyse the pattern of demographic and urban development along with the impacts of climatic catastrophes (storms, cyclones) from the year 2000 to 2021, in the Kolkata Metropolitan area. The research will also attempt to analyse the impacts of environmental hazards and climate crisis on the population and economy of the region. The study will look into the contribution of disaster management authority, law and governance, and coastal zone management act in combating climate crises and urban issues.