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Urban Resilience: A 21st Century Challenge

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SYNOPSIS

Cities are now home to more than half the global population. As the urban population continues to increase amid the intensification of the effects of climate change, urban disasters are set to affect more people than ever before. As such, strategies to build urban resilience are quickly becoming an urgent matter of global concern.

COMMENTARY

AS HIGHLIGHTED in the 2021 IPCC report, Southeast Asia is particularly vulnerable to the effects of climate change. With the majority of the region's significant cities along the coastline, sea-level rise poses a particular threat to the region. This is seen by the increase in disasters such as coastal flooding, coastal erosion and prolonged inundation of coasts – all of which affect urban centres. Defined as the "capacity of a city's systems, businesses, institutions, communities, and individuals to survive, adapt, and grow, no matter what chronic stresses and acute shocks they experience", urban resilience is much needed in the 21st century. After all, a major source of the stress and shocks experienced by cities is undoubtedly the growing threat of climate change. Building urban resilience is therefore a key priority for cities to mitigate and adapt to the increasingly exposed climate landscape.

Urban Centres in a Climate-sensitive Landscape

By 2050, more than two-thirds of the global population will be living in urban centres. Asia's urban population has increased from 20 percent in the 1950s to 50 percent in 2016, with this set to increase further to 64 percent by 2050. The increasing exposure of such areas to climate-related shocks and stress on a regular basis is cause for concern and demands greater policy attention. Cities in developing countries where the vast majority of urban growth will take place lack resilience due to limited funding,

resources and technical expertise. An increasing urban population will only mean that more people will be exposed to both quick and slow onset disasters.

Bangkok is ranked the most vulnerable city to sea level rise in the 2050 Climate Change Index, closely followed by Ho Chi Minh City and Manila at 3rd and 6th places respectively – all these cities have already experienced heavy flooding and sinking in recent years. As the effects of climate change intensify, there is also an increasingly higher risk of destruction of livelihoods, shelters, infrastructure and lives. This increases the vulnerability of the affected cities and their populations, and ultimately decreasing their overall security.

Cities: Exposure and Contributor to Climate Change

On the other hand, while cities are indeed significantly affected by climate change, it is important to note that they are also a significant cause of climate change. The process of urbanisation connects populations, leading to the rapid development of infrastructure and growth of communities, in turn enabling these spaces to become hubs of progress and innovation. However, such progress can also be at the expense of the environment. After all, cities not only use a significant amount of the global energy supply, but are also responsible for approximately 70 per cent of the world's energy-related greenhouse gas emissions.

While cities themselves contribute to their own vulnerability to climate change, they must also be regarded as key actors in climate change mitigation. Thailand's electric vehicle policy aims to ensure that 30 per cent of all vehicles made in the country are electric by 2030. Furthermore, the Bangkok Metropolitan Transport Authority plans to replace more than 2,000 of its buses with electric vehicles by 2027. While these policies are working to mitigate Bangkok's carbon contributions, the question of negative spillover effects remain. Increased electrification might lead to increased demand for biofuels, which in turn would lead to the increased use of land or water use – whether inside or outside the region. As such, countries need to design a strategy to increase resilience rather than generate other forms of risk through spillover effects.

Urban Resilience and Climate Change

Urban resilience is therefore necessary for cities and states to protect themselves from various climate-related urban disasters. Building such resilience in the 21st century should include the utilisation of technology as a tool for problem-solving. As global temperatures continue to rise, it has become obvious that temperature increases are taking place much faster in urban areas compared to their rural surroundings – as is the case in much of Southeast Asia. In response, some cities are using data gathered by satellites to identify heat islands in specific areas, which may be an early indicator of wider heatwaves. Using data gathered from monitoring temperatures and past heat waves, stakeholders such as local government and civic organisations have tailored outreach efforts, health warnings and activities in specific areas according to heat risk forecasts. As not all states in the region operate satellites, partnerships for information-sharing are needed between neighbouring states.

However, funding these resilience efforts is also an issue of key concern. While

Singapore has enjoyed protection from major natural hazards due to its geography, it is still vulnerable to other natural hazards such as urban heatwaves and sea level rise. As an island state, sea level rise is a particular area of concern. In an effort to increase its resilience, Singapore has earmarked S$100 billion over the next 100 years for its "climate change defences" – the upgrading of public infrastructure, land reclamation and other such efforts. By framing it as a whole-of-government approach, this ensures the financial burden will be spread over different ministry budgets, the country's reserves as well as borrowing where necessary. However, even using such strategies, not all states in the region have Singapore's resources when developing their own strategies for urban resilience – particularly some of the most affected by climate change. As such, strong multisector and global partnerships are necessary to fill these financial, technical and resource gaps from developed countries to international financial institutions like the World Bank's City Resilience Program.

With Southeast Asia being one of the regions hardest-hit by climate change, it is important to recognise that there is no one-size-fits-all approach to resilience in the face of climate change. As more people continue to migrate to cities – areas which may be partially submerged or face extreme temperatures by the end of this century – the need for sustainable and equitable strategies to develop urban resilience only grows.

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