

Singapore can help steer Asia out of deep water

It can step up as the region's innovation and commercialisation hub for flood technologies. **By Hau Koh Foo**



THE torrential rains and floods that immersed various parts of the world in the past months have had devastating effects: many lost their lives; homes and properties were destroyed; and critical infrastructure such as transport came to a halt. These carry a clear warning about climate change, and unprepared cities are at highest risk of its detrimental outcomes.

Cities in Asia should take note. Various studies have found, while floods are a global phenomenon, the economic impact of floods is greater in Asia than anywhere else. This makes it key for the region's countries to commit to predicting, preventing and mitigating floods, an area where Singapore can play a leading role, given its access to tech, startups and venture capital.

Asia to feel greatest impact of floods

By 2050, 75 per cent of global capital stock at risk from flooding would be in Asia, mainly in the Indian subcontinent and coastal South-east Asian territories, as predicted by the McKinsey Global Institute in a 2020 report. In addition, Asia's population density and prevalence of coastal communities meant that the majority of the world's high-risk population in the next 80 years would be on the continent, according to science journal *Scientific Reports*.

Recent events demonstrated this. In China, what was allegedly the heaviest rainfall in a thousand years dropped more than 25 inches of water in Zhengzhou province within a day, leaving at least 300 people dead. In Manila, hundreds of thousands of residents had to be evacuated and hundreds of homes were damaged due to relentless monsoon rains. In Maharashtra, India's third largest state, hundreds died as a result of

flooding and landslides brought about by weeks of incessant rains.

Singapore – a small island-state prone to coastal floods and extreme rainstorms that could cause inland flooding – was not spared. In late August, flash floods caused by heavy rains occurred throughout the country, immobilising vehicles and trapping people in their cars, many of whom had to be evacuated to safety by rescue workers.

Calling more startups

Evidently, the market opportunity for innovative flood management products is huge in Asia, with much room for startups to pitch in. But it's not without obstacles. The risk involved in flood management is weighty, because the potential liabilities of a failed solution are in multiple orders of magnitude as compared to other fields, given millions of lives could be at stake.

Moreover, Asia is home to fragmented political and economic systems, which makes it challenging for companies to navigate between decision makers across the different countries. It does not help that public narratives of flooding disasters are often politically driven or data-sensitive, which further complicate the process of forming timely, helpful partnerships, or investment decisions.

Singapore-based Graffiquo, which developed a disaster resiliency system for Cauayan City in the Philippines, is a rare example of a startup tackling challenges brought forth by floods in Asia. Graffiquo's system enables Cauayan City to create a profile of its land area, infrastructure, bridges, houses and population density, and predict where and when floods will occur by monitoring things like soil erosion and river height. It cuts the time taken for damage assessment from months to just one day, allowing au-

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thorities to swiftly dispatch emergency resources to areas in need.

Innovation and commercialisation hub

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Singapore is also well-positioned to be a commercialisation hub for flood management and research in Asia. Hailed as the region's tech and venture capital hub, it has the funding and resources required to commit to combating the effects of flood, and to help develop and distribute solutions where needed. The Singapore government recently allocated S\$5 billion to build a coastal protection strategy over the next four years, on top of S\$1.4 billion that would be spent on drainage improvement works in the next five years.

Singapore also has an appetite for innovation that makes it receptive to novel solutions. In December 2020, Singapore's national water agency PUB trialled a flood protection barrier which can be quickly deployed to homes and buildings in the event of a flash flood. In another example, PUB partnered with water management company Hydroinformatics Institute to pilot the use of CCTVs and Internet-of-Things device cameras to collect rain data to predict the occurrence of floods.

Time to act is now

One of many ways to identify innovation is through business plan competitions, such as the biennial Lee Kuan Yew Global Business Plan Competition organised by the Singapore Management University's Institute of Innovation and Entrepreneurship. The next edition of the competition will include flood tech as one of its areas of focus, and will target university startups and spin-offs that work on sustainable urban technologies.

It seems fitting for Singapore to step up as Asia's innovation and commercialisation hub for flood protection technologies. The small, agile country makes a natural and efficient testbed for innovations, and is a trusted partner to many Asian cities, which share the same vulnerability to destructive flood outcomes. If Singapore wants to be a beacon of inspiration for sustainable living in the region, the time to act is now.

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