

Workshop on Tools and Indicators for Assessing Urban Resilience Workshop Report

Marta Olazabal

Basque Centre for Climate Change

Ayyoob Sharifi

Executive Director, Global Carbon Project, Tsukuba International Office

Yoshiki Yamagata

Head, GCP Tsukuba International Office

Principal Researcher, Center for Global Environmental Research

Context of the workshop

The Workshop on Tools and Indicators for Assessing Urban Resilience was held on 7–10 December 2015 at The University of Tokyo. It was organized by the Global Carbon Project-Tsukuba International Office in collaboration with APN, NIES, UGEC, WUDAPT (<http://www.wudapt.org/wudapt/>) and IR3S. The event brought together a group of experts from different disciplines (engineering, planning, environmental sciences, social sciences...), with different interests and backgrounds (practitioners, NGOs, research and academia) and from different developed and developing parts of the world (Europe, USA, Asia and Oceania). Main objectives were to reflect on the concept of urban resilience; examine the adequacy and feasibility of resilience management tools, particularly, indicator assessment; and develop a collaborative framework for building a global urban information and knowledge network supporting an open source, community based infrastructure for planning resilient cities. The workshop consisted of 2 and half days of presentations by participants and 1 and half days of activities (practical hands-on sessions) and discussion.



Photo 1 Group photo of the participants in front of the venue

Expertise brought by participants: multidisciplinary background

The format of the workshop allowed participants to conveniently present their views on urban resilience and describe the approach they propose to enhance decision making by planners and policy makers.

Opening the workshop **Ayyoob Sharifi** offered “an overview of existing tools for assessing urban resilience”. His analyses gave a quite interesting perception on how the current assessment tools are built on and the main advantages and disadvantages of them.

We had interesting presentations from the Asian experience on urban resilience practice from **Rajib Shaw** (Climate Disaster Resilience Indexing of Asian Cities: An Action Based Approach), **Pakamas Thinphanga** (Building urban climate resilience — lessons learned from Thailand and the Mekong region), **Vu Kim Chi** (Coastal urban climate resilience planning in Quy Nhon, Vietnam), and **Kensuke Fukushi** (Vulnerability and resilience of cities in developing countries on health risk caused by climate change and urbanization). This was enriched by **Jamal Namo's** presentation on NGO-based experiences in The Solomon Islands

Social and community issues (barriers and engagement tools) were specially brought by **Lilia Yumagulova** (Resilient institutions = vulnerable people? A longitudinal case study of flood management institutions in marginalized settlements in Russia), **Stephen Sheppard** “Empowering Communities: Visualization Tools for Building Climate Change Awareness and Resilience” and **Christian Dimmer** (Linking Knowledge to Action — Urban Resilience, Social Innovations, and Community Energy).

Experiences from the disaster risk management community were highlighted in cases described by **Cate Fox-Lent** (Urban Resilience: Methodological Foundations and Resilience Matrix Approach) and **Judd Schechtman** (A System for Evaluating the Resilience Value of Disaster Recovery Projects: The Case of Hurricane Sandy and Irene in New York).

Insights on the influence of urban design, urbanization and spatial parameters in urban resilience assessments were put on the table by **Paul Stangl** (Urban Morphology: Applications, Issues and Prospects for Resiliency Assessment), **Akito Murayama** (Development and Application of Web-based Geographical Information System to Assess Urban Resilience: Land Use and Infrastructure Planning for the Greater Nagoya Region, Japan), **Peter Marcotullio** (Future Urbanization and the Management of Urban Heat Risk) and **Yoshiki Yamagata** (Land Use Scenarios for Assessing Urban Resilience). Linked to this, **Linda See** and **Johannes Feddema** presented the “WUDAPT initiative: overview, data collection and progress to date” and “Applications of WUDAPT” allowing discussion on the use of Local Climate Zones (LCZ) for the assessment of resilience and for the comparability of cities and about the future applications of this tool in this domain.

Issues such as how to fit with the sustainability agenda, how to include the concept of transformation and how to deal with uncertain scenarios were discussed by **Lorenzo Chelleri** (What's under the city resilience umbrella? Aligning Resilience and the Urban 2030 Agenda), **Marta Olazabal** (Urban Resilience and Transformation: Implications for assessment indicators) and **Minal Pathak** (Approach to mainstreaming climate change resilience in urban planning and development: Case of Ahmedabad, India).

Presentations by **Md. Humayun Kabir** (Enhancing urban resilience through energy efficiency measures in the residential buildings of Dhaka city) and **Perry P. J. Yang** (Energy Resilient Urban Systems: A Design Perspective) highlighted the need for paying due attention to urban energy resilience.

On the challenges related to planning and monitoring climate change and on integrating this with the resilience agenda, we had interesting presentations from **Ashish Shrestha** (Framework and indicators for climate compatible urban development) and **Susie Moloney** (Monitoring and evaluating progress towards becoming a more adaptive and resilient region: lessons from Melbourne).

Eventually, interesting innovative and practitioner-oriented approaches on resilience assessment frameworks were discussed by **Stelios Grafakos** (Towards the development of an integrated Sustainability and Resilience Benefits Assessment (SRBA) framework of urban interventions), **Fanni Harliani** (Identification of Human & Economic Resilience Indicators in Climate Resilience Review) and **Hiroshi Maruyama** (Systems Resilience: Taxonomy and General Strategies).

Main issues discussed and a preliminary analysis of lessons learned

The presentations of the first two days facilitated engagement of participants in discussions about the feasibility of developing resilience assessment frameworks that can lead to better-informed decision making.

The most profound discussions emerge around the question of resilience being an outcome or a process and around the trade-offs in applying a unique approach to the understanding and management of urban resilience in different contexts such as those found in developed in contrast to those in developing urban regions.

Participants seemed convinced that resilience is a process and that this must be taken into account when implementing an assessment exercise; however, the question on how to reflect this idea into real practice was not accordingly resolved. On the other hand, many interesting thoughts and ideas were exposed when discussing about the feasibility of considering distinct urban contexts under the same resilience criteria. The most illustrative case was raised in a hands-on exercise when participants discussed the adequacy of a selection of urban form indicators. As argued, some indicators might not be so adequate in the context of informal settlements, where many other basic problems prevail. Can in a context like this, resilience of the urban form be assessed without consideration of social and institutional contexts? Can in any context resilience be assessed without adequate consideration of the specific social and institutional issues? This leads to argue that although contextual particularities in urban areas might be different and thus interpretation of results may vary, challenges in the development of urban resilience assessment frameworks are the same in developed and developing urban environments.

Regardless of the academic and professional background of the participants, conversations and key issues relied on expectedly similar topics: (i) the importance of communities as beholders, key agents of change and knowledge “reservoirs” and (ii) the critical role of institutions in providing resources and infrastructures (in its wider understanding) to recover from and adapt to punctual and gradual changes, through processes of awareness raising, collaboration, reorganisation, autonomous adaptation and coproduction of solutions.

Regarding the practical questions around the pure idea of assessing, some questions emerged:

- Which state or process do we intend to assess?
- Which is our desirable scenario? Is it a sustainable and resilient city? Are the agendas connected? Are we building silos?
- When do we intend to measure? What is the purpose of measuring resilience?

Firstly, using socio-ecological resilience theory as a guiding principle, this could be responded by questioning the well-established argument of “resilience of what to what”. This means on one hand, setting boundaries to our assessment process. Not only in terms of spatial scale (district, city or regional level), but also in terms of time scale (past, current or future resilience) and in terms of sectoral focus (water, energy, urban form.... etc. or a combination of them). On the other hand, establishing which shocks or gradual changes we do consider is critical (resource scarcity, pluvial or sea-level rise floods, earthquakes or a combination of them).

Secondly, it would be necessary to link the assessment process with the planning and policy making process. That is, for example, are we using this assessment to diagnose how resilient a city is right now? Or, do we intend to track/monitor the progress of a particular strategy or measure and assess how much is this strategy helping to make a city more resilient?

In summary, we highlight two main important themes around which discussions were focused both from a scientific and from a practitioner point of view: (i) barriers to the implementation of a urban resilience agenda (rigid institutions, corruption, poverty and environmental degradation, cultural issues...) and (ii) the opportunities that it may bring (build response to change, community engagement, adaptation to climate change, resource efficiency...).



Photo 2 Engagement of the participants in the activity developed based on the SIM technique

Expected workshop products and future plans

Valuable ideas collected during the workshop will be used for further development of the research agenda of GCP. As for collaboration with WUDAPT, a framework was designed that aims to provide infrastructure for developing more resilient cities with reduced carbon footprints and enhanced quality of life. Specific goals would be to build data capacity to identify and characterize neighborhoods and map individual cities, build application capacity on how to use the data to develop scenarios and assessment frameworks, and build capacity by enabling cities to exchange information. We are also aiming for several papers based on ideas developed at the workshop.

Acknowledgements

We would like to appreciate the support of all the co-organizers. In particular, we are grateful for the financial support provided by APN and NIES.

The workshop agenda and presentation files are available from the GCP Tsukuba International Office (<http://www.cger.nies.go.jp/gcp/>).