

Climate change: How infrastructure can weather the storm

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Riding on its vision of an Atmanirbhar Bharat, the government of India recently announced a slew of projects in the budget to reboot the economy, which went slack because of COVID.

These projects, including the National Infrastructure Pipeline to 7,400 projects, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), and Smart Cities Mission, offer an opportunity to mainstream climate risks and nature-based solutions (NbS) into infrastructure.

The unprecedented increase in temperature and extreme events over recent decades is evident in the increasing economic losses from agriculture, infrastructure damage, and businesses. Climate change is causing infrastructure to operate outside the threshold for which they were originally designed, inviting the risk of collapse. The likelihood of damage and destruction to infrastructure underpins the urgency for investment in adaptation and resilience—in practices, processes and physical structures—to withstand the changes induced by the unpredictability of climate.

Given the gravity of the issue, it is critical for both public and private sectors to start considering options, such as climate proofing, investing in climate-ready projects, or providing scope for revision of designs and operations of infrastructure over time to keep pace with climate change.

While injecting resilience into infrastructure projects to handle the risks projected during their lifetimes, India's Nationally Determined Contributions targets and long-term climate ambitions should be considered. Adoption of such principles universally will ensure that climate risks and climate policy are streamlined into future infrastructure decisions.

The integration of climate-smart principles into infrastructure decision-making demands a framework that influences and incentivises such investment decisions. This requires better data on climate risks to infrastructure, costs, and performance. Integration of climate risks also necessitates adding climate change considerations as criteria for screening and selecting projects and specific investments, and creating a budget to address climate change responses. Indonesia

has already embarked on this path. The country's development plan for 2020 to 2024 incorporates resilience in addition to improving the environment, and promoting low-carbon emission development.

In the case of large infrastructure projects, adoption of a “no-regret” approach makes sound economic sense as the cost of climate proofing could be smaller than the avoided cost of not climate-proofing. Further, the cost of climate-proofing later could be prohibitive or could even be technically not possible. Mainstreaming climate considerations into infrastructure will ensure that they remain viable and intact under changed climatic conditions, or have the elasticity to resume function with minimal disruption. For instance, in New Zealand, climate-sensitive planning and design helped quicker power restoration after the Christchurch earthquake in 2011. Nature-based solutions (NbS), which harness natural resources to combat the impacts of climate change including greenhouse gas emissions, have caught the imagination of the world.

According to the Global Commission on Adaptation, they are cost-effective and offer a triple dividend of benefits—economic gains, avoided losses, and social and environmental benefits. For instance, New York City saved USD1.5 billion by combining green and gray infrastructure to secure water supply for the city. Natural infrastructure is labour-intensive and tends to be less costly, and provides an array of additional benefits in addition to core infrastructure services. Adopting a ‘hybrid’ (a combination of gray and green infrastructure) approach to infrastructure development under the AMRUT and Smart Cities mission will ensure they are resilient under climate extremes and climate change.

While investing in new and improved infrastructure is important to accelerate growth, it is important to invest in the right kind of infrastructure to ensure growth that is enduring. To manage climate risks and deliver long-term sustainable growth, infrastructure investments need to be low-emission, energy-efficient, and climate-resilient.

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