

# NTS ISSUES BRIEF

Advancing urban resilience in the face of  
environmental change



**Abstract:** This NTS Issues Brief is based on the proceedings of the Expert Working Group Meeting on Advancing Urban Resilience in the Face of Environmental Change held in April 2013. It highlights several issues that were flagged by meeting participants as being of vital importance: (1) integrating resilience and development goals; (2) fostering governance systems that can balance competing urban interests; and (3) recognising and capitalising on the convergence of finance, technology and information management.

## Introduction

Asian cities are often cited as being particularly susceptible to extreme events, shifting weather patterns and environmental decline. They are the economic and social hubs of the region's developing countries, yet are highly exposed to risks that can weaken and damage critical urban systems and undermine progress on development goals.

Despite the risks, urbanisation is increasingly occurring along rivers, coastal and low-lying zones and on major seismic fault lines. These zones can exacerbate socioeconomic gaps, income inequities and differential access to services by pushing the most vulnerable into marginal and risky environments. Systemic and institutional weaknesses – such as poor urban governance, deficient urban planning, fragile public healthcare systems and rising urban poverty – further compromise environmental resilience in many of the region's major cities.

While there are frameworks for integrating physical and social resilience, gaps remain in theory, practice and policy that at times reveal difficult trade-offs. For example, investments in infrastructure resilience on one hand may increase social vulnerabilities on the other. Conflicts can arise between different resilience measures and approaches, as well as over how short- and long-term interests should be prioritised and competing interests reconciled. Identifying the costs and benefits of resilience-building can also be problematic given the capacity divides between different public sector actors and between the public and private domains.

These problems are amplified by inadequacies in efforts to engage affected communities in planning processes. Further work is therefore needed to determine who benefits from, and whose resilience is strengthened, through different strategies for adapting to environmental changes in urban Asia. Such determinations can help with the recognition and up-scaling of best practices in participatory urban resilience planning.

Against this backdrop, the Expert Working Group Meeting on Advancing Urban Resilience in the Face of Environmental Change was held in April 2013. The meeting was organised by the Centre for Non-Traditional Security (NTS) Studies at the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University (NTU), with support from the NTU Sustainable Earth Office. It brought together representatives from relevant institutions and organisations in Singapore and participants from government, international non-governmental organisations and civil society organisations as well as members of academic and think tank communities in the region to share the challenges of and lessons from building urban environmental resilience.

The Meeting offered three policy pointers:

- **Resilience should be conceived of and pursued with broader goals in view, including strengthening human security and improving development levels.**

Conceptualising resilience is a necessary but far from straightforward task, and different sectors and actors have varying assumptions about the concept, its characteristics and its requirements. It is important, nonetheless, that urban resilience – however defined – contributes to development goals and improves human security through helping individuals, communities, cities and states adapt to environmental changes in urban spheres. Identifying individuals and communities as the beneficiaries of resilience-building, and human and community security as the ultimate objectives and rationales, can help inform how resilience is framed and pursued. Resilience, in other words, should not be decoupled from development goals but rather seek to bolster them in complementary ways.

It is similarly vital to question assumptions about resilience – and what it means to different stakeholders. Urbanisation brings about changes in ecological landscapes, resource flows, demography, movements

**Recommended citation:** RSIS Centre for Non-Traditional Security (NTS) Studies, 'Advancing urban resilience in the face of environmental change', *NTS Issues Brief*, no. IS13-03 (Singapore: RSIS Centre for NTS Studies, 2013).

**Contributors:** J. Jackson Ewing and Gianna Gayle Amul.

of people, livelihoods and critical infrastructure. These shifts mean that resilience goals and strategies must necessarily be flexible, multidimensional and fluid, and be informed by disciplines spanning the hard and social sciences. Given the dynamic nature of the situation, all stakeholders – from academics to policymakers to industry – must continue to promote discourse on resilience, both to understand future trends, and also to pool experiences on resilience-building in urban spaces so as to create a stronger knowledge base for policymakers in the region.

While the current interest in ‘resilience’ is encouraging, there is a risk that the concept will devolve into a poorly understood buzzword, and its application catered to the needs, demands and interests of dominant sectors of society at the expense of vulnerable and disempowered sectors and communities. Engaging with the latter segments throughout resilience planning processes is key to avoiding such scenarios, but can only be accomplished through far-sighted governance and resource mobilisation.

- **Effective governance is essential – for coordinating the (often competing) priorities of the various stakeholders, reinforcing policies with local knowledge and capacities, and gaining support from different sectors of society.**

Cities often operate at scales beyond their ecological and political capacities, which make fostering resilience a particularly difficult task. Handling the day-to-day management and governing requirements of cities is becoming more complex, which at times leaves little spare capacity for addressing longer-term resilience-building efforts. Responding to these difficulties requires strong leadership and participatory governance systems. While such systems may themselves create difficulties by bringing many competing interests to the fore, they remain essential for fostering pathways towards resilience that will be contributed to and accepted by relevant stakeholders.

Spatial planning is a key area in which good governance is needed to balance, on the one hand, the concerns and interests of a myriad of stakeholders with, on the other, the need to build urban resilience to existing and impending environmental stresses. To be effective, plans must account for localised knowledge and interests, the geographical limits and economic drivers of the city, and the changing state of the environmental systems upon which the city depends. The lack of sound city planning in the first place is the main cause of many environment-related disasters and everyday stressors in cities across the region. In designing responses to stressors and disaster risks, emphasis must be placed on broad-based approaches that depend not just on costly engineering and infrastructure-oriented solutions but also closely

consider the social contexts and root causes of the stressors themselves.

The delivery of basic services is likewise a key benchmark for urban governance. The ability to maintain the integrity of those services during times of abrupt change is an essential part of resilience equations. Across Asia, cities such as Jakarta, Bangkok, Manila and Ho Chi Minh City are experiencing a decline in the quality of infrastructure and an increase in urban sprawl, which puts pressure on access to and delivery of basic services. Infrastructure renewal and upgrading is no panacea however; civic activities, such as everyday waste management, are also essential for maintaining service delivery. Moreover, infrastructure projects have in some cases become opportunities for public officials to profit in ways that have driven corruption in many parts of Asia’s urban landscapes. Creating resilient service delivery thus requires that the strengthening of governance and accountability and the development of built infrastructures and civic cultures and actions proceed in concert.

For informed, flexible and accountable governance mechanisms to come into being, a carefully balanced mix of top-down and bottom-up practices that include checks and balances would need to be put in place. These need to extend throughout urban spaces and beyond to the peri-urban and rural spaces upon which Asia’s growing cities depend. Doing so will help foster medium- and long-term resilience while meeting the immediate and pervasive needs of the region’s most vulnerable.

- **Capitalising on convergences between finance, technology and information management is critical in building urban resilience and driving local development agendas.**

Investment in urban resilience needs to be integrated into the ongoing and future development planning of Asian urban spaces. Policy, capacity and intervention are mutually dependent: well-thought-out policies are essential for creating enabling environments that can translate the capabilities and resources available in an urban space into action. Policies often fail to do so however, in part because of a deficit of information about local development conditions and needs. Information management is thus fundamental to urban resilience and development planning. However, information exchange even between critical infrastructure systems usually occurs in silos, leaving little room for interaction across the systems. Enabling data collection and sharing across systems can provide more accurate analyses for the formulation of appropriate measures to prepare for and respond to environment-related crises.

Such analyses can also inform the process of ranking and financing the priorities for urban development and resilience programmes. Two valuable examples are Strategy 2020 for competitive, inclusive and green cities developed by the Asian Development Bank (ADB) and the ADB-supported Cities Development Initiative for Asia (CDIA). The CDIA bridges the two sides of environmental-change financing by linking planning (for better service provision) with investments. It also assists in making projects more attractive to private sector investors.

The potential of the private sector in contributing to resilience-enhancing urban infrastructure projects has not been fully realised. Many projects proposed for private sector involvement do not provide a cost-recovery or profit-generating mechanism, and this has hampered efforts to rope in the sector. A solution would be to create markets in which the private sector finds the investment opportunities necessary and productive. Research and technology advancement is one means towards this end.

An example is Future Cities Laboratory established by ETH Zurich and Singapore's National Research Foundation (NRF), which provides insight into how the hinterlands of cities can serve as urban infrastructure laboratories. In such locales, individuals and communities are encouraged to innovate through building dwellings and settlements around a technological core based on incremental growth, decentralised systems and productive urban landscapes. This shows how linkages between a city and its peripheries can deliver innovation for urban resilience and development. Garnering private sector interest to then fund the operationalisation of such initiatives is a more accessible next step; what remains to be done is to identify and tap into potential areas for profitability.

In diverse political environments such as Asia, providing platforms for information sharing, collaboration and funding from different sectors is a challenge. However, attempts to find such a balance are present in existing projects, such as the Asian Cities Climate Change Resilience Network (ACCCRN) and the ICLEI (Local Governments for Sustainability) network operating across Asia. These platforms are valuable focal points for lessons on managing competing interests, capacity building and financing, and on combining modern technology with traditional local adaptation knowledge and practice.

## Conclusion

The crux of the issue is that greater security from environmental and social risks requires a range of measures – forward-thinking risk assessment, creative urban policies and effective policy implementation – all of which are more easily said than done. Creating resilience through promoting adaptation to environmental and social changes, improving built environments and engaging relevant sectors and stakeholders through participatory programmes is imperative. In the context of environmental change, cities need to protect critical urban infrastructure through ensuring that critical services – telecommunications, energy, transportation, food supply, access to clean water, sanitation, public health facilities and financial institutions – continue to operate during difficult times. Such physical progress ideally proceeds concurrently with improvements in social resilience, which calls upon community engagement, informed empowerment and connectivity.

Environmental change is a constant and the challenges brought about by urbanisation and climate shifts definitely test the physical and social resilience of built spaces and urban populations in the region. This NTS Issues Brief suggests that efforts to build resilience should be centred on attaining human and collective security, without sacrificing the development agenda of cities. Such a conceptual starting point would provide the foundation for action, and enable innovations in financing and investments, information management, stakeholder engagement and governance strategies.

## Terms of Use

You are free to publish this material in its entirety or only in part in your newspapers, wire services, internet-based information networks and newsletters and you may use the information in your radio-TV discussions or as a basis for discussion in different fora, provided full credit is given to the author(s) and the Centre for Non-Traditional Security (NTS) Studies, S. Rajaratnam School of International Studies (RSIS). Kindly inform the publisher (NTS\_Centre@ntu.edu.sg) and provide details of when and where the publication was used.

## About the RSIS Centre for Non-Traditional Security (NTS) Studies

The RSIS Centre for Non-Traditional Security (NTS) Studies, Nanyang Technological University, was inaugurated by ASEAN Secretary-General Dr Surin Pitsuwan in May 2008. The Centre maintains research in the fields of Food Security, Climate Change, Energy Security, Health Security as well as Internal and Cross-Border Conflict. It produces policy-relevant analyses aimed at furthering awareness and building capacity to address NTS issues and challenges in the Asia-Pacific region and beyond. The Centre also provides a platform for scholars and policymakers within and outside Asia to discuss and analyse NTS issues in the region.

In 2009, the Centre was chosen by the MacArthur Foundation as a lead institution for the MacArthur Asia Security Initiative, to develop policy research capacity and recommend policies on the critical security challenges facing the Asia-Pacific.

The Centre is also a founding member of and the Secretariat for the Consortium of Non-Traditional Security (NTS) Studies in Asia (NTS-Asia). More information on the Centre can be found at [www.rsis.edu.sg/nts](http://www.rsis.edu.sg/nts).