

# Getting Climate Smart for Disasters in Coastal Regions

## EMERGING POLICY BRIEF

Based on Workshop and Round Table Organised on Dec 10, 2013, New Delhi

### Background

Long term linear trend (1891-2013) in frequency of tropical cyclones over the North Indian Ocean as a whole, the Bay of Bengal and the Arabian Sea for different seasons, generally show a significant decreasing trend. However, an increasing trend is observed in the frequency of tropical cyclones forming over the Bay of Bengal in the months of May and November, the principal cyclone months<sup>1</sup>.

Keeping Phailin as an event that happened recently in the background, the role of India Meteorological Department in cyclone warning has been widely appreciated as it now has the scientific and technical capacities to track cyclones to a high degree of precision and can advise the state governments continually from at least 7 day prior till their land fall. This early warnings helped the government to evacuate affected population *enmasse* in time before Phailin land fall in Odisha. The evacuation was done by the RAF of the NDMA, and the Indian Army. IMD has now access to state of the art observation and modelling systems in partnership with various developed countries like USA and France that will enable it to continue to make more precise forecasting for all other future cyclonic events. However, damages to housing, agriculture, communication systems, electrical infrastructure and roads has occurred (see Box) and will continue to occur in development is *business as usual*.

Future projections based on theory and high-resolution dynamical models consistently indicate that greenhouse warming will cause the globally averaged intensity of tropical cyclones to shift towards stronger storms, with intensity increases of 2–11% by 2100<sup>2</sup>. Existing modelling studies also consistently project decreases in the globally averaged frequency of tropical cyclones, by 6–34%. Higher resolution modelling studies typically project substantial increases in the frequency of the most intense cyclones, and increases of the order of 20% in the precipitation rate within 100 km of the storm centre<sup>2</sup>.



### Cyclone Phailin

In October 2013, a very severe cyclone Phailin with a wind speed of 210-220 km/hr struck the coast of Odisha. Phailin triggered India's biggest evacuation operations in Odisha in 23 years evacuating 1.15 million people. Post Phailin assessment indicates that about 12 million people in 18,117 villages and 43 ULBs were affected in Odisha. Crop area affected was 0.7 million ha, and about 200,000 rural houses were partially or fully damaged. Communication was disrupted. Roads and power infrastructure was damaged. Immediate relief included shifting to cyclone shelters, food, medicines, emergency shelter material (tarpaulin for fixing roofs) and access to clean drinking water.

Source: IMD Report on Phailin. Oct 2013. Brought out by Cyclone Warning Division, IMD, MoESc, GoI,

<sup>1</sup> Niyas, Srivastava and Hetwar, Variability and trends of cyclones in the North Indian Ocean, Met. Monograph No. Cyclone Warning - 3/2009

<sup>2</sup> Thomas R. Knutson<sup>1</sup>, John L. McBride, Johnny Chan, Kerry Emanuel, Greg Holland, Chris Landsea, Isaac Held, James P. Kossin, A. K. Srivastava & Masato Sugi. Nature Geoscience, 3, 157 - 163 (2010) . Published online: 21 February 2010 | doi:10.1038/ngeo779

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### Policy Brief

Considering that the intensity of cyclones is likely to increase in the future, damages are likely to get exacerbated. These can be avoided if appropriate steps are taken to update the developmental plans of the various sectors of the economy of the region to accommodate cyclone preparedness in the context of the changing nature of the climate.

ICSD, in collaboration with AIDMI and IDS, organised a one day workshop on **“Getting Climate Smart for Disasters in Coastal Regions”** on **10th Dec 2013** in New Delhi under the aegis of the project they are doing on, supported by START-CDKN, to explore the opportunities for integrating the changing nature climate in development in coastal region susceptible to cyclones. **The workshop had representation from the highest policy and research such NDMA, MoEF, NIDM, MoES, DST, Delhi government, and IMD. In addition the bi-lateral institutions such as GIZ, SDC, IDRC along with prominent national and local NGOs such as TERI and SWAD and Consulting companies participated in the event.**

In order to understand the opportunities of integration, the following key questions were explored:

- Q1. How can cyclone disaster risk mitigation in a climate change context be integrated in planning?*
- Q2. What can be the steps towards ensuring food security in cyclone prone coastal areas?*
- Q3. How are the choices to be made for long term sustainable adaptation and risk reduction?*

### **Q1. How can disaster risk mitigation in a climate change context be integrated in planning?**

India prepared its National Action Plan on Climate Change in 2008 with eight missions focussing on adaptation and mitigation of climate change. Subsequently all states and union territories are preparing their respective plans. The responsibility of preparing this at the centre lies with the MoEF, but disaster management is the responsibility of the National Disaster Management Authority. Strategies planned within the SAPCC’s need to be either reviewed by the respective State Disaster Management Authorities or the SDMA needs to be part of the different working groups that have been formed to design the adaptation strategies for different sectors. In many of the states this is not the case. Despite this gap, there exists multiple opportunities through which this integration can be done. The discussions during round table session in the workshop lead to the emergence of the following avenues through which disaster risk mitigation in a climate change context can be integrated into planning.