Inputs for hearing in Hon'ble NGT

A report "India's sinking islands" was published in Newpaper 'The Hindu' on 17.03.3023 and updated report on 23.03.2023. The Hon'ble NGT took suo-moto cognizance of the report and listed matter for hearing on 13.04.2023 but adjourned the matter to the next date of hearing on 11.07.2023. The newspaper report is attached herewith for kind perusal.

The report highlights that Several of the country's 1,382 islands are under siege from unseasonal cyclonic storms, sea erosion and new development projects.

India's average temperature has risen by around 0.63°C during 1901–2021. This rise in temperature is largely on account of GHG-induced warming, partially offset by forcing due to anthropogenic aerosols and changes in LULC. Intergovernmental Panel on Climate Change (IPCC) provides unequivocal evidence for the role of anthropogenic forcing in driving the observed warming of the Earth's surface by about 1^{o}C during the last 150 years. Consequences of this warming have already manifested in several other global-scale changes such as melting glaciers, rising sea levels, changing precipitation patterns, and an increasing tendency of weather and climate extremes. These changes are projected to continue through the twenty-first century, as the GHG concentrations continue to rise.

Sea Level Rise

The global average sea level rose by 19 cm from 1901 to 2010. The average rate of rise measured by satellites has been 3.2 [2.9–3.5] mm/year since the 1990s up from 1.7 [1.5–1.9] mm/year during the twentieth century, obtained from historical tide gauge records. Thermal expansion and glacier melt because of anthropogenic global warming have been the major drivers of rise in global sea levels over the past century. Sea-level rise in the North Indian Ocean (NIO) occurred at a rate of 1.06–1.75 mm per year during 1874–2004 and has accelerated to 3.3 mm per year in the last two and a half decades (1993–2017), which is comparable to the current rate of global mean sea-level rise. At the end of the twenty-first century, steric sea level in the NIO is projected to rise by approximately 300 mm relative to the average over 1986–2005 under the RCP4.5 scenario, with the corresponding projection for the global mean rise being approximately 180 mm.

Many national and international research organizations, and multilateral institutions continue to assess issues related to sea-level rise in keeping with regularly updated data and increased scientific knowledge on the subject. the World Meteorological Organization has published 'Global Sea-Level Rise and Implications' in February 2023. Changes in sea level take place over time spans of several decades to centuries and the determination of the exact rate of change is subject to uncertainties.

Based on the statistics during 1891-2021, on an average 5 cyclones develop over north Indian Ocean (NIO), [the Bay of Bengal and Arabian Sea together] in a year with 4 developing over Bay of Bengal (BoB) and 1 over Arabian Sea (AS). A decreasing trend observed in the total number of Cyclonic Disturbances (CDs – Cyclonic Storms and depressions put together) during the period 1951 – 2021. This is consistent with the significant decreasing trend in the CDs for the Monsoon and post monsoon season as well as in the annual frequency. Climate models project a rise in the intensity of tropical cyclones in the NIO basin during the twenty-first century.

Indian National Centre for Ocean Information Services (INCOIS), Ministry of Earth Sciences has prepared the Coastal Vulnerability Index (CVI) maps for the entire coastline of India at a 1:100000 scale by using parameters such as

shoreline change rate, sea-level change rate, coastal elevation, coastal slope, coastal geomorphology, significant wave height and tidal range. Other studies have been done on Multi Hazard Vulnerability Mapping to identify potential areas of coastal inundation for the mainland of India at a 1:25000 scale using data on extreme water levels, coastal erosion, sea-level change, and high-resolution topography. Further, Ministry of Earth Sciences under the Integrated Coastal Zone Management Project (ICZMP) has demarcated the hazard line along the entire coastal belt of the country, including the intertidal areas. The hazard line is indicative of the shoreline changes, including the sea level rise due to climate change and is a projection of impact due to sea level rise, and shoreline changes over along period of time viz. over 100 years. This line is to be used by the Coastal State agencies concerned as a tool for Disaster Management for the coastal environment, including planning of adaptive and mitigation measures.

The mangrove cover in the country is rising and has increased 71 square km. between 2017 and 2021. The promotional measures are being implemented through a central sector scheme namely conservation and management of mangroves and corals under National Coastal Mission Programme. Under this Programme, projects for conservation and management of mangroves are formulated and implemented in the participating coastal States and Union Territories. Regulatory measures are implemented through Coastal Regulation Zone (CRZ) Notification (2011 & 2019) under the Environment (Protection) Act, 1986; the Wildlife (Protection) Act,1972; the Indian Forest Act, 1927; the Biological Diversity Act, 2002; and rules under these Acts as amended from time to time.