

OPINION: Knowing what is at stake - Climate risk assessment for resilience and adaptation

Considering the climate crisis we are in right now, it is time the SAPCC and sub-regional climate actions are formulated on the basis of holistic and comprehensive climate risk assessments to enable effective and targeted adaptation measures, and build resilience.

By Tashina Madappa Cheranda

[Assam](#) is flooded again. But while floods are an annual occurrence in Assam, human actions like deforestation, encroachments, hill cutting, and destruction of wetlands have, over the years, aggravated their impact. To top it all, recent reports on [climate change](#) predict that the frequency and intensity of these floods will increase in the coming years. This apart, the first six months of 2022 have already seen intense heatwaves sear through the country, extreme rainfall trigger landslides in the Northeast, and cyclone Asani bombard the eastern coast of India.

It is easy to see that climate change is affecting the frequency, magnitude, and unpredictability of extreme climate events, making a case for building the resilience of natural and socio-economic systems. This is possible only if present and future climate risks—which according to the IPCC 2014 Risk Assessment Framework are a function of the probability of occurrence of hazard, exposure, and vulnerability—are assessed at a district and sub-district level, leading to the formulation of appropriate resilience-building and adaptation strategies that are location-specific.

Why understand climate risks?

Climate change will amplify the existing risks and create new risks for natural and socio-economic systems. These risks are unevenly distributed and experienced. They are often greater for the disadvantaged or marginalised people (particularly women and girls), and also depend on the geographic location of these communities or ecological systems, such as coasts or mountains. Failing to assess climate risks—current and future—can lead to resource wastage, or worse, maladaptation.

For cost effective and efficient adaptation, vulnerable communities or ecological systems that are exposed to present climate hazards and have a high probability of exposure to similar future events such as floods, droughts, heatwaves, etc., need to be identified and prioritised for targeted interventions, with the intent of increasing the resilience of these systems. Such interventions would address present vulnerabilities and lower future climate risks. A risk assessment provides an opportunity for climate-proofing existing and future developmental programmes (climate and non-climate)—offering value for money as the investments provide multiple benefits.

[Climate risk assessment](#): Efforts and challenges

Keeping in view the development in scientific and socio-economic knowledge and understanding, and the advanced perspectives on sustainable development and climate change, the [Ministry of Environment](#), Forest and Climate Change (MoEFCC) has mandated states to

revise their State Action Plans on Climate Change (SAPCC), adopting the latest data and methods for the assessment of different components of climate risk. Many states are currently revising their SAPCCs, and the assessment of current vulnerability for developing adaptation plans is being carried out. However, while addressing current vulnerabilities is a crucial first step in adaptation, it is far from enough.

[UNEP](#)'s latest Adaptation Gap Report highlights the blatant shortage of human and financial capital for dealing with climate change at a global level. Similarly, a 2020 working paper by a leading policy-research organisation working in the area of environment and sustainable development points to a noticeable lack of technical skill and financial capacity required to conceptualise and undertake climate risk assessments at the state level in India. As a result, states are still adhering to the decade-old common framework and outline provisioned by MoEFCC while revising their SAPCCs, and the three components of climate risk—hazard, vulnerability, and exposure—are not being delved into or integrated. As such, adaptation strategies continue to be formulated largely on the basis of current vulnerability alone.

Developing human capital for effective climate risk assessment

Climate risk assessment—a prerequisite for conceptualising and prioritising adaptation and risk-mitigating interventions—requires technical skills and knowledge of global best practices. Ability to transform climate data (rainfall and temperature) into hazard information (probability of occurrence of drought, floods, heatwaves, etc.); geographic information system (GIS) skills for mapping exposure (percentage area, assets, or infrastructure exposed to hazards); and skills for selecting and quantifying indicators for vulnerability assessments are some of the prominent technical skills needed. A grasp of global best practices entails an understanding of the systems thinking, life-cycle or design-life considerations (particularly for climate resilient infrastructure), developing and using adaptation pathways for decision making, and climate proofing the entire system.

Other measures

Creation of strong monitoring and evaluation frameworks and metrics for adaptation is an associated need. States currently revising their SAPCCs should strive to develop a climate risk framework, based on which all strategies are formulated. This would serve as a baseline for comparing and assessing the effectiveness of adaptation strategies formulated and implemented. It would also help states to transition beyond pilot adaptation projects and implement projects at scale for seeking dedicated climate finance.

Considering the climate crisis we are in right now, it is time the SAPCC and sub-regional climate actions are formulated on the basis of holistic and comprehensive climate risk assessments to enable effective and targeted adaptation measures, and build resilience.

[This article was written exclusively for ETEnergyworld. The author works in the area of adaptation and risk analysis in the Climate, Environment and [Sustainability](#) sector at the Center for Study of Science, Technology and Policy (CSTEP), a research-based think tank]