# CITIES NEED MORE THAN TECHNO-FIXES TO BUILD RESILIENCE

Rapid urbanisation and climate change are exerting overwhelming pressure on cities in the developing world. And there is a sense among some experts, city managers and business leaders that only science and new technological solutions will enable cities to become resilient to the daunting array of shocks and stresses. However, it is equally important to ensure innovation in planning processes through institutions that promote dialogue and shared learning. [1] This is so that policymakers and others can assess the context for applying technology before projects start, and can counter the trend for ‘quick fixes’, many of which ultimately disappoint.

Understanding that context might reveal obstacles to engaging low-income families; highlight capacity support needed for city governments to use a new system to its full potential; or show how a technology within one system (water, energy or transport) will help or hinder the overall resilience of the city.

**Technology that works**

Over the past few years the Asian Cities Climate Change Resilience Network (ACCCRN), which we lead, has seen several technology-based innovations help

cities become more resilient to climate change.

For example, in India, a new end-to-end early warning system (from detection of hazards such as floods through to community response) in Surat, Gujarat, is improving flood management and increasing the ‘respite time’ that vulnerable communities have to prepare for an event. [2] And in the city of Indore, low-cost building designs that use cool roofs and passive ventilation systems are being introduced to reduce heat stress among low-income households.

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In Can Tho, Vietnam, the Institute for Social and Environmental Transition (ISET) has developed and installed monitoring stations that collect real-time data on salinity levels in surface water, which is used extensively for domestic and other purposes.  The stations transmit data every 15 minutes to a government-monitored server that, in turn, usesSMS messages to warn community members of unsafe levels.

Preventing salinity itself, and so removing the hazard, is impossible. But modern technology, combined with government commitment to promoting awareness, is helping residents adapt their behaviour and avoid the health impacts of consuming saline water.

These kinds of projects have often benefited particularly vulnerable people. In Danang, Vietnam, for example, all 244 homes belonging to women-headed households were structurally reinforced to resist storms and floods with help from low-interest loans. They successfully weathered Typhoon Nari in late 2013, while thousands of other homes suffered significant damage. [3]

**Catalysts needed**

However, unquestioning enthusiasm for science and technology interventions can threaten the very resilience we seek to build. For example, the introduction of elevated ‘transport corridors’ (areas with interconnected highways, railroads or canals) in Vietnam’s Quy Nhon city are now widely accepted as creating a greater flood risk in the city — which came to a head in 2009 when adjacent areas faced severe inundation in the aftermath of Typhoon Mirinae.

Experience shows that what is needed are capable institutions that connect the worlds of technology, governance and community in order to catalyse success.

For example, TARU Leading Edge — a non-profit private consulting firm working in India, and an ACCCRN partner — has engaged the Indore city government, NGOs and local experts. The aim was to understand and set priorities among various resilience challenges, and to introduce specific technological solutions developed in partnership with city residents.

First, TARU analysed existing infrastructure and the needs of different neighbourhoods. Through GIS (geographic information system) mapping and water quality surveys, it identified 15 degraded traditional urban lakes that could be restored for low-end water uses such as gardening and tree plantations to conserve vital freshwater. TARU then obtained support from local government to expedite the bureaucratic clearances needed to pilot low-cost sewerage treatment plants as part of the lake restoration project.

TARU also worked with community organisations, such as the Saraswati Self-Help group (a local committee), to ensure that residents saw the benefits of restoration, rather than continuing to use the lakes for garbage disposal.

## ‘Smart’ needs to be accessible

There is increasing talk about ‘smart cities’, but technology will only be ‘smart’ if it empowers people to fully engage with solutions. For example, when TARU introduced SMS reporting on failing services and infrastructure in the city of Surat, it used a low-cost application run on non-smart mobile phones to ensure that the system was inclusive.

This project had also been prioritised within the City Resilience Strategy, developed through an 18-month vulnerability assessment process involving city officials, civil society, academics and local businesses. As a result, the role of the project was well understood in the context of wider urban resilience planning, with

the municipality highly committed to collecting and using the data, and making the most of links with other relevant projects.

Although growing investment in urban resilience is welcome, it also engenders a growing tendency to market stand-alone technological solutions. But with resources scarce, these solutions have to be locally-grounded and affordable. Otherwise we risk crowding out potentially more cost-effective and sustainable approaches to instead introduce expensive ‘white elephants’. This is why organisations that serve as a bridge connecting science, technology, governance and inclusion are going to be increasingly vital for successful science and technology-based resilience programming.

Source: http://www.scidev.net/global/cities/opinion/cities-techno-fixes-resilience.html