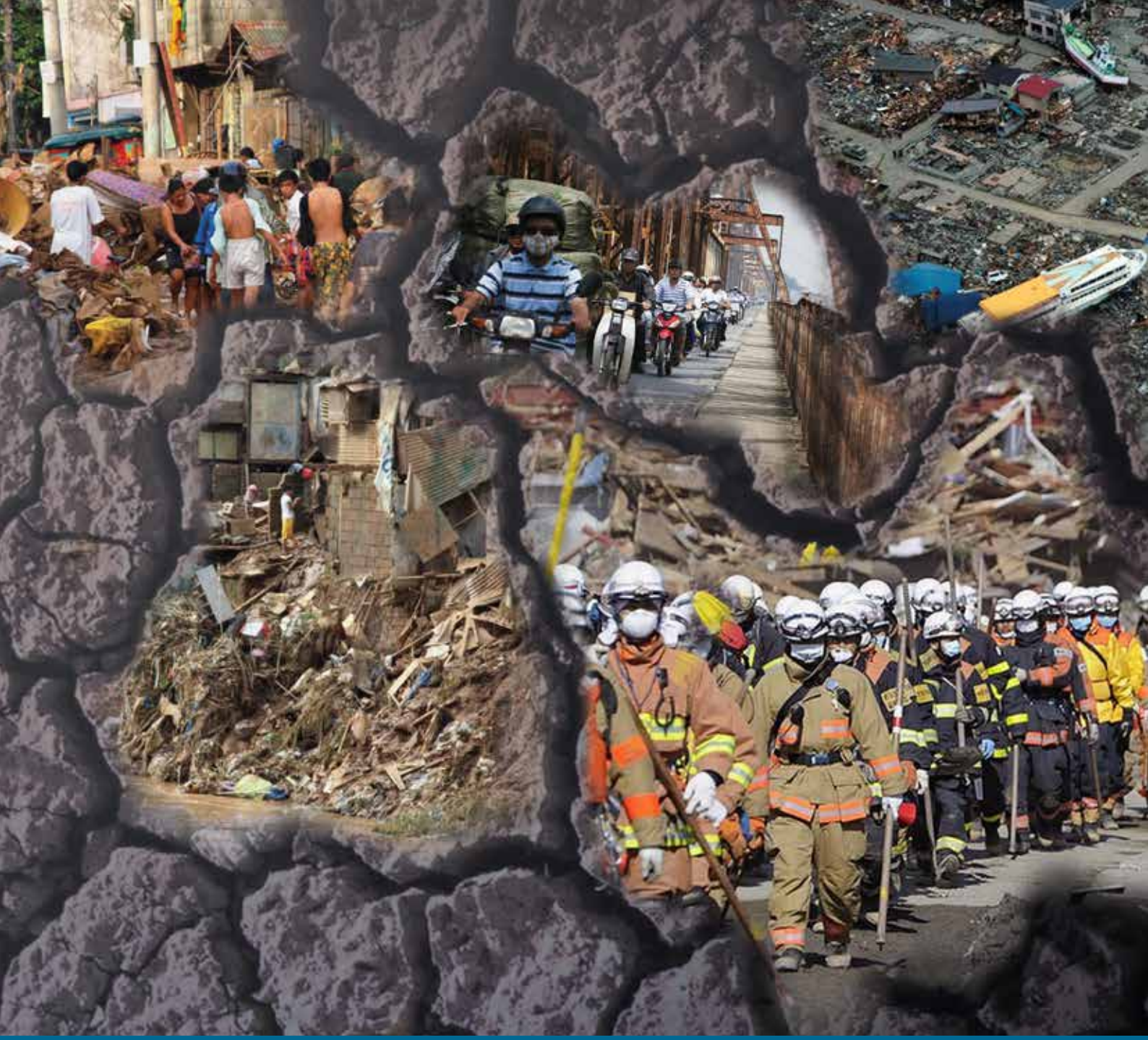

Expert Working Group Meeting on Advancing Urban Resilience in the Face of Environmental Change
22–23 April 2013

Organised by the RSIS Centre for Non-Traditional Security (NTS) Studies

Centre For Non-Traditional Security Studies

EXPERT WORKING GROUP MEETING ON ADVANCING URBAN RESILIENCE IN THE FACE OF ENVIRONMENTAL CHANGE

REPORT

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Executive Summary

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 upscaling 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), Singapore, 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 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). 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 Executive Summary 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.

A version of this Executive Summary was published as an NTS Issues Brief (No. IS13-03) in May 2013.

Resilience: Costs, Benefits and Trade-offs

This session provided an overview of the costs, benefits and trade-offs attributable to building urban environmental resilience. There was particular focus on the implications of the complexity of urban spaces, and the link between information management, urban planning and finance for resilience building.

The evolving complexity of urban spaces

Building urban resilience is a complex undertaking. This is in part because cities have changed and are continuing to change; and the degree of systems interdependence in urban spaces is rising. The well-being of cities' populations – with their diverse interests and values, different levels of experience and varied access to benefits – has likewise grown within the urban resilience discourse. The interconnectedness that cities have with their immediate surroundings (such as with the rural areas at their periphery) and with their distant neighbours is also increasing. These emergent trends make it clear that a city can no longer be thought of merely as a geographical construct. Conceptualising 'urban resilience' and 'urban resilience building' therefore requires first defining what a 'city' is, and capturing the range of characteristics that have become salient to the life of a city.

Urbanisation also adds to the complexity of addressing resilience issues in cities. It results in changes in ecological landscapes and resource flows, which in turn cause demographic and social shifts. For example, converting low-value agricultural land to high-value industrial land often forces agricultural production and critical assets to move to areas vulnerable to climate-related hazards. Resilient perspectives would thus need to take into account the activities of multiple stakeholders and sectors.

The political dynamics among stakeholders within cities, as well as between cities and their rural and peripheral counterparts, also create unique challenges in building urban resilience. City governments rarely have remit over entire urban spaces. While cities may have control over certain municipalities, the larger metropolises are defined by multilayered governing systems. This brings about multifaceted decision-making processes within diverse yet interconnected authority structures. Different segments in urban societies may also voice different concerns and priorities, further exacerbating these complications.

Leveraging information for resilience

Although it is clear that the three primary urban systems – planning and management, human services, and infrastructure services – are interconnected, information flows often occur within silos. Effective information sharing across different systems is necessary to manage multiple urbanisation processes occurring at various scales. Systems that facilitate such information exchange provide avenues for more well-informed insights and responses ('intelligent operations') in managing both crises and everyday urban problems. This is the reasoning behind IBM's Smarter Cities Initiative in ASEAN, which visualises a system of systems that boosts information sharing and collaboration. Urban resilience from this vantage point is a process that spans multiple activities across time scales.

Such innovative solutions do however face challenges in obtaining sufficient, accurate data. Lack of publicly available data on city development planning as well as on disaster responses impedes the effectiveness of information systems. Data deficits are also partly responsible for inability to adequately consider future hazards and risks in city planning. Sometimes, information may be purposely concealed. This has been seen in Bangkok and Vietnam, where governments have relied on costly engineering solutions in responding to climate-related calamities, and information on such measures have not been made readily available.

Lack of data is a critical issue, as long-term risks could be better managed given better and more information. With sufficient data, information systems could provide insights that could help in preparing appropriate responses to disasters as well as slower-onset environmental changes. Such efforts would stand in contrast to existing mechanisms that mainly focus on short-term response and recovery. However, applying information management technologies carries costs and may pose further burdens on limited urban resources (human and financial) and systems (both organisational and physical). Nevertheless, such technologies are valuable in planning long-term urban resilience strategies and should be adopted and upscaled when and where possible.

Urban climate resilience planning

Lack of front-end city development planning as well as increasing systems dependence within and between cities contributes to the complexity of urban spaces. According to ICLEI-Local Governments for Sustainability, an organisation involved in resilience-building initiatives, most cities do not have the resources for the complex modelling needed to comprehensively meet emergent challenges. They must thus identify vulnerabilities based on more readily observable environmental change trends such as average annual rainfall and temperatures as well as frequency and intensity of tropical cyclones. Such observation-based data do have their uses. They facilitate the identification of fragile urban systems related to water, housing, energy and ecosystems, and also the mapping of potential impacts, at-risk areas and vulnerable social groups. They often fail, though, when environmental changes – both abrupt and gradual – render their baseline assumptions outdated.

For better and worse, such analyses can then lead to a city's resilience strategy incorporating both hard (infrastructure) and soft measures, prioritised based on a set of resilience indicators and feasibility criteria. Funding opportunities, however, most often exist for hard measures that are not necessarily or explicitly adaptation or resilience-building activities. A subsequent over-reliance on physical infrastructure can prove to be counterproductive and costly. Hence, assumptions about infrastructure need to be reassessed, with greater emphasis placed on non-infrastructure related resilience strategies.

Planning processes are fundamental in building resilience and decisive in securing funding for city development. Planning is the phase where buy-ins from and engagements with local authorities, as well as the necessary political commitment and involvement from institutions and stakeholders, can be most influential. Understanding the stakes, creating the indispensable social capital and managing trade-offs through multistakeholder dialogues should be part of planning approaches.

Multifaceted bottom-up processes can create demand and justification for funding. To generate support and buy-in, there is a need to focus on relatively short-term and day-to-day needs while at the same time plan with a long-term strategic outlook. Political will and foresight are essential for both objectives. As resilience grapples with issues that involve movements of social, economic and political systems, it is critical to promote informed and accountable governance, as well as institutions that are learning-oriented, flexible and adaptive.

Discussion

When building urban resilience using multidisciplinary approaches, it important that the concepts are clearly defined. The definition of 'city' is critical since this influences the subsequent design and architectural responses adopted by urban resilience initiatives. The different disciplines bring their own frameworks to the table, and there must be some convergence towards the goal of urban resilience. There also exists a range of groups in cities, investors, migrants and slum dwellers for example, that may have conflicting perceptions of urban resilience – regardless of whether they present these views in the language of 'resilience'. It is clear then that implementing participatory multistakeholder approaches could be highly challenging. Nevertheless, efforts must continue on this front as the involvement of the range of stakeholders is indispensable in building robust urban resilience.

Costs, benefits and trade-offs in building urban resilience need to be deliberated across different municipalities and physical spaces. Coordination among different government institutions to this end is, unfortunately, often lacking. This can result in weak planning and ultimately inefficient urban resilience measures. In addition, there is a fundamental need to put beneficiaries identified by any cost-benefit and trade-off analysis at the forefront of the urban resilience framework. However, the political dynamics between cities and rural spaces make it more difficult to identify beneficiaries. With cities growing rapidly and their contacts with other cities getting larger, they play roles both as regulator and entrepreneur. This has significantly increased the financial and political stakes that cities have in urbanisation, yet they still rely on rural peripheries for food, resources and supply chains; and this needs to be recognised in urban resilience thinking. In each of these spheres, there is a need to get the institutional processes right in order to manage the political dynamics.

Critical Urban Infrastructure: Finance, Investment and Evaluation

This session highlighted challenges in developing critical urban infrastructure resilience in the region and discussed current initiatives. It emphasised available sources of financing and investment mechanisms that can support complementary policies towards urban resilience and development.

Reinforcing development with resilience

Cities face two major concerns: dealing with vulnerabilities and enhancing resilience. Urbanisation processes in Asian cities not only drive economic growth but also amplify energy consumption, governance woes, population explosion and environmental pollution. As cities continue to expand, these challenges are further compounded by climate change-induced sea level rise and inundation and extreme weather patterns. Cities become more vulnerable to the impact of climate change due to the denser urban populations and the concentration of development activities in key urban hubs. Regionally, for example, the impacts of monsoon floods in major cities in Southeast Asia were partly increased by high population density.

Take the case of Jakarta. Urbanisation and climate challenges are hindering its development and creating social strife and quality of life impairments. Reflecting the major challenges of megacities and delta cities in the region, Jakarta is confronted by somewhat uncontrolled urban sprawl, flood vulnerability, shortage of clean drinking water, poor infrastructure, coastal erosion and environmental problems. These vulnerabilities are interconnected and mutually reinforcing. For instance, river sedimentation and erosion muddle competition for urban space at the same time that urban sprawl intensifies land-use tensions, pollution and agricultural decline. In Jakarta's case, increasing pressure on water supply (which is currently meeting 65 per cent of the demand) has led to excessive underground water extraction, which has in turn caused serious land subsidence and brought about more disruptive floods.

Jakarta's development, like that of other cities in the region, thus needs integrated strategies that account for the environmental, human and economic elements of resilience. Adaptation and transformation present two such options. Adaptation could entail efficiency in land-use and spatial urban planning as well as in zoning Jakarta's flood-prone areas. Transformation would involve diversification of Jakarta's water sources and upgrading of its critical infrastructure including its public transportation system.

Jakarta exemplifies the degree to which development and resilience are linked and mutually reinforcing. Efforts to address these urban challenges, including (but not particular to) climate change-induced disasters, should be mainstreamed in urban planning and development.

Financing development and resilience

An investment in integrated urban planning is equivalent to an investment in development. Hence, a comprehensive strategy for urban development is needed to ensure the growth of resilient and sustainable cities. The Asian Development Bank (ADB), for instance, operates a regional development framework and has been engaged in promoting sustainable growth in the region. Its regional plan for urban development, dubbed ADB Strategy 2020, aims for inclusive economic growth, environmentally sustainable growth and regional integration. The ADB envisions green, competitive and inclusive cities under the principle that city resilience should be integral to urban development.

New urban infrastructure projects should contribute to better preparation for climate change-induced emergencies and disasters in urban areas. Correspondingly, governance needs to be inclusive and participatory; institutions of the city system mutually supportive and resource supply diversified; and more proactive approaches to disasters realised. Financing such projects is essential for strengthening city resilience.

As impacts of climate change become more pronounced in Asian cities, demand for climate financing far exceeds supply. Demand for investments in mitigation and adaptation projects amount to roughly USD100 billion each year. Despite numerous funds and initiatives for dealing with climate change-induced challenges, only 3 out of 15 international funds are accessible to cities.

There are four channels to finance resilience projects in Asia: government investment, financing from the ADB and multilateral funds, private sector investment, and donations. In view of increasing demand for resilience financing, a number of multilateral and bilateral city resilience funds have been established, such as the Global Environment Fund, the Clean Technology Fund, the Hatoyama Initiative and the Australia-Indonesia Facility for Disaster Reduction. The ADB, the British government and the Rockefeller Foundation recently proposed a new initiative – the Urban Climate Change Resilience Trust Fund – to address resilience issues and help the urban poor in Asia's secondary cities.

Even with these efforts, resources are stretched. Given the limited external financing available, it is critical to bolster existing options available to governments, such as local government budgets, investments by national government (in mitigation and adaptation), and taxation and municipal bond and loan mechanisms. The private sector could also be a significant source of funding, and governments can call on corporate social responsibility to supplement their resilience-building efforts.

The ADB has also initiated its own programmes focused on Southeast Asia, including Cities Development Initiative for Asia (CDIA), the Urban Financing Partnership Facility and the Integrated Disaster Risk Management Fund. These programmes facilitate funding for resettlement, risk management, disaster preparedness, urban planning and critical infrastructure projects.

CDIA was launched in 2007 and assists medium-sized cities to bridge the gap between their development plans and financing for their infrastructure strategies, with emphasis on urban environmental improvement, urban poverty reduction, improved governance, and climate change mitigation or adaptation. Jointly managed by the ADB and the German Federal Ministry for Economic Cooperation and Development (BMZ), CDIA is financially supported by a host of actors, including the government of Austria and the Shanghai municipal government.

CDIA implements projects that support cities' disaster preparedness through priority setting, pre-feasibility studies and financing assistance.

CDIA has undertaken projects covering diverse areas, such as energy, transport and sanitation. For example, CDIA financed the pre-feasibility study and facilitated the investment for an integrated urban public transportation project in Palembang, Indonesia, with funding sourced from the central government, local commercial banks, the European Investment Bank and the private sector. CDIA played a similar role in a multisectoral infrastructure project in Pakse, Lao PDR, and an energy-efficiency project in Ulaanbaatar, Mongolia.

In addition to completed and ongoing projects, CDIA has approved applications from 48 cities in 14 countries, including 67 pre-feasibility studies. Total investment on the projects under preparation is estimated to be USD5 billion, and potential investors have been identified for all approved cases.

Discussion

Resilience building in Asia is characterised by the fragmentation of policymaking, conflicts of interest and low awareness of the importance of resilience. Different sectors and interest groups have different understandings based on their own needs. For instance, with the degree of land subsidence in Jakarta varying from district to district, each local authority will have its own plan for dealing with the problem. Yet, separate solutions do not adequately address the root cause of the interconnected challenges. Coordination is critical in formulating an integrated plan that balances the concerns and needs of different localities and sectors.

Policy, capacity and intervention are mutually reinforcing. Intervention occurs on a short-term basis, while policy and capacity building target longer-term benefits. However, policy often lags behind the other two. To translate intervention and capacity into policy, policymaking needs to be informed about and responsive to demands on the ground. Many local authorities in the region still adopt a reactive approach to disasters. Also, some local government officials do not yet appreciate the importance of resilience projects. Urban resilience projects could thus breed resistance from actors who are not convinced about the benefits brought about by resilience planning. Hence, it is important to fully inform the people concerned about the potential risks if the plans are not implemented. It is also necessary to ensure that the interests of the people would not be compromised by the plans. Projects that incorporate the interests of local populations and improve their welfare are more easily accepted.

Raising awareness among policymakers and officials constitutes an essential component of capacity building for resilience. Capacity-building initiatives are not in short supply. There are efforts by the ADB, for example, to facilitate sharing of experiences and best practices among officials in different Asian cities through policy dialogues, workshops and conferences. Cities can also obtain technical and financial assistance to encourage capacity building and infrastructure development for resilience, from civil society organisations, universities and research institutes, and international actors such as the UN, the World Bank and foreign aid distribution bodies. These opportunities vary significantly across Asian cities, and are often context-specific. It is incumbent on policymakers in the urban space to take advantage of such resources where possible.

Community Engagement Processes

Participatory governance in environmental resilience building in the region was the focus of this session. Presentations looked at successful cases of stakeholder engagement and capacity building, and at resilience-building initiatives based on sustainability and adaptation principles.

Stakeholder engagement and capacity building for urban resilience

Improving resilience in Asian cities is increasingly vital. Urbanisation, a number of benefits notwithstanding, has wrought the expansion of informal settlements; populations experiencing, or on the precipice of, food and water insecurity; and groups that are unable to access a raft of social services. These problems may be amplified by near-term environmental risks and slower-onset environmental changes.

To effectively strengthen urban resilience, it is imperative that urban populations, particularly those most affected by urbanisation processes, be engaged as stakeholders and partners in environmental planning and management. There are a number of initiatives from where best practices can be drawn. One such platform is the Asian Cities Climate Change Resilience Network (ACCCRN). Funded by the Rockefeller Foundation, the ACCCRN is made up of 10 core cities in India, Indonesia, Thailand and Vietnam, and conducts a range of activities to improve the capacity of poor and vulnerable communities in cities to withstand, prepare for and recover from the projected impacts of climate change.

The Indonesian government has acknowledged the need to respond to growing climate challenges, establishing several core mechanisms for climate policy and funding, including the National Council on Climate Change (DNPI), the Indonesia Climate Change Sectoral Roadmap (ICCSR), the National Action Plan on Climate Change Adaptation and Mitigation (RAN MAPI) and the Indonesia Climate Change Trust Fund (ICCTF). Local climate concerns are however often missed by these initiatives; the country's national and local climate policy frameworks have apparent gaps in communication, perception and priorities. Such gaps result in poor coordination and delays in local implementation of national policies and regulations.

Engagement with local governments is particularly critical to the ACCCRN programme because the commitment of these actors to urban resilience is a criterion for city selection. The success of the ACCCRN programme depends on the extent to which the framework is integrated into city planning processes and into budget allocation for climate change-related programmes and activities. Sustained engagement relies on stakeholders – local non-governmental organisations (NGOs), the private sector, academe, local and international partners, and community representatives – acting as local champions. As the local network expands through 'shared learning dialogues' and demonstration projects, it has become more effective at attracting external funding for adaptation and resilience building, both from the national government and from international donors.

The government of Vietnam has also shown high concern for the vulnerability of the country's coastal and delta regions to climate change-related hazards. The government frames climate change as a major concern, and recognises their relative lack of understanding and experience in urban climate resilience planning. The

climate policy framework in Vietnam is based heavily on a top-down process. It is overseen by the government, and often led by external experts with limited understanding of relevant local agencies and stakeholders. It is also limited to technical capacity building, and centred on the functions of the Department of Natural Resources and Environment (DONRE).

The Mekong-Building Climate Resilient Asian Cities (M-BRACE) project encouraged the government of Vietnam to adopt, as an alternative to top-down approaches, the ACCCRN's urban climate change resilience framework. Cities adapting the framework encouraged local governments to focus on resilience planning in their day-to-day as well as longer term governance strategies. Cases in Vietnam show the importance of the iterative and integrative nature of the process. In Vietnam, the planning process as a whole (1) combined top-down and bottom-up approaches through city steering committees and working groups; (2) facilitated multiple stakeholder engagement opportunities (including with poor communities) through shared learning dialogues; (3) fostered strong local ownership through community-based vulnerability assessments and pilot projects; and (4) valued both scientific and local knowledge. The cases show the importance of addressing technical as well as organisational, socio-political and institutional aspects of urban environmental resilience planning. Similar to Indonesia, the experience of Vietnam points to local political will and local champions as key factors in the overall success of the process.

Building resilience through sustainability and adaptation

UN-HABITAT has worked to build resilience since before it became involved in development and environmental agendas. Its approach hinges on capacity building alongside the principles of sustainability and adaptation. Since the early 1990s, the Sustainable Cities Programme (SCP) – a joint facility of UN-HABITAT and the UN Environment Programme (UNEP) – has been building capacities in urban environmental planning and management. The SCP emphasises broad-based participatory approaches (rather than master planning) and participatory problem-solving through inclusive processes and pro-poor governance.

The SCP has supported project development in more than 60 cities in 10 countries in Asia, through facilitating city-to-city exchanges, sharing information and experience, pooling expertise and technical resources, and organising joint activities. Its wealth of practical experience, drawn from the diverse experiences of a whole gamut of cities, has been captured and translated into manuals that can inform, support and guide a city's environmental planning process. Cities can customise the best practices documented in these manuals to meet their specific circumstances.

Additionally, UN-HABITAT's Cities and Climate Change Initiative (CCCI) has been involved in engaging communities and urban populations as stakeholders and partners in its adaptation and mitigation measures. The CCCI's emphasis on a city's preparedness revolves around principles of good governance, responsibility, leadership, and focuses on practical initiatives for local governments, communities and citizens. Using tools such as the Participatory Climate Change Vulnerability and Adaptation Assessment Toolkit developed from a CCCI initiative in Sorsogon City in the Philippines, the CCCI helps its local partners and networks to assess climate change impacts in cities and assists in systematic planning for pro-poor and innovative climate policies and strategies.

The experience of the CCCI in Sorsogon City highlighted the difficulty of engaging local people in participatory endeavours, whether they involve vulnerability and adaptation assessments, adaptation planning or demonstration project implementation. The use of Google Earth images of the city in various stages of inundation as sea levels rise became an innovative but simple solution for encouraging participation. It also influenced people's perception of the degree of risk the city faces.

Local citizens and communities can also contribute through their knowledge of tried-and-tested adaptation (but mostly survival) strategies. For example, locally evolved traditional knowledge manifested through 'waterscape' settlements can help vulnerable local communities to adapt to floods. Waterscape urbanism can be observed in human settlements on stilts that are prevalent along the water bodies, floodplains and deltas of Southeast Asia, particularly in the Central Plains of Thailand. These settlements are designed and constructed by residents themselves mainly as a form of adaptation to the daily challenges of surviving in such waterscapes. This approach may be traditional but it is a cheap, relatively low-technology (stilts) and highly effective adaptation measure. Local governments and donors can similarly benefit from mainstreaming such indigenous knowledge into urban and regional planning, housing development and design, and flood control and management systems.

Discussion

Urban residents are often less resilient than rural communities because of an unhealthy dependence on the government. Rural residents in some cases have more social capital owing to greater community cohesiveness and capacity for self-reliance. However, the higher social capital in rural areas is also an indicator of the failure of states to provide basic services. As such, the resilience of rural communities is not an excuse for inaction by local and national governments. Rather, governments can contribute to social resilience by investing in critical infrastructure, and communities can contribute knowledge and communicate their interests to government actors through consultative processes.

Indonesia's volunteer-based *gotong royong* (cooperative community work), which was prevalent in the 1990s but no longer practised on a large scale today, was such a tool to build social capital. The programme maintained rural infrastructure such as roads or irrigation facilities; led emergency response in times of natural disasters; and facilitated mutual help for the construction of houses and daily agricultural activities, and labour or financial support for important activities, among others. Gotong royong activities helped enhance access to services and improved welfare outcomes for households in rural as well as urban areas.

Importantly, when discussing social capacities to cope with adversity, there is a need to exercise caution with the term 'resilience'. Resilience should not be over-romanticised, as this could perpetuate the idea that since the poor exhibit more adaptive capacity in extreme circumstances, policy priorities could be diverted elsewhere. The coping capacity of poor urban and rural populations is laudable, but does not excuse the governance deficits that put them in vulnerable positions to begin with. It remains a crucial responsibility of the state to provide basic services and build and maintain critical infrastructure – functions that are more vital in the context of rising environmental challenges.

Political and Technological Dynamics

This session explored social resilience within built spaces in the urban and peri-urban zones of Vietnam, Malaysia, Singapore and Indonesia. It also delved into the nuances of local political contexts, the capacities of stakeholders to build resilience and the use of innovative technologies for urban resilience.

Dynamics within the local political space

Local political contexts largely determine how effective urban resilience strategies will be, as demonstrated in the cases of Vietnam, Malaysia and Indonesia. Depending on the political environment, a government can either promote or constrain efforts to build resilient critical infrastructure. At the same time, political institutions can also stimulate or frustrate the agenda of different stakeholders.

In Vietnam's political space, the relationship between state and non-state actors, especially non-governmental organisations (NGOs), seems to be more mutually supportive than oppositional. The case of Vietnam's NGO Climate Change Working Group (NGO CCWG) supports this notion as it directly engages key policymakers and their advisors through lobbying and participating in dialogue and consultative processes. One characteristic that sets the NGO CCWG apart from many conglomerations of international and local civil society actors is that it tries to influence policies by taking a supportive rather than critical stance towards government initiatives.

In Malaysia on the other hand, environmental NGOs such as the Centre for Environment, Technology and Development, Malaysia (CETDEM) have at times been seen as 'anti-development' by the government. The case of Malaysia shows how attempts to address urban environmental issues can be problematised when new development projects do not respect existing issues on the ground. For example, plans to construct ambitious eco-cities have been accompanied by accusations of green-washing, unjust resource allocation and poor policy prioritisation.

In Indonesia, the Singapore-ETH Centre's Future Cities Laboratory project in Batam shows how political and bureaucratic attempts at solving a local urban planning dilemma can promote solutions that are transferable and replicable in the region. The political drive for this initiative came from the strategy of Indonesia's regional planning authority (BAPPEDA) to use Batam as a laboratory where various technical, social, ecological and design principles can be explored and prototyped. The vision is to develop sustainable and resilient settlements by providing solutions that are scalable and can be adapted to local contingencies and circumstances.

Stakeholder capacities

Stakeholders in the resilience-building process have varying capacities to respond, support and/or sustain resilient infrastructure systems. The approach utilised by the NGO CCWG in Vietnam focuses on social resilience interspersed with resilient-infrastructure programmes aimed at reducing the vulnerability of the poor. The group proactively pushes this by portraying vulnerable communities as active participants in development, not victims waiting for support.

The NGO CCWG's activities include implementing community- and ecosystem-based adaptation projects, promoting resilient-housing designs, and testing and evaluating models of environmentally resilient livelihoods.

The group also has the capacity to assess risks arising from land-use plans and investment decisions in urban areas, which it utilises to increase policymakers' awareness of how such developments could affect existing national policies and the government's adherence to relevant international agreements. The group's ability to act in these various areas stems from its role as a collaborative platform for both local and international NGOs.

In Malaysia, civil society organisations pushing for sustainable development are confronted with deficits in the management of natural ecosystems within local and national government agendas. Such limitations reflect the difficulties encountered in many urbanising and urbanised settings in Southeast Asia. In the case of Malaysia, both state and non-state actors are encumbered by lack of effective urban planning and management (partly due to poor local environmental data for risk assessment) and by lack of political will to mobilise resources for resilience strategies (partly due to short-sighted economic goals and unpredictable revenue and funding streams).

Reinforcing resilience with innovative technology in urbanising zones

In response to such challenges, flexibility and diversity in resilient critical infrastructure are needed. This can be developed by drawing on the capacity of various stakeholders to innovate. One resilience strategy that is being explored is the development of sustainable settlements centred on principles of innovative architecture and urban planning. An example is Future Cities Laboratory's Tropical Towns project in Batam, an Indonesian island close to Singapore's shores.

The Tropical Towns project is predicated on the need for a synthesis between built spaces and social resilience as the pace of urbanisation increases in Southeast Asia. Batam is an interesting case in this respect. Partly as a result of its geographical proximity to the more economically developed city of Singapore, the island has seen an acceleration of rural-urban migration and urbanisation. Consequently, squatter settlements have also increased. The question then arises: how can more resilient housing be built for those moving to cities or the urban periphery? The Tropical Towns project addresses such urban settlement issues.

The project is conceptualised as a package of plans (rather than as a model city) that could be used to develop environmentally sustainable and socially and economically resilient settlements. In line with this, the project takes into account local capacities and makes use of infrastructure and knowledge rooted in Asia's practical building traditions.

With the project operating on the principle of incremental growth, scalability is another of its major features. A Tropical Town is designed to scale from the housing unit to the neighbourhood, village, town and region – with the technological core being the *rubah* or *rumah tambah* (expandable house), a type of dwelling that could be added onto and configured to meet the needs of residents. This is supported by a capacity-building programme to encourage individuals and communities to innovate dwellings and settlements around this type of housing. The plans also call for decentralised systems for water, energy and sanitation, and for productive landscapes for urban agriculture.

Discussion

Peri-urban planning is critical to the resilience of cities because of the socioeconomic interdependencies between urban and peri-urban areas. Internalising

the importance of the hinterlands to cities necessarily involves a broader and deeper ideological perspective of where the boundaries of a city lie. Policies for urban development in such zones, including resilient public housing projects, need to be reinforced by reliable local data and risk assessments, and monitored and evaluated through longitudinal and inter-generational studies. Similarly, support for urbanisation in the hinterlands needs to take into account the line between the regulatory limits of the local and national government and the capacities of communities to fill gaps in governance, as this tests both institutional and social resiliencies.

Cities are only sustainable up to a point. In the process of aggregating pools of resources for urban populations, there are trade-offs – between economic progress and environmental protection, and in who benefits from any programme. There can be, however, productive balances of costs and benefits for cities, their hinterlands and the shared natural environments upon which both depend. Also, as urban systems improve, reliance on the hinterlands to supply critical urban resources – such as energy and water – can be reduced. This will likely occur as decentralised technologies become more cost-effective, cheaper and more robust.

Many Asian cities, however, will continue to grapple with profound vulnerabilities throughout their most marginalised communities well into the future. Slums and squatter communities may be undesirable but it must be acknowledged that some also serve as productive sections of cities despite the lack of critical infrastructure. The political response to the slum dilemma differs across different contexts. For example, the retrofitting of migrant communities to be part of the planning ecology of public housing in the Batam project contrasts sharply with the restrictive policy in China that denies rural migrants (who move to cities) full rights of urban residency.

The mobilisation of resources for collaborative efforts is a challenge – even with platforms that bring together international and local civil society organisations such as Vietnam's NGO CCWG. Strategies for attracting private sector interest and investments are thus crucial to compensate for financing gaps. Private sector entities, however, need to know how they can meaningfully add value to the development of resilience and be shown how it aligns with their own interests.

To engage the private sector, other stakeholders need to recognise the capacities and boundaries of private entities – particularly with regard to ensuring a return of investment on innovations. Many technologies for resilient infrastructure are technologically feasible but because the market is not there, the private sector prefers to keep a distance. Even public-private partnerships often promoted by governments and international organisations can be vague in terms of implementation. Cities have to identify the kinds of services and infrastructure that the private sector can invest in and provide for a specific purpose. Frameworks, meanwhile, need to be explicit enough and be sensitive enough to market realities to allow room for engaging the private sector. When engaged, private sector entities can increase the level of competition and innovation beyond what many others are willing or capable of doing. However, the private sector will not address the issues that governments cannot without there being effective market incentives in place.

Expert Working Group (EWG) Summaries

On Day Two of the Meeting, participants broke into groups to examine three key issues: integrating physical and social resilience; ensuring financing for critical urban infrastructure; and engaging with vulnerable urban communities. The following sections report on the findings from these efforts.

EWG 1: Synthesising Physical and Social Resilience

In urban spaces, technical or physical vulnerability can be overcome, but efforts to do so are made more difficult as movements of people from rural to urban areas impact social cohesion. Understanding and improving the relationship between built spaces and social systems in the context of urbanisation is therefore essential for Asian cities.

Balancing physical and social resilience

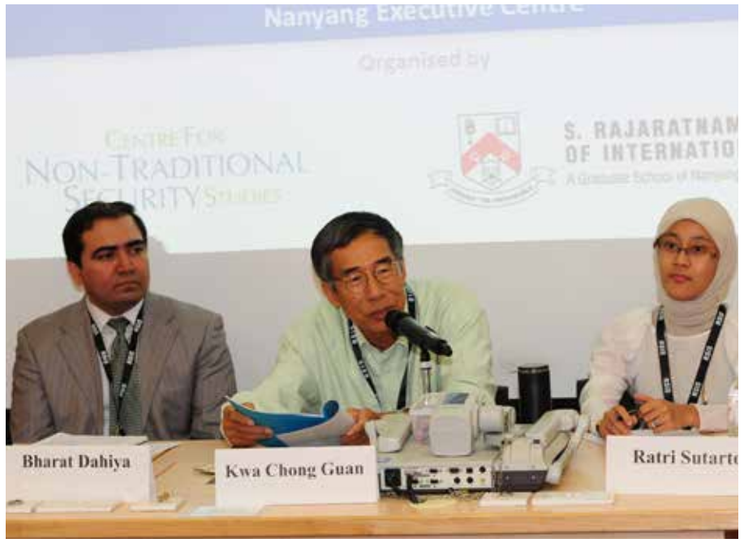
Resilience, whether physical or social, is a shared responsibility. Building resilience is not the government's responsibility alone but also trickles down to individuals. Social resilience can be eroded if a government, whether at national or local levels, is too paternalistic and focuses more on infrastructure than people. Moreover, social resilience is not a given, but is built over time through awareness, experience, informed communication and education. It is a matter of concretely defining what individuals, neighbourhoods and communities can contribute and towards what end. If resilience is a process, various responsibilities fall on different actors over time and these responsibilities, if explicitly defined, can be weighed in proportion to the capacities of each actor.

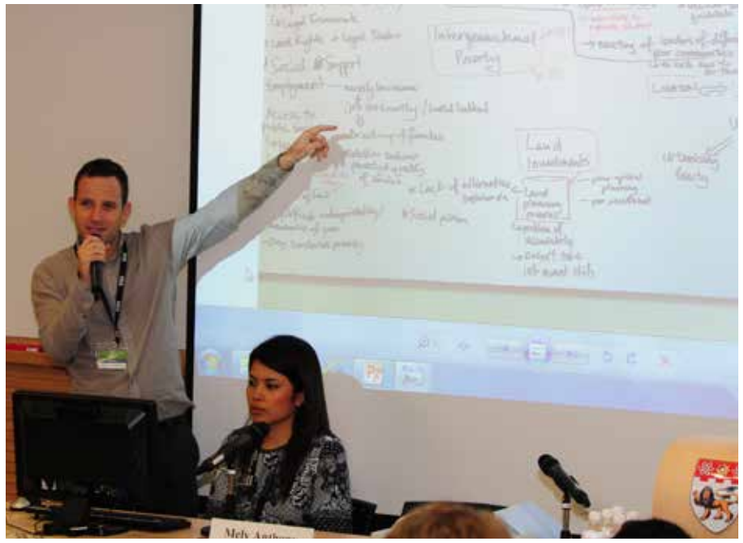
Governments often find it easier to build physical infrastructure than to foster, encourage or facilitate social resilience. The ability of some communities to bounce back from disasters despite the lack of government support could lead to the assumption that certain communities have built-in social resilience, and do not need further reinforcement in that respect. Communities may also be affected by the various trade-offs that can arise from seeking resilience. For example, the displacement of communities to make way for critical infrastructure such as dams or levees can result in a breakdown of social cohesion and eventual neglect of the welfare of affected peoples. Governments and other stakeholders need, therefore, to minimise such highly disruptive policies where possible, and to seek to reconstitute social cohesiveness and justice where disruption is unavoidable.

Governance and leadership

The key to concurrently developing physical and social resilience is to balance multiple interests. Cohesiveness is essential to social resilience, and culture and shared histories and experiences can all prove invaluable to this end. This also suggests the need to understand the dynamics of how societies are organised and how values are incorporated. In the contemporary context, the responsible use of social media has been one tool used to develop social cohesion in urban societies.

Effective governance and leadership is critical. Leaders must at times implement difficult and even unpopular decisions that bring future benefits in exchange for short-term challenges. No matter the governance approach in place, effective relationships among the different levels of government and checks and balances are beneficial. In other words, while mechanisms for accountability will necessarily vary with different government systems, the encompassing participation of multiple stakeholders is essential for urban resilience.





Participants of the Expert Working Group Meeting on Advancing Urban Resilience in the Face of Environmental Change

Front row: *Ms Gianna Gayle Amul, Ms Kelly Lai, Mr Kwa Chong Guan, Ms Yvonne Soh, Assoc. Prof. Mely Caballero-Anthony, Dr Hee Limin, Ms Ratri Sutarto, Ms Margareth Sembiring, Ms Sofiah Jamil*

Second row: *Ms Audrey Huang, Ms Kelly Chung, Ms Ha Thi Quynh Nga, Dr Bharat Dahiya, Dr Jingmin Huang, Asst Prof. Kuei-Hsien Liao, Dr Richard Friend, Prof. Jan Sopaheluwakan*

Third row: *Mr P.K. Hangzo, Dr Wong Tai Chee, Ms Marilena Coralczyk, Mr Patrick Rueppel, Mr Gurmit Singh, Mr Nick Finney, Mr Yang Razali Kassim, Mr Vu Canh Toan, Assoc. Prof. Ng Wai Keen, Mr Steffen Endler.*

Fourth row: *Mr Sunandan Tiwari, Mr Shrinivas Kowligi, Ms Belinda Chng, Ms Cheryl Lim, Dr J. Jackson Ewing, Assoc. Prof. Tong Yen Wah, Mr Rahul Mittal, Dr Allen Poh Wei Choong, Mr Matthias Ong, Mr Terence Yao, Asst Prof. Sulfikar Amir.*

EWG 2: Financing Urban Infrastructure

Demand-driven growth characterises much of the development in the cities of Southeast Asia. This kind of growth often proceeds without sufficient urban planning and is absent of effective regulation or management of rural-urban population movements. This creates resource allocation challenges even in the region's largest and most politically influential cities. Thus, the financing of critical urban infrastructure highlights not only the need to build the revenue-generating capacities of local governments but also the necessity of identifying the infrastructure priorities that are most responsive to national development trajectories.

Balancing urban and rural growth

Ageing infrastructure and/or increasing urban sprawl in the region's large cities place pressure on the accessibility and delivery of basic government services. For example, in Singapore, there have been vigorous debates on the stresses created by growing population density on the small island's critical infrastructure and its overall carrying capacity.

Although the phenomenon of urban sprawl currently drives infrastructure rehabilitation in many Southeast Asian cities, it also represents uneven development; particularly in the major cities in Indonesia, Malaysia and the Philippines that are experiencing rapid conversion of rural lands for industrial expansion. Cities cannot keep converting rural lands at the expense of the natural, economic and social services that such lands provide. Hence, there is a need to balance the investment needs of cities, peri-urban and rural areas in systemic ways.

Master plans for developing cities need to be focused and strategic given the limited resources available to cities. Because each city has unique geographical dimensions and growth trajectories, local knowledge of the specific adaptation and geographic characteristics that apply are important considerations in building critical urban infrastructure, and necessitate at times difficult consultative processes.

Investment gaps

Based on Asian Development Bank (ADB) estimates, there are 120,000 individuals moving from rural to urban areas in Asia each day. Annually, that is an approximate increase of 40 million people, which creates the need to provide an additional 60,000 houses and 6,000 cubic metres of water in cities. Given that most governments can fund only around 40 per cent of this demand, there is a huge investment gap. The USD60 billion shortfall in critical infrastructure investment is a challenge that the ADB aims to tackle through leveraging resources from both local and international capital markets – through programmes such as Cities Development Initiative for Asia (CDIA) for example.

Acquiring and distributing financial resources for projects in conflict-affected areas or contested regions, including those that are urban in nature, present further obstacles. As a neutral, multilateral entity, the ADB is wary of being dragged into politically sensitive issues (such as border or territorial disputes) and often avoids investments in such areas altogether. This cautious approach was extended after its experience with a troubled plan to invest USD60 million in the state of Arunachal Pradesh in eastern India for watershed development and flood management projects. The plan was eventually abandoned when China blocked the project and claimed the state in its entirety in 2009. Thus, while it is recognised that investments are needed by communities in disputed territories, political risks make arranging multilateral financing for projects in those areas problematic.

Apart from efforts to bridge investment gaps through programmes such as CDIA, multilateral financial entities have been promoting good governance in their partner countries in an effort to curb corruption, which affects large infrastructure projects in many countries, particularly those in the transportation sector. Strong monitoring and evaluation systems are increasingly attached to such projects. ADB projects also seek to integrate resilience into their infrastructure design, and promote ventures that have adaptive co-benefits. For example, a river improvement project can be partnered with a flood prevention mechanism to strengthen the physical resilience of a given area.

Engaging the private sector

The private sector is viewed as a source of financial resources for adaptation – in the form of investments, financial risk management expertise, and support from private foundations. However, the private sector is often hesitant to invest in adaptation projects because of profit considerations and deficiencies in project feasibility and design. Many governments are in fact unwilling to increase tariffs for basic services such as water, thus making it difficult for the private sector to achieve returns on their investment.

Public-private partnerships could be the way forward. If managed well, they could be highly effective. In water resource management and sanitation, for example, the private sector has successfully spearheaded the creation of innovative technologies and practices. For public-private sector collaborations to be successful however, it is crucial to provide cost-recovery mechanisms for both sectors.

EWG 3: Engaging Vulnerable Communities

Urban development plans should incorporate the concerns and vulnerabilities of all segments of the urban population, particularly the poor. Development should also be based on plans that meet the specific socioeconomic and geographic conditions of a locale rather than plans that follow planning templates imported from elsewhere. At the same time, however, cities need to be open to the exchange of experiences and best practices. Further, urban planning and disaster preparedness should be organised around existing challenges rather than disproportionately focusing on responding to disasters, whether natural or manmade.

Challenges for the urban poor

Poverty indicators such as income, access to services, social networks, and empowerment are applicable to both rural and urban populations. However, the urban poor and the rural poor have differing scales and types of vulnerability and poverty patterns. The most significant challenges faced by the poor in urban areas relate to employment, housing and social welfare.

In principle, local governments are responsible for providing basic public housing, education, healthcare and social insurance to reduce the vulnerabilities of urban poor communities. As poverty is linked to poor public services, the quality of service delivery influences the level of vulnerability experienced by the urban poor. The urban system's dependency on outside resources presents a similar challenge. Systems breakdowns can lead to abrupt and slow-onset food and water shortages and to price surges that are catastrophic for the poor.

Land issues are becoming more pronounced in many Asian cities. Urbanisation processes are causing populations at the periphery of cities to experience loss of land, and thus loss of livelihoods. As many of them do not have the necessary skills to find jobs in cities, their socioeconomic vulnerability increases. It is necessary to strengthen the legal frameworks that protect the rights of such peri-urban communities and to manage urbanisation more deliberately.

Rural-urban population movements

Urbanisation is usually accompanied by massive movements of people due to surging demand for labour in cities. The primary motivation for migration is economic opportunity. However, migrant status can also translate to higher vulnerability, and migrants account for a large share of the urban poor in many cities in the region.

Migrants contribute significantly to the economic development of recipient cities/countries and are thus entitled to social protection. However, there are problems with citizenship status and migrant worker rights, both domestically and across borders, throughout much of the region. In China, for instance, workers who migrate to cities are not eligible for public services such as education and health; or they have to pay more than local city residents for the same services. As a result, most migrant workers do not bring their children along with them. Instead, they leave them in the care of immediate family members, usually grandparents. This phenomenon has caused disintegration of family values, which is often associated with a decrease in resilience to the impact of disasters.

On the whole, it is clear that urbanisation will continue in Asia. However, this should be neither lamented nor taken as a tide of population movements that defy effective management. State, local and city governments in Asia have the charge to work collaboratively to manage urbanisation trends. Doing so requires building bridges with civil society and private sector actors. If pursued effectively, such cooperation can make Asian cities more resilient and robust at the same time as it improves the daily lives of the region's growing urban citizenry.

Programme

Day 1
22 April 2013 (Monday)
Nanyang Executive Centre
Nanyang Technological University (NTU)
Singapore

09:00 **Welcome Remarks: Objectives and Expectations**
Associate Professor Mely Caballero-Anthony
Head
Centre for Non-Traditional Security (NTS) Studies
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU);
Secretary-General
Consortium of Non-Traditional Security Studies in Asia (NTS-Asia)
Singapore

09:10 **Introduction of Participants**

09:30 **Session 1: Costs, Benefits and Trade-offs in Building Environmental Resilience**

Guiding questions:
- What are the costs, benefits and trade-offs attributable to building urban environmental resilience?
- What are the challenges in balancing the costs and benefits of building urban environmental resilience?
- How important is social capital as an element in building urban environmental resilience?

Facilitator
Associate Professor Mely Caballero-Anthony
Head
Centre for Non-Traditional Security (NTS) Studies
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Secretary-General
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Singapore

Presentations

Balancing urban local governance and the environmental resilience agenda
Dr Richard Friend
Senior Staff Scientist
Institute for Social and Environmental Transition (ISET)
Thailand

Leveraging information for building urban resilience
Mr Shrinivas Kowligi
Regional Manager – Smarter Cities ASEAN
IBM Singapore Pte Ltd
Singapore

Creating financing opportunities through urban climate resilience planning
Mr Sunandan Tiwari
Programme Coordinator – Sustainability Management
ICLEI-Local Governments for Sustainability South Asia Secretariat
India

10:15 **Discussion**

11:15 **Session 2: Critical Urban Infrastructure Resilience: The Importance of Finance, Investment and Evaluation**

Guiding questions:
- What are the sustainable options for financing adaptation that would drive urban local governments away from dependence on external aid?
- How viable are investments for adaptation and urban climate resilience?
- How should we evaluate urban infrastructure development outcomes?

Facilitator
Dr J. Jackson Ewing
Research Fellow and Coordinator of the Climate Change, Environmental Security and Natural Disasters Programme
Centre for Non-Traditional Security (NTS) Studies
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

Presentations

Developing cities for resilience – ADB's vision and experience
Dr Jingmin Huang
Senior Urban Development Specialist
Sustainable Infrastructure Division
Regional and Sustainable Development Department
Asian Development Bank
Philippines

Capacity development for improved urban infrastructure preparation and financing
Dr Jingmin Huang (for Cities Development Initiative for Asia)

Jakarta 2050: The stage for an adaptive and resilient city
Professor Jan Sopaheluwakan
Chairman
International Center of Interdisciplinary and Advanced Research (ICIAR)
Indonesian Institute of Sciences (LIPI);
Coordinator, Indonesia Wing, Delta Alliance
Indonesia

12:00 Discussion

14:00 Session 3: Urban Engagements: Reinforcing Vulnerable Communities

Guiding questions:
- What are the current best practices of participatory urban resilience building?
- How identifiable are the beneficiaries in urban adaptation measures?
- What should be done to engage vulnerable communities and urban sectors to participate in building urban environmental resilience?

Facilitator
Mr Kwa Chong Guan
Senior Fellow
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

Presentations

Climate change and city development: Engaging local government in resilience building
Ms Ratri Sutarto
Project Coordinator
Asian Cities Climate Change Resilience Network (ACCCRN)
Mercy Corps Indonesia
Indonesia

Bringing people to the centre of building urban resilience
Dr Bharat Dahiya
Team Leader
Project Preparation Technical Assistance (PPTA) for Multitranche Financing Facility (MFF)
Ulaanbaatar Urban Services & Ger Areas Development Investment Program
Mongolia

and

Adjunct Faculty
Urban Environmental Management
School of Environment, Resources & Development
Asian Institute of Technology (AIT)
Thailand

Building urban climate resilience in practice: The case of Vietnam
Mr Vu Canh Toan
Research Fellow
National Institute for Science and Technology Policy and Strategic Studies (NISTPASS)
Ministry of Science and Technology
Vietnam

14:45 Discussion

15:45 Session 4: Built Spaces and Social Resilience: Synthesising Urban Environmental Resilience

Guiding questions:
- What are the existing and possible conflicts among urban resilience approaches and measures?
- How can these differences be reconciled and resolved?
- What are best practices in gaining continuity between infrastructure development and social resilience?

Facilitator
Associate Professor Mely Caballero-Anthony
Head
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Nanyang Technological University (NTU);
Secretary-General
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Singapore

Presentations

The NGO Climate Change Working Group to advance urban climate resilience in Vietnam
Ms Ha Thi Quynh Nga
Coordinator
NGO Climate Change Working Group
NGO Disaster Management Working Group
CARE International
Vietnam

Sustainability in existing towns – A Malaysian assessment
Mr Gurmit Singh K.S.
Chairman
Centre for Environment, Technology and Development, Malaysia (CETDEM);
Director
Sustainable Development Initiatives (SUDI)
Malaysia

Tropical Town: Seeding sustainable settlements
Professor Stephen Cairns
Scientific Co-ordinator
Future Cities Laboratory
Singapore-ETH Centre for Global Environmental Sustainability
Singapore

16:30 Discussion

End of Day 1

Day 2
23 April 2013 (Tuesday)

09:00 Overview of Day 1
Dr J. Jackson Ewing
Research Fellow and
Coordinator of the Climate Change, Environmental Security and Natural Disasters Programme
Centre for Non-Traditional Security (NTS) Studies
S. Rajaratnam School of International Studies (RSIS)
Nanyang Technological University (NTU)
Singapore

09:40 Discussion

10:15 Expert Working Group (EWG) Sessions: Recommendations for Research and Policy on Urban Climate Resilience

EWG 1: Synthesising Built Spaces and Social Resilience

Guiding questions:
- How can social and physical resilience be developed in tandem to face challenges of environmental change? Are there potential trade-offs?
- Are there governance and private-sector best practices for building urban resilience? Can they be upscaled in different contexts?
- How is accountability best promoted in public-private engagements to advance urban resilience?

EWG 2: Critical Urban Infrastructure: The Importance of Finance, Investment and Evaluation

Guiding questions:
- How could financing adaptation and investments (both in terms of knowledge base and operations) be more viable for the public and private sector alike?
- How can public and private sector initiatives for critical infrastructure resilience be harmonised?
- How should evaluation of adaptation and resilience activities influence further action?

EWG 3: Urban Engagements: Reinforcing Vulnerable Communities

Guiding questions:
- What are some key challenges faced by the region's urban poor and what do these reflect about urban governance?
- What unique challenges are posed by demographic changes, population movements and accelerating urbanisation for vulnerable affected communities?
- To what degree are efforts to build social resilience replicable in different urban areas in the region?

11:30 Panel Presentation of Working Groups' Output

12:10 Open Session and Discussion

12:50 Closing Remarks
Associate Professor Mely Caballero-Anthony
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End of Meeting

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**in alphabetical order according to last names*

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

The **RSIS Centre for Non-Traditional Security (NTS) Studies** conducts research and produces policy-relevant analyses aimed at furthering awareness and building capacity to address NTS issues and challenges in the Asia-Pacific region and beyond.

To fulfil this mission, the Centre aims to:

- Advance the understanding of NTS issues and challenges in the Asia-Pacific by highlighting gaps in knowledge and policy, and identifying best practices among state and non-state actors in responding to these challenges.
- Provide a platform for scholars and policymakers within and outside Asia to discuss and analyse NTS issues in the region.
- Network with institutions and organisations worldwide to exchange information, insights and experiences in the area of NTS.
- Engage policymakers on the importance of NTS in guiding political responses to NTS emergencies and develop strategies to mitigate the risks to state and human security.
- Contribute to building the institutional capacity of governments, and regional and international organisations to respond to NTS challenges.

Our Research

The key programmes at the **RSIS Centre for NTS Studies** include:

1. Internal and Cross-Border Conflict Programme
   - Dynamics of Internal Conflicts
   - Multi-level and Multilateral Approaches to Internal Conflict
   - Responsibility to Protect (RtoP) in Asia
   - Peacebuilding

2. Climate Change, Environmental Security and Natural Disasters Programme
   - Mitigation and Adaptation Policy Studies
   - The Politics and Diplomacy of Climate Change

3. Energy and Human Security Programme
   - Security and Safety of Energy Infrastructure
   - Stability of Energy Markets
   - Energy Sustainability
   - Nuclear Energy and Security

4. Food Security Programme
   - Regional Cooperation
   - Food Security Indicators
   - Food Production and Human Security

5. Health and Human Security Programme
   - Health and Human Security
   - Global Health Governance
   - Pandemic Preparedness and Global Response Networks

The first three programmes received a boost from the John D. and Catherine T. MacArthur Foundation when the RSIS Centre for NTS Studies was selected as one of three core institutions to lead the MacArthur Asia Security Initiative in 2009.*

Our Output

Policy-relevant Publications

The **RSIS Centre for NTS Studies** produces a range of outputs such as research reports, books, monographs, policy briefs and conference proceedings.

Training

Based in RSIS, which has an excellent record of post-graduate teaching, an international faculty, and an extensive network of policy institutes worldwide, the Centre is well-placed to develop robust research capabilities, conduct training courses and facilitate advanced education on NTS. These are aimed at, but not limited to, academics, analysts, policymakers and non-governmental organisations (NGOs).

Networking and Outreach

The Centre serves as a networking hub for researchers, policy analysts, policymakers, NGOs and media from across Asia and farther afield interested in NTS issues and challenges.

The Centre is the Coordinator of the ASEAN-Canada Research Partnership (2012–2015) supported by the International Development Research Centre (IDRC), Canada. It also serves as the Secretariat of the initiative.

In 2009, the Centre was chosen by the MacArthur Foundation as a lead institution for its three-year Asia Security Initiative (2009–2012), to develop policy research capacity and recommend policies on the critical security challenges facing the Asia-Pacific.

It is also a founding member and the Secretariat for the Consortium of Non-Traditional Security Studies in Asia (NTS-Asia).

More information on our Centre is available at *www.rsis.edu.sg/nts*

About the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University

The S. Rajaratnam School of International Studies (RSIS) was inaugurated on 1 January 2007 as an autonomous School within Nanyang Technological University (NTU), upgraded from its previous incarnation as the Institute of Defence and Strategic Studies (IDSS), which was established in 1996.

The School exists to develop a community of scholars and policy analysts at the forefront of Asia-Pacific security studies and international affairs. Its three core functions are research, graduate teaching and networking activities in the Asia-Pacific region. It produces cutting-edge security related research on Asia-Pacific Security, Conflict and Non-Traditional Security, International Political Economy, and Country and Area Studies.

The School's activities are aimed at assisting policymakers to develop comprehensive approaches to strategic thinking on issues related to security and stability in the Asia-Pacific and their implications for Singapore.

For more information about RSIS, please visit *www.rsis.edu.sg*

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