

# **POLICY BRIEF**

## **Climate Disasters and Displacement in India**

### **Role of Policies and Protection**

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Shatabdi Das

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**Indian Context**

India has the highest number of internal displacements in the world every year, majorly triggered by disasters. Flooding as a result of rainfall is at times controlled by the amount of precipitation a place receives, though the magnitude of floods is to a large extent impacted by the drainage system and preparedness of settlements in terms of water holding capacity, discharge, architecture, settlement morphology, city layouts, and civic planning for storm water drainage networks. The frequency of climate hazards, large population-size and socio-economic vulnerability increases the intensity of damage from disasters. India in a number of ways has been working towards developing the country's potential in environmental stewardship, climate action and decarbonisation, with focus on the reduction of destructive consumption,<sup>1</sup> however, closing the gaps and large regional disparities, and delineating the areas that require improvement for climate resilience, demands inclusive, grassroot and participatory planning; in addition to the analyses of interconnected causes of displacements manifested by extreme weather conditions, environmental degradation and climate stresses, coupled with other drivers of disasters.

The policy brief broadly has three segments. The first segment with the research overview elaborates upon the major types of climate disasters that India is commonly vulnerable to and the

displacements induced by such disasters. Unprecedented, torrential rains over short period of time, or cloudbursts with more than 100 mm of rain within an hour in small geographical areas of 20 to 30 sq. km., as the India Meteorological Department (IMD) expounds, have caused floods or culminated into flood-like situation in riverine cities. The anomalies of heat and air circulation that have impacts on the development of spiralling winds of storms and cyclones and the vulnerability of land lying in its trajectory, call for preparation and management of structures and landscaping, to reduce vulnerability and the magnitude of damages from such climate disasters. The second segment outlines the major environmental programmes and policies for green transition and conservation aimed at reduction of pollution and its impacts on landcover and resource availability. The third segment elucidates key take aways for consideration during planning and appraisals of ground implementation through aggregation and participation of multiple stakeholders, including administrative divisions for developing alternate policy approaches.

## CLIMATE DISASTERS

Climate change is driving humanitarian crisis around the world. As one of the greatest humanitarian threats of the present time climate crisis calls for urgent action needed in reducing the warming of the atmosphere and strategies for reducing the risks that warming produces.<sup>2</sup> Disasters may be linked to climate change as manifested through the short-term extreme weather events such as storms, cyclones, floods, heatwaves, droughts and other natural hazards with the potential of causing destruction and devastating impacts in the forms of damages to infrastructure and environment, and loss of lives. Natural events in weather cycles are known as climate hazards, like thunderstorms, cyclones, tidal surges, floods, forest fires,

droughts. When these extreme weather events cause mass scale destruction and devastation with loss of life, property, livelihoods and prolonged adaptation challenges, such sudden occurrences are called climate disasters.<sup>3</sup> Early warning system, layout of densely populated urban spaces, awareness and education, environment and ecosystem-based risk reduction, post-disaster response, risk governance and social resilience, are enlisted as important contributing factors for disaster risk reduction by the United Nations Educational, Scientific and Cultural Organisation (UNESCO), along with partnership in different sectors and trans-and multi-disciplinary research.<sup>4</sup> Since rapid or slow onset of events have either atmospheric or geological or hydrological origins or are the combinations of one or more, it is not always possible to address or control the origins, especially the natural mechanisms occurring and wreaking havoc at national, regional or local levels, such as hydro-meteorological occurrences like cyclones, rainfall, drought, etc. However, what societies can work on are the factors that largely influence the origins of these events, such as emission and pollution levels, carbon sequestration, eutrophication and release of Greenhouse Gases (GHGs), ozone depletion, conservation of forests and afforestation which are some of the drivers of changes in natural environment. The sudden change of atmospheric or weather conditions, hydro-meteorological events or the triggers from the slow onset of changing climate scenario can lead to incidences of climate disasters.


**“Disaster is the serious disruption to the functioning of a community that exceed its capacity to cope using its own resources. Disasters can be caused by natural, man-made and technological hazards, as well as various factors that influence the exposure and vulnerability of a community.”**

**International Federation of Red Cross and Red Crescent Societies (IFRC)**

## **DISASTERS AND DISPLACEMENT**

**The association of displacements with extreme climate events, governance at policy level, and designing protection mechanism is a complex process that requires phased planning. Herein lies the challenge of comparing and separating out the causes of migration, shock mobility, and displacement, to be able to determine how and why people are forced to migrate in the event of a climate disaster; it is also essential to understand the opportunities obtainable for migrants when climate change looms large in the backdrop.**





The inability to adapt to the changes brought by hazards like flood, storm, drought, heatwave, may be largely influenced by economic, social and political factors and environmental degradation. Climate displacements are therefore difficult to define, similar to the shortcomings of categorising displacements due to climate disasters; climate-induced displacements are more likely small-scale and internal (within the boundaries of a country) in case of India.



## Rainfall and Flood Scenario

The Internal Displacement Monitoring Centre (IDMC) summarises that in 2022, the total number of disaster displacements in India was estimated at 2.5 million, with floods triggering the highest number of displacements.<sup>5</sup> In August and September 2023, ‘heavy to very heavy rainfall’ was recorded in the drier areas of the country such as isolated pockets of Jammu and Kashmir, Ladakh, Himachal Pradesh, Uttar Pradesh, East Rajasthan, West Madhya Pradesh and Gujarat.<sup>6</sup> In Himachal Pradesh and Uttarakhand more than 10,000 people were displaced by floods in 2023.<sup>7</sup>

A holistic understanding of the South-West and North-East Monsoons is significant while drafting plans for climate action in the country. A large part of the extreme weather events and climate-related hazards, are either predominantly influenced by the monsoon or are residues of the deviation of monsoon patterns and its erratic nature, also to an extent controlled by heat circulation, planetary wind system and warming scenario, such as the consequences of warming of the Arctic ice sheets and El-Niño Southern Oscillation (ENSO).

**Table 1: Flood and Displacement**

<u>Disaster</u>	<u>Population Affected</u>	<u>Worst-Hit Areas</u>
<b>HEAVY MONSOON RAINFALL &amp; FLOOD (2022 &amp; 2023)</b>	<b>More than 32 lakhs</b>	Assam, Himachal Pradesh, Uttarakhand, Gujarat, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Punjab, Haryana, Delhi, Karnataka, Jammu and Kashmir, Chhattisgarh

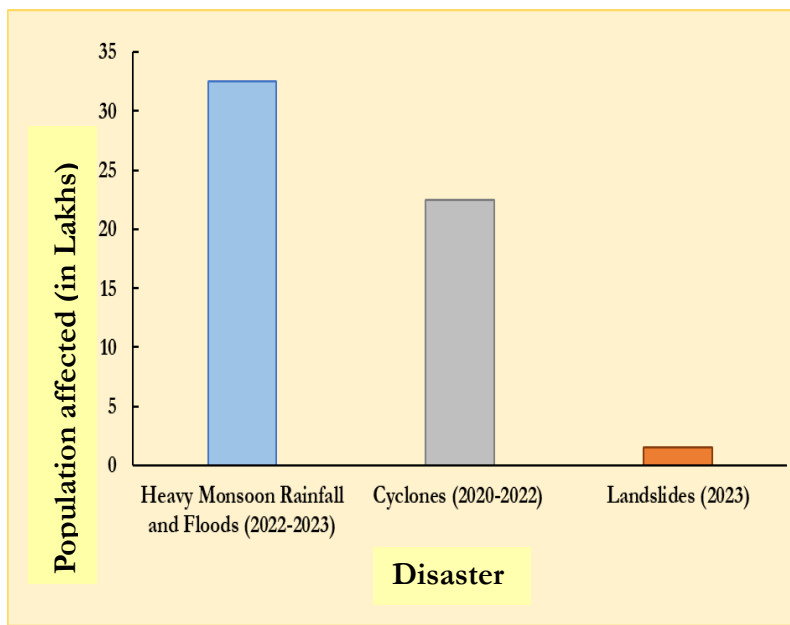
Data Source: Internal Displacement Monitoring Centre (2023); United Nations Office for the Coordination of Humanitarian Affairs (2023);<sup>8</sup> and tabulated by the author.

**Table 2: Cyclone and Displacement**

<u>Disaster</u>	<u>Population Affected</u>	<u>Worst-Hit Areas</u>
<b>CYCLONE [Amphan (2020), Yaas (2021), Tauktae (2021), Gulab (2021), Asani (2022), Mandous (2022)]</b>	<b>Above 22 lakhs</b>	Odisha, West Bengal, Jharkhand, Andhra Pradesh, Tamil Nadu, Puducherry

Data Source: United Nations Office for the Coordination of Humanitarian Affairs (2020); The International Charter Space and Major Disasters (2021); Business Insider India (2022); Internal Displacement Monitoring Centre (2023);<sup>9</sup> and tabulated by the author.

**Figure 1: Disasters and Displacement (2020-2023)**



Data Source: Tables 1, 2, and 3; and prepared by the author.

**Table 3: Landslide and Displacement**

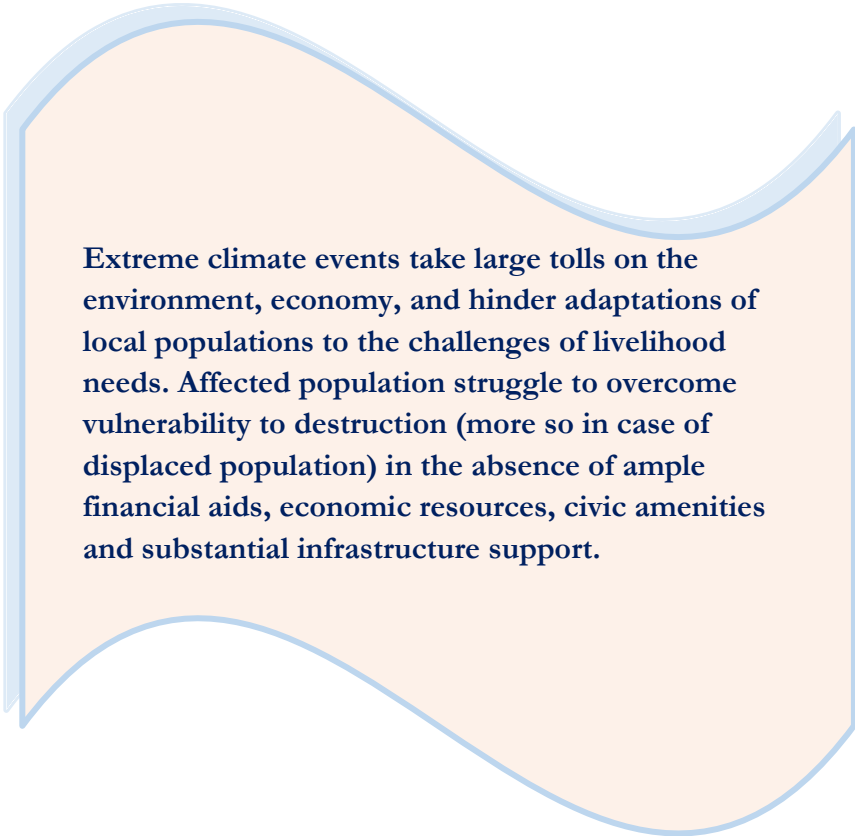
<u>Disaster</u>	<u>Population Affected</u>	<u>Worst-Hit Areas</u>
Landslide (2023)	More than 1 lakh	Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Maharashtra, Karnataka

Data Source: Internal Displacement Monitoring Centre (2023); India Today (2023); United Nations Office for the Coordination of Humanitarian Affairs (2023);<sup>10</sup> and tabulated by the author.

Cases of sudden loss of soil layers in highland regions, river bank erosion in upper and middle courses, water-logging, and flash floods, have increased in various parts of India this year. To the dismay of many, hydro-meteorological episodes that were unheard of, or unusual in certain kinds of landscapes, have now spread wings and taken to battering people's lives.

### Cyclones and Displacement

Climate disasters have surged in numbers and severity. Cyclone Amphan in 2020 had displaced more than 1 lakh people.<sup>11</sup> Cyclones Yaas, Tauktae and Gulab in 2021 were reported to have displaced more than 20 lakh persons, with Tauktae alone displacing above 2 lakh persons, while it affected the western states of Kerala, Karnataka, Goa, Maharashtra, Gujarat and the islands of Lakshadweep the worst.<sup>12</sup>



Extreme climate events take large tolls on the environment, economy, and hinder adaptations of local populations to the challenges of livelihood needs. Affected population struggle to overcome vulnerability to destruction (more so in case of displaced population) in the absence of ample financial aids, economic resources, civic amenities and substantial infrastructure support.

In India, cyclones were less severe in terms of wind speed and damage incurred, in 2022 (compared to 2020 and 2021). Cyclone Asani, had driven more than 1,500 people out of homes in Andhra Pradesh and Cyclone Mandous displaced above 9,500 in Tamil Nadu, Andhra Pradesh and Puducherry in 2022.<sup>13</sup> The scale of damage and destruction has been reduced in case of the last few cyclones in 2021, 2022 and 2023, with timely evacuation to storm shelters and safer grounds.

Planning policies and assessing their effectiveness for climate protection and displacement is challenging due to innate changes and effects of disasters that are at times interconnected, work in combination, and other times occur singularly, but manifest a domino effect and impact multiple drivers of displacement (direct and indirect).

## CURRENT POLICIES

Several plans, programmes and policies have been adopted in India, aimed at reducing air pollution, strengthening water conservation, crisis management, disaster response and action plan for climate change. The following section briefly reflects on a select few.

The **National Clean Air Programme (NCAP)** launched in 2019 for Indian cities has seen concentration of Particulate Matter (PM<sub>2.5</sub>) reducing by a few units in 48 cities, while also increasing in 34 cities;<sup>14</sup> while this programme aims at the involvement of local stakeholders to reduce the pollution levels, however, the success of the programme remains subject to the methods of implementation and the effectiveness with which the understanding, perception and knowledge of stakeholders are used for local environmental problems and climate issues.

**Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Phase 2** (since 2021) focuses on the universal coverage of water supply for more than 500 cities with the objective of making the cities 'self-reliant' and 'water secure', together with Water Balance Plan aimed at water reuse and conservation.<sup>15</sup>

The **Draft National Water Policy 2020** recommends among several other changes, a shift in the irrigation water fee from crop or acreage or season to a volumetric basis, in which case farmers are supposed to be charged a fee based on the volume of water they use, rather than a fixed amount paid, regardless of the quantity of water consumed.<sup>16</sup> One of its targets is control of the consumption of irrigation water and shift of acreage from 'water-intensive' to 'low water consuming crops'.

The **National Crisis Management Plan 2022** for drought, asserts that the state governments are expected to follow the guidelines in the drought manual with the objective of transparent and timely declaration of drought, with the public distribution system acting as the means to ensure protection of vulnerable groups in rural areas, and assurance of relief,



loan and subsidies in case of declaration of droughts.<sup>17</sup>

India's **National Action Plan on Climate Change (NAPCC)** launched in 2008, outlines several national-level missions on climate change including missions for harnessing solar energy, energy efficiency, sustainable habitat, water, sustaining the Himalayan ecosystem, increasing forest cover, sustainable agriculture, and strategic knowledge for climate change.<sup>18</sup> This Action Plan is aimed at working on the alterations of distribution and quality of natural resources and their adverse effects on livelihoods, due to climate change.

The **National Action Plan for Climate Change and Human Health in 2018**,<sup>19</sup> further added (to the 2008 Action Plan), programmes on healthcare, waste conversion, protection of coastal areas, utilisation of wind energy and decrease of urban heat island effect. The plan, however, has limited scope in terms of initiatives and schemes for protection of displaced population, specifically recovery and rehabilitation in case of mass scale damages by extreme weather events.

Approaches to policy appraisal require the assessment of the factors that trigger environmental damages, changes in ambient air temperature and water regimes, and augments the urgency of green transition.

Incessant rain for prolonged periods and sudden surge of water levels in rivers and dam reservoirs cause displacement, and the loss of life and property, and livelihood; in this purview planning for protection schemes and approaches for minimising the magnitude of damage due to displacement, calls for attention, in the context of growing incidences of deluge.

## THE WAY FORWARD

- ✓ Transformative changes essentially require the exercise of questioning objectives and processes, and raising concerns on the techniques, planning approaches and methods, and policy initiatives that can be implemented differently.

- ✓ New methods that can be possibly introduced for protection of environment and those displaced by ruptures in environmental conditions are significant for the protection of vulnerable communities, and also pivotal for strengthening climate resilience.
- ✓ The effectiveness of policies and models applied by governing agencies and stakeholders, entail coordination at multiple administrative levels and tiers of governance.
- ✓ In case of limited number of policies for protection of environment and displaced persons, disaster resilience and climate action plan, may attempt to incorporate measures that aim at targeted vulnerable communities and disaster hotspots in the country.

Migration and displacement in India are results of a number of socio-economic and structural factors in combination with or magnified by rapid (sudden) changes in the environment, or slow onset of the impacts of climate change such as delayed monsoon, cyclones, floods, droughts or water scarcity.

## Adaptation and Finance

- ➔ Identification of physical settings (topography /land) and the associated vulnerable communities is vital for climate adaptations; this encourages informing and involving people affected by sudden climate events, who would be benefitted if included in national and local plans, for meeting their needs. Stakeholders' access to finance, healthcare services and possible external fundings are crucial for encouraging locally-led adaptations and resilience, more so for the post-disaster phase.
- ➔ It is a necessity for metropolitan cities (with population above 1 million) to allocate budget for planning, renewal and redevelopment of city drainage network that are capacitated to hold and channelise excess rainwater during long periods of rainfall.
- ➔ Bringing down the number of vehicles plying the roads is one way of reducing vehicular exhaust. Tax incentives for adoption of zero-emission vehicles and use of public modes of transport, including the extension of mass transit networks, could be considered while planning policies, as part of green transition.

## Urban Planning

- ➔ Humanitarian, sustainable development, environmental and climate protective approaches should be aimed at weaving coherence between aspects of transport, city development, health, public awareness, environmental education, etc. It is equally important to bind together cooperation, coordination, joint initiatives and supervision of the execution of projects at ground level, in such a manner that does not leave gaps between the departmental enterprises.
- ➔ Collaborations between ministries such as Ministry of Road Transport and Highways, and Ministry of New and Renewable Energy, binding initiatives such as the National Clean Air Programme 2019, are significant for working on the gaps in planning, usage of resources and amenities in urban areas that ultimately intensify the magnitude of damages due to climate disasters.
- ➔ City specific strategies, policy formulation for capacity building, training programmes and thereby extending the benefits from the involvement of local stakeholders to the regional and state pollution control boards, urban local bodies and environment departments, are essential.

## Energy Transition

- Greenhouse gases, ozone, and particulate matter causing air pollution, also as climate forcers have the potential to affect and change climatic patterns due to their atmospheric warming or cooling effects. Thereby, adoption of strategies that help to control and reduce emission levels of pollutants is crucial.
- Green transition gives weightage to switching from conventional energy sources to green energy technology to initiate small-scale green capacity, that helps to vitalise the local economies and generate income.
- Green energy production and transmission such as solar energy use, has a wide scope of development and benefits in the country compared to its current utilisation. Thus, pollution abatement-specific interventions like emphasis on solar energy potential, and budget allocations for extensive harness of solar power is important for reduction of pollution.

## Infrastructure in Hilly Regions

- ➔ Prior registration for tourists and stricter requisites for real estate development in tectonically sensitive, project affected areas and resource-scarce settlements in mountainous and hilly terrain may be planned after environmental and social impact assessments.
- ➔ Planning in the mountains to promote tourism, resource accessibility, infrastructural development projects including transport connectivity, should weigh sustainable alternatives and options that limit footfall, to bring down carbon footprints.
- ➔ With glaciers receding and mountain streams drying-up and disappearing due to warming of surface temperatures at high elevations, vehicular emissions and waste generation and management in hilly regions require action plans for immediate control and reduction of pollution.

## CONCLUSION

Inclusive development, keeping in sync with Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA), and the coordination, joint supervision and monitoring of multiple administrative departments, in conjunction with the

involvement of and supervision by regional development authorities, is essential for engaging with effective climate action plans. Filling-in gaps in terms of liabilities and entrusted responsibilities is indispensable, especially in the aftermath of disasters when the post-disaster demands for provisions of relief, resettlement, and rehabilitation set-in. Setting aside funds for green industries is also the need of hour with budget-allocation, subsidies and technological expansion for 'green vehicle' and the transition from fossil fuels. Air pollution and urban heat island generation have multiplier effects on ambient air warming, resulting into slow-onset drivers of climate-induced disasters. Therefore, green transition aimed at reduction of carbon emission, low emitting infrastructure and harness of renewable energy resources, are necessary remedies to control and bring down the concentration of air pollutants in ambient air. In addition to hydro-meteorological hazards, like floods, droughts, and cyclones, levels of air pollutants in ambient air also play a major role in influencing micro-climate and daily weather events. Hence, monitoring of data on air pollutants (daily, monthly and annual) besides the scrutiny of factors affecting infrastructural, and land-cover and land-use changes – play important role in shaping policies for striving against climate change. India still has a long way to go in planning for the challenges of climate transition and its interface with society, and strengthening communities at the economic and social frontiers, as well as immediate environmental surroundings. Risk perception and analysis of the underlying causes that intensify hazard risk, notions of vulnerability and capacity-building in the context of disaster risk reduction and susceptibility to disasters are a few points for consideration; these call for attention towards planning and development of weightage for risk factors and resilience assessment for disaster mitigation, emergency management and rehabilitation.



**Author:**

*Shatabdi Das is Researcher with the Calcutta Research Group, Kolkata. She has a Ph.D. in Geography from the University of Calcutta. She was previously Junior Research Fellow at the Centre for Urban Economic Studies (CUES), University of Calcutta (2013-2014), Lecturer in Geography at Sarsuna College in Kolkata (2014-2017), and Visiting Fellow at the Institute for Human Sciences (IWM), Vienna, Austria (April 2022). Her research has been published in journals and edited book volumes. She has been working on themes of urban development, environment, migration, displacement, climate crisis, and disaster management in megacities.*

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**Mahanirban Calcutta Research Group**

**IA-48, Sector-III, Salt Lake**

**Kolkata-700097, West Bengal , India**

**Tel: +91-33-23350409, Fax: +91-33-23351522**

**Email: [mcrg@mcrg.ac.in](mailto:mcrg@mcrg.ac.in)**

**Website: [mcrg.ac.in](http://mcrg.ac.in)**