

Press Release

Coastal land at risk of getting submerged by 2040, says study

Think tank analysis predicts that more than 10% of the land in Mumbai; 5%–10% in Panaji and Chennai; and 1%–5% in Kochi, Mangaluru, Visakhapatnam, Udupi, and Puri are at risk due to increasing sea levels

For Immediate Release

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Climate change brought on by fossil-fuel burning and greenhouse gas emissions has led to a steady increase in global temperatures. As a result, sea surface temperatures and glacier melting have increased, eventually raising sea levels and posing a major threat to coastal cities worldwide, including Indian coastal cities. Many of these coastal cities in India are known to be major economic hubs with natural ports, cultural centres, biodiversity hotspots, and religious monuments. Thus, the continuing sea level rise calls for immediate action in terms of framing suitable adaptation and risk mitigation strategies.

A Bengaluru-based think tank, the Center for Study of Science, Technology and Policy (CSTEP), has published a report titled 'Sea level rise scenarios and inundation maps for selected Indian coastal cities'. The report presents information on changes in sea levels under historical and future climate scenarios for 15 Indian coastal cities and towns.

The study also looks into possible inundation areas in these cities under the Intergovernmental Panel on Climate Change's (IPCC's) medium- and high-emission Shared Socio-economic Pathway (SSP) scenarios for 2040, 2060, 2080, and 2100. The SSP scenarios explore how socio-economic factors such as population, education, and urbanisation might affect greenhouse gas emissions over the next century, thereby impacting climate change. The study considered Tier-I cities (Chennai and Mumbai), Tier-II cities (Thiruvananthapuram, Kochi, Mangaluru, Visakhapatnam, Kozhikode, and Haldia), and towns (Kanniyakumari, Panaji, Puri, Udupi, Paradip, Thoothukudi, and Yanam).

The report says that Mumbai has witnessed the maximum rise in sea levels (4.44 cm), followed by Haldia (2.726 cm), Visakhapatnam (2.381 cm), Kochi (2.213 cm), Paradip (0.717 cm), and Chennai (0.679 cm), from 1987 to 2021. Further, rise in sea levels will continue until the end of the century under all scenarios in all 15 cities and towns, with the highest rise predicted for Mumbai. By 2100, sea levels would rise by 76.2 cm in Mumbai, 75.5 cm in Panaji, 75.3 cm in Udupi, 75.2 cm in Mangaluru, 75.1 cm in Kozhikode, 74.9 cm in Kochi, 74.7 cm in Thiruvananthapuram, and 74.7 cm in Kanniyakumari even under the medium-emission scenario.

The study further highlights that more than 10% of the land in Mumbai, Yanam, and Thoothukudi; 5%–10% in Panaji and Chennai; and 1%–5% in Kochi, Mangaluru, Visakhapatnam, Haldia, Udupi, Paradip, and Puri would be submerged due to rise in sea levels by 2040. The percentage would be higher in 2100 in Mangaluru, Haldia, Paradip, Thoothukudi, and Yanam than in Mumbai and Chennai under the high-emission scenario.

As per the report, key sectors that will be impacted include water, agriculture, forest and biodiversity, and health. The beaches, backwaters, and mangrove forests are particularly at risk, impacting biodiversity and tourism. Further, Haldia, Udupi, Panaji, and Yanam—having significant agricultural areas, wetlands, and waterbodies—will face inundation due to rising sea levels.

In the face of climate change, this report presents crucial information for policymakers to draft city action plans accordingly.

The full report can be accessed [here](#).

For more details and interviews, please write to us at cpe@cstep.in.

About CSTEP: The Center for Study of Science, Technology and Policy (CSTEP) is one of India's leading think tanks, involved in solving Grand Challenges that the country faces. These include Sustainable and Secure Future, India's Green Energy Transition, Clean Air for All, and Digital Transformation.