

# **2-DAYS RESIDENTIAL PROGRAMME ON INTEGRATING CLIMATE CHANGE ADAPTATION IN DISASTER RISK REDUCTION FOR COASTAL AREAS IN GUJARAT**

**Date: 18th – 19th April, 2023**



**Venue: Gujarat Institute of Disaster Management,  
Gandhinagar - 382007, Gujarat (INDIA)**

## 1. BACKGROUND

Oceans and coasts have a significant role in supporting human lifestyles, the environment, and the global economy. Coastal habitats are found where both the terrestrial and marine environments converge. They contain some of the planet's most varied and dynamic landscapes. Human populations are drawn to these habitats because coastal areas serve as a hub for economic development and provides for the majority of the world's infrastructure, trade, energy production, tourism, and leisure activities.

Over 40% of the world's population—or about 2.7 billion people—live in or near the coastal zone, which results in having an influence on coastal communities, ecosystems, and many aspects of people's life. Coastal areas have encountered a plethora of issues over the years such as population increase, habitat change, resource over-exploitation and degradation, water pollution, and changes in freshwater flows and such issues have increased rapidly with the advent of climate change. Climate change is the result of the greenhouse effect, which was sparked by the rise in the Earth's temperature. Rapid increase in the average global temperature, modifications in cloud cover and precipitation, melting of ice caps and glaciers, decreased snow cover, as well as increase in the ocean temperatures and ocean acidity, are some of the major concerns of climate change.

It is anticipated that most of the concerns of climate change has constant strains on the coastal areas and it is being amplified regularly. This in turn makes it more crucial and urgent to incorporate coastal adaptation into efficient management of coastal areas. As a result of these facts, many people believe that climate change is one of the biggest problems of the twenty-first century and that administrations monitoring the coastal areas should take rapid action to address such issues. It has been examined that most of the human populations choose to reside near the coasts and thus, due to this reason, it has become urgently necessary to take proactive measures to adapt to climate change in the coastal areas, especially in the state of Gujarat.

### **Extreme weather impact on Gujarat**

Gujarat, with its 1,663 kilometres of coastline and 9.9 million residents living in 40 coastal talukas, is India's longest coastline (Census, 2011). Due to its vulnerability to the effects of sea level rise, cyclones, saline intrusion, and changes in fish spawning patterns, Gujarat may experience future migration and the displacement of people due to climate change (UN's World Migration Report, 2020). Temperature trends will be affected by climate change, which will also increase the frequency of extreme temperature events. The World Bank predicts that 19 of Gujarat's 26 districts might experience a 2-2.5°C temperature increase by 2050, making them climate change hotspots.

Extremes in temperature, precipitation, and sea level are Gujarat's key climate change hazards. These have varying effects on infrastructure, population groupings, different economic sectors, and agriculture. 50% of the working population is employed in the agriculture industry, which also accounts for 9.5% of the nation's GDP. With 26.9 million livestock, heat stress and declining grasslands could reduce output in the livestock and animal husbandry sector. For daily necessities, a sizeable population depends on access to forests. Gujarat's distinctive ecosystems

are supported by the Kutch and Saurashtra regions, which are particularly environmentally vulnerable because to climate change, desertification, and habitat loss.

## 2. WHY IS CLIMATE CHANGE ADAPTATION IN DRR IS IMPORTANT?

Natural hazards by themselves do not cause disasters—it is the combination of an exposed, vulnerable and ill-prepared population or community with a hazard event that results in a disaster. Climate change will therefore affect disaster risks in two ways: firstly, through the likely increase in weather and climate hazards and effects of sea-level rise; and, secondly, through the increases in vulnerability of communities to natural hazards resulting from ecosystem degradation, reductions in water and food availability and changes to livelihoods. Climate change will thus add another stress to those of environmental degradation and rapid, unplanned urban growth, further reducing communities' abilities to cope with even the existing levels of weather hazards.

It is difficult to provide projections of all the disaster-related effects of climate change, owing to the intrinsic uncertainty in the climate projections, the diverse and rapidly changing nature of community vulnerability, and the random nature of individual extreme events. However, there is a great deal of information from past events that can be extrapolated to the conditions projected by the IPCC to estimate the likely disaster-related consequences in general terms, as follows:

- i. More heatwaves will increase the number of deaths, particularly among the elderly, the very young or among people who are chronically ill, socially isolated or otherwise especially vulnerable;
- ii. Increased drought in some regions will likely lead to land degradation, damage to crops or reduced yields, more livestock deaths and an increased risk of wildfire. Such conditions will increase the risks for populations dependent on subsistence agriculture, through food and water shortage and higher incidence of malnutrition and water- and food-borne diseases, and may lead to displacements of populations;
- iii. Increased frequency of high precipitation in some regions will trigger floods and landslides, with potentially large losses of life and assets. These events will disrupt agriculture, settlements, commerce and transport and may further increase pressures on urban and rural infrastructure;
- iv. Possible increases in the number and intensity of very strong tropical cyclones will affect coastal regions, with potentially additional large losses of lives and assets;
- v. Sea-level rise, coupled with coastal storms, will increase the impacts of storm surge and river flooding and damage livelihood systems and protective ecosystems. Low-lying settlements may become unviable, which may result in increased potential for movement of population and loss of infrastructure;
- vi. Higher temperatures and melting glaciers may cause glacial lake outbursts that could flood downstream settlements.

**Disaster risks have risen over recent decades, and more extreme weather conditions in future are likely to increase the number and scale of disasters.**

At the same time, the existing methods and tools of disaster risk reduction, and climate risk management in particular, provide powerful capacities for substantially reducing risks and adapting to climate change

According to the landmark Global Assessment Report on Disaster Risk Reduction Risk and Poverty in a Changing Climate, which was launched on 17 May 2009, our exposure and vulnerability to weather and climate hazards are growing, resulting in continued rises in the numbers and costs of disasters. Disaster risk is accumulating largely as a result of unplanned settlements and environmental degradation, though climate change is also beginning to show its hand. The poor have the most to lose in a disaster, both as individuals and as countries, as they lack the information, resources, capacities and social safety nets needed to protect their assets and livelihoods.

### 3. TARGET PARTICIPANTS

S.No.	Department/Organizations	Level of Participants
1	Agriculture & Co-Operation Department <ul style="list-style-type: none"> <li>• Directorate of Agriculture,</li> <li>• Directorate of Animal Husbandry,</li> <li>• Commissioner of Fisheries,</li> <li>• Gujarat Livestock Development Board</li> </ul>	L1, L2
2	Panchayat, Rural Housing & Rural Development Department, <ul style="list-style-type: none"> <li>• Gujarat Livelihood Promotion Council</li> </ul>	L1, L2
3	Climate Change Department	L1, L2
4	Water and Sanitation Management Organisation (WASMO)	L1, L2
5	Local NGO's and CBO's	L1, L2
6	Forest & Environment Department,	L1, L2

### 4.OBJECTIVES OF THE TRAINING PROGRAMME

- To develop a thorough understanding regarding the recent concepts and trends in the field of Disaster Risk Reduction.
- To enhance the awareness of participants regarding extreme weather events, current & future climate change impacts.
- To promote nature-based solutions for increase the resilience in the coastal areas.
- To develop the sectoral capacity for building resilience
- To increase awareness about emerging technologies and innovations in climate change adaptation and DRR.
- To encourage the integration of Climate Change Adaptation in DRR for sustainable development.