Foolproofing the Future

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The deluge of recent calamities including Cyclone Amphan, floods in Assam, Maharashtra, and Karnataka, and the wildfires in California and Oregon bears testimony to the recurrence of climate crises in rapid succession. In fact, the year 2020 has underscored the uncertainty and unpredictability of such catastrophes. The regularity of such incidents calls for the immediate application of resilience thinking.

What is resilience thinking?

The Oxford Learner's Dictionaries define resilience as "the ability of people or things to recover quickly after something unpleasant, such as shock, injury, etc." However, resilience in the context of crises such as global warming cannot be restricted to the above definition. Resilience is also about keeping essential things intact and changing those that are redundant. When we start looking at the world through this lens, we realise that both stability and transformation are critical to building resilience.

> The resilience thinking approach aims to understand how the interaction of people and nature can be best managed in the face of uncertainty. It views people as agents who influence ecosystems and bring about change (e.g., agriculture or infrastructure development through land-use change). It also treats related issues in a synergistic and cohesive manner. The city of Ahmedabad is a case in point.

Resilience thinking can prepare people and systems with alternative options so that business-as-usual continues with no major setbacks. Pic Credit: Pixabay

Ahmedabad addressed the impacts of climate change (e.g., rise in temperature and heatwaves) and issues of health, disaster preparedness, and the well-being of people simultaneously through its heat action plan. As a result of proactive resilience planning, the city had fewer than 20 deaths during the 2015 heatwave, whereas the rest of the country had over 2,300 deaths. The heat action plan of the city focusses on individuals who are most vulnerable during heatwaves — slum dwellers, outdoor workers, the elderly, and children. Earlier, issues related to these groups and their vulnerabilities were dealt with in silos, but now they are treated as interconnected parts of a system with the heat action plan addressing the vulnerabilities of all groups.

Preparing for an uncertain future

Though addressing uncertainty is a challenge, it is possible if some basic principles — maintaining diversity, broadening people participation, and encouraging awareness and feedback — are adhered to. The planning of Ho Chi Minh City — identified as one of the most severely affected places under future scenarios of climate change, particularly sea level rise and flooding — is an instance.

The Triple-A strategic planning of Ho Chi Minh City included: (i) creation of connected living and working areas, (ii) development of multiscale flood protection measures, (iii) improvement of drainage and storage systems to

avoid local rainwater flooding, (iv) relocation of drinking water intakes upstream for reducing salinisation problems, (v) restriction of groundwater extraction and use and improvement of surface water quality, and (vi) development of an urban green-blue network for reducing heat stress. Other examples include the Rotterdam Climate Change Adaptation Strategy, the Socially Inclusive Climate Adaptation for Urban Revitalisation Project in Jakarta, and the Cloudburst Management Plan of Copenhagen.

How it works

Uncertainty planning involves answering questions such as '*To what* (e.g., droughts, floods, wildfires) and *of what* do we want to build resilience (e.g., agriculture, coastal communities, power infrastructure)?' It is also important to understand that it is not possible to enhance the resilience of all services simultaneously. There are trade-offs such as a watershed development upstream that may have adverse impacts on downstream communities.

What it achieves

> **Resilience thinking can prepare people and systems with alternative options so that business-as-usual continues with no major setbacks. For instance, climate-risk profiling for infrastructure provides opportunities to build climate-resilient green infrastructure too, thus promoting adaptation as well as mitigation. Similarly, promoting green buildings, which adapt to temperature rise, reduces the cooling demand, thereby reducing energy use, which is mitigation.**

The green-grey infrastructure in the Philippines is one such example wherein traditional 'grey' engineering structures (e.g., sea walls or coastal armouring) are integrated with 'green' infrastructure (e.g., conservation and restoration of mangroves and coral reefs) to provide long-term and cost-effective climate resilience to vulnerable infrastructure and communities. Lesser use of grey infrastructure coupled with carbon sequestration by green infrastructure mitigates climate risks, while building resilience. This two-pronged approach addresses adaptation and mitigation issues simultaneously, ensuring there are no major disruptions.

That said, building resilience is not only about *enhancing* the resilience of systems we cannot do away with (such as forests) but also *reducing* the resilience of dangerous systems we can do away with (such as reducing greenhouse gas emissions).

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