Speech: Workshop on climate risk management strategies for Kolkata

Ladies and Gentlemen

It is a great pleasure for me to be here at the workshop on climate risk management strategies for Kolkata. It is my first official visit to Kolkata Municipal Corporation (KMC). And I must say that like my predecessors I am too very impressed by KMC's enthusiasm and genuine interest in embracing new concepts and emerging ideas when it comes to addressing climate vulnerability of this great city.

The UN estimates that there are 3,351 cities located in low-elevation coastal zones around the world. The top 10, in terms of population exposed to coastal flood hazard, are Mumbai, Guangzhou, Shanghai, Miami, Ho Chi Minh City, Kolkata, New York, Osaka-Kobe, Alexandria and New Orleans. The cities of Tokyo, New York, Mumbai, Shanghai, Kolkata and Buenos Aires are the most vulnerable to storm surge.

India is one of the world's most vulnerable countries. It has faced several types of extreme weather events in 2015 and 2016 – from floods to unseasonal rainfalls to deadliest heat-waves to snow storms. As per a report by Earth Security Group, India is incurring losses of about US $9-10 billion annually due to extreme weather incidents.

In 2015, the heaviest rainfall in over a century caused extreme flooding in Tamil Nadu leading to an estimated US$ 710 million in insurance claims.

Climate risks, as we all know, have the potential to severely dent urban systems and pose serious threats to urban infrastructure and importantly the life of citizens. This is especially true for cities like Kolkata that are more susceptible to the effects of climate risk which imposes both social and economic costs. Cyclone Aila, in 2009, left 150,000 people homeless and without livelihood in this part of West Bengal. Lloyd's City Risk Index has estimated that storms and floods will put a huge burden on Kolkata's GDP.

Many of you would be aware that under our UK-Kolkata Municipal Corporation Programme on low carbon and climate resilient Kolkata, PwC and TARU conducted a GIS-based and ground level survey to assess the level of climate risks the city is exposed to and came up with a Climate-Induced Disaster Management Plan for the city. You will get a glimpse of this interesting management strategy later in the session when TARU presents key highlights and recommendations. There is one recommendation that I would like to mention here which is directly linked to this workshop today—and that is of climate risk insurance.

With a large urban poor population and majority of urban infrastructure exceedingly vulnerable to climate risks, it is important for cities to prepare for calamities and safeguard citizens and investments through

innovative approaches. One such approach is the use of advanced climate modelling and risk assessment at the municipal level coupled with effective insurance tools built into the city's disaster recovery and relief schemes.

On climate modelling, we are exploring ways of using the expertise of UK Met Office.

And on risk assessment, we have undertaken this study with PWC to:

- understand the extent of climate risks faced by urban infrastructure in five pilot Indian cities – Kolkata, Chennai, Pune, Patna and Kochi
- sensitise key stakeholders on the importance of and options for mitigating climate induced risks for infrastructure through risk insurance

This workshop is part of this endeavour.

We need to work together to strengthen resilient policies of cities against climatic events. We need to support and help each other to invest in risk reduction and introduce innovative steps and technologies to enable cities cope with disasters.

Further information

Climate Smart Disaster Management Strategy for Kolkata: A project was recently undertaken for preparation of a climate smart disaster management strategy for Kolkata under the UK KMC memorandum of understanding (MoU) for low Carbon and climate resilience Kolkata. The project was implemented by PwC and TARU Leading Edge Pvt Ltd.

The project aimed at analysing implications of climate change for extreme weather in the city, understanding the city's preparedness for extreme events, and recommending an action plan for better preparedness and management to reduce current and future vulnerabilities taking into account the on-going disaster risk management efforts.

As part of the climate vulnerability assessment under this project, a ward level mapping of climate vulnerabilities was done in a sample of 5 wards in Kolkata. The methodology adopted combined ground level surveys coupled with satellite imagery, as well as community engagement and participation to arrive at conclusions on vulnerability as well as local needs with respect to climatic disaster preparedness.

Key findings of the study depicted the following:

- on an average, 2 extreme rainfall (~64 to124 mm) events were found to occur every year ranging from 0 to 11 days per year. Most of the city drains are old and were designed to carry much less volume – probable rainfall of a quarter inch (6 mm) an hour or 150 mm in a day. The absence of adequate drainage infrastructure makes the city highly vulnerable to flooding – with low income settlements being particularly affected during cyclones and floods.

- on an average around 21 man days per employee are lost in a year. Poor especially daily wage earners are disproportionately more affected by these events. Skin diseases and water borne diseases affect majority of the households on an annual basis. Informal economies (primarily hawkers) report a revenue loss of 30% during water logging periods.

- simulations of Kolkata comparable to rainfall levels in Chennai during recent floods (2015) indicate that more than 90% of the city will be flooded, most affected regions being the west, south and northern parts of the city.

- Heat Island Effect evident – The city is also vulnerable to climate induced heat island effect especially in pockets where dense urbanisation has taken place. {The city's open space has declined from 25% (1990) to 10% (2012)}. Heat island assessment as part of the project indicated a temperature difference to the tune of 2-6 degrees between different areas within the city during peak summers.

Some of the key recommendations include:

- establishment of Early warning systems and emergency operation centres
- augmenting number of automated weather monitoring stations and river gauge stations across the city
- installation of Automated tidal flow prevention systems at locations where storm water drains / sewage connect with the canals / river
- effective drainage area planning
- widening of roads to ensure minimum access roads for fire brigade and ambulances
- ward-level stormwater management measures to encourage preventative action, including behavioral change amongst residents so as to encourage the safe disposal of waste
- Heat and Health Action Plan for the city to address public health impacts of heat island effect.

KMC has already gone ahead with implementation plans and would be soon commencing work on establishment of early warning systems, drainage area planning through climate smart landuse planning, and capacity building, with support from an international funding agency.

Similarly, as part of follow up action on the project, UK government has also initiated a project aiming at building financial resilience of 5 Indian cities including Kolkata, through introduction of tools such as climate risk insurance to safeguard infrastructure investments by the city.

The findings of the disaster management study were presented at a stakeholder workshop on climate risk management held at KMC on 16 February 2017. The workshop discussed the key findings and recommendations of the disaster management study and future action plan by KMC for better disaster preparedness of the city.

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