

36 MILLION INDIANS FACE FLOOD RISK: STUDY

Relevant for: Environment | Topic: Environmental Degradation - GHGs, Ozone Depletion and Climate Change

The number of Indians who stand to be affected by rising sea levels may have been underestimated by as much as 88%, according to a study that uses a new modelling approach.

In India, 36 million people would face annual flooding by 2050 and 44 million by 2100 if emissions continue to rise unabated. Nearly 21 million — and not 2.8 million — are expected to be living below the High Tide Line, the boundary that marks the farthest to which the sea reaches into the land at high tide.

The study, which appears on Thursday in the peer reviewed scientific journal *Nature Communications*, employs a new software called CoastalDEM. Estimates on the risks posed by flooding now rely on detailed maps of the globe taken by the Shuttle Radar Topography Mission (SRTM), which was a radar mapping system that travelled aboard the space shuttle Endeavour in 2000.

The maps so prepared form the basis for determining the elevation of the earth's topography.

However, say the authors of the study, this approach overestimates the elevation of land surfaces and frequently miss. CoastalDEM, they claim, is more accurate and “reduces linear vertical bias from 4.71 m to less than 0.06 m”.

It does so because it uses more variables — vegetation cover, population indices — to estimate the actual land surface and more sophisticated modelling techniques, claim the authors Scott Kulp & Benjamin Strauss, of Climate Centre, an independent organisation of scientists and journalists working on climate change.

Below tide lines

Their analysis suggests that globally nearly 110 million people live on land below the current high tide lines and 250 million on land below annual flood levels, in contrast with SRTM-based estimates of 28 million and 65 million respectively.

Current climate studies say that climate change has caused global mean sea level to rise by 11-16 cm in the 20th century and is expected to by as much as 2 m by the end of this century. Other than India, the flood risk has also been underestimated for China at 93 million, as opposed to the current estimates of 29 million; Bangladesh at 42 million vs 5 million; Vietnam 31 million vs 9 million; Indonesia 23 million vs 5 million; Thailand 12 million vs 1 million.

“These assessments show the potential of climate change to reshape cities, economies, coastlines, and entire global regions within our lifetimes,” said Dr. Kulp in a statement.

“As the tideline rises higher than the ground people call home, nations will increasingly confront questions about whether, how much, and how long coastal defences can protect them.”

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