

A CLIMATE VULNERABILITY INDEX FOR INDIA ON THE ANVIL

Relevant for: Environment | Topic: Environmental Conservation, Sustainable Development, and EIA

The Department of Science and Technology (DST) will be commissioning a study to assess the climate risks faced by States in India. This follows an assessment of the global warming risks faced by 12 Himalayan States — and discussed at last year's U.N. climate change conference in Poland — that found States such as Assam, Arunachal Pradesh and Uttarakhand vulnerable to climate change.

“We eventually hope to have a climate portal, whereby users can zoom in on any district in the country and get a sense of what kind of risks — climate, socio-economic — are present,” said Ashutosh Sharma, Secretary, DST.

Common methodology

Last year the Indian Institutes of Technology (IIT) at Mandi and Guwahati, and the Indian Institute of Science (IISc), Bengaluru, coordinated with State authorities in Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Arunachal Pradesh, Sikkim, the hill districts of West Bengal, Himachal Pradesh, Uttarakhand and Jammu and Kashmir, to evolve a common methodology, and determine how districts there are equipped to deal with the vagaries of climate change.

The researchers prepared a ‘vulnerability index’ of each of these States based on district-level data. Vulnerability would be a measure of the inherent risks a district faces, primarily by virtue of its geography and socio-economic situation.

The scientists conducted workshops with the States and culled eight key parameters on the basis of which a vulnerability score could be generated. They included: percentage of area in districts under forests, yield variability of food grain, population density, female literacy rate, infant mortality rate, percentage of population below poverty line (BPL), average man-days under MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), and the area under slope > 30%.

On a scale ranging 0-1, 1 indicating the highest possible level of vulnerability, at the top of the scale were Assam with a score of 0.72 and Mizoram at 0.71, whereas Sikkim, with an index score of 0.42 was relatively less vulnerable. “This doesn't mean that States with a lower score are safe in an absolute sense. In fact, some districts in Uttarakhand [at 0.45 and at the lower end of the scale] are more vulnerable than those in Assam,” said Shyamasree Dasgupta, Assistant Professor, IIT-Mandi, one of the key authors of the report.

Different factors

Different factors contributed to a State's vulnerability. In Arunachal Pradesh, the key factors are low female literacy and high percentage of population above BPL whereas in Nagaland the key issues are loss of forest cover, steep slope and high yield variability.

Akhilesh Gupta, a senior coordinator of the initiative at the DST said that the over-arching aim of the analysis was to give actionable inputs to States.

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