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Supporting Local Climate Change Adaptation: A Participatory Assessment Process for Secondary Cities in Bangladesh and Viet Nam

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ABSTRACT: Viet Nam and Bangladesh are vulnerable to weather-related extreme events. Climate change and changes to climate variability will increase risks for both countries in the future. This article reflects on the lessons learned from a collaborative research activity carried out jointly in the Vietnamese city of Huế and the Bangladeshi city of Satkhira (the focus on secondary cities was intentional as they face unique challenges – a combination of rapid growth and development, climate impacts, and in many cases less institutional adaptive capacity to respond than primary cities). Whilst numerous assessment toolkits already exist, these have typically been developed for rural contexts. The objective was, therefore, to develop a flexible suite of assessment methodologies targeted specifically to the urban environment; as well as being suitable for use by local practitioners at city and neighbourhood scales. The article summarizes the stages of the assessment exercise and highlights the main findings from each of the case study cities. It also critiques the assessment process to determine what worked well and what was less successful in order to distil some recommendations for future climate assessment activity in secondary cities in the Asia-Pacific region.

KEYWORDS: *climate change, urban assessment tools, adaptation, Viet Nam, Bangladesh*

Introduction

Whilst many different agencies and organizations have developed their own climate risk assessment toolkits (see for example: ICLEI Oceania, 2008; UNDP, 2010), attention has tended to focus on rural areas, often relating to natural resources management and the promotion of sustainable livelihoods. Few assessment tools have been developed to explicitly consider the urban dimension of climate risks and the particular challenges that face rapidly developing secondary cities in the Asia-Pacific region.

In response to this knowledge deficit, a multi-country collaborative research project was conducted to develop a participatory assessment toolkit in two rapidly-growing cities in Bangladesh and Viet Nam. The toolkit, comprising a portfolio of participatory assessment approaches, was tested in close collaboration with key stakeholders and community representatives in Satkhira (Bangladesh) and Huế (Viet Nam).

Case Study I: Satkhira, Bangladesh

Satkhira is a municipal town with a population of over 450,000, situated in southwest of Bangladesh. The region is part of the High Ganges River Floodplain, with the lower parts and the basin margins commonly shallow-flooded on a seasonal basis. The region is subject to pronounced seasonal rainfall patterns — the winter season is very dry and accounts for only 2–3% of the total annual rainfall, the pre-monsoon hot season sees around 15% caused by convective thunderstorms or nor'westers (called Kalbaishakhi locally), whilst three quarters of all annual rainfall occurs during the rainy season.

As with much of Bangladesh, agriculture provides the main employment and income source; with key agricultural products including shrimp, rice, jute and wheat. Saline intrusions, however, have led to a significant shift in agriculture away from crop-based products (predominantly rice) towards the cultivation of "bagda" shrimp (GFDRR, 2011). Drainage obstruction for shrimp beds, however, acts to reinforce problems of waterlogging and salinity (Ahmed, 2008).

Case Study II: Huế, Viet Nam

Situated in central Viet Nam with a population of 338,000, Huế is the largest city in Thua Thien Huế Province. Within the city boundaries the average height of land is 3–4 m above sea level; however some areas are more than one metre below sea level and hence are highly exposed to flooding and water logging. Impacts are further exacerbated by upstream riverine flooding during storm surge events.

HIGHLIGHTS

- The assessment toolkit proved to be a useful platform for integrating local knowledge with scientific expertise in order to identify and prioritize local vulnerability issues and potential adaptation options.
- The toolkit adopted a hybrid methodology which integrated bottom-up "vulnerability-led" and top-down "climate risk" approaches. The emphasis on vulnerability resonated more strongly with local stakeholders as they were able to make sense of current day variability more so than the impacts of future changes to the climate.
- Field testing of the resource highlighted the need for flexibility in the design of toolkits to ensure they can be easily used by local stakeholders.
- An incremental approach to adaptation which tackles existing climate risks in the first instance through "win-win" and "no regrets" responses will not only have the benefit of addressing more immediate development needs but can also help to build community resilience in the longer term.
- Knowledge sharing and the cross-fertilization of expertise and ideas within and between case studies helped to raise awareness of the climate change issue as well as contributing to a strengthening of local adaptive capacity in both cities.

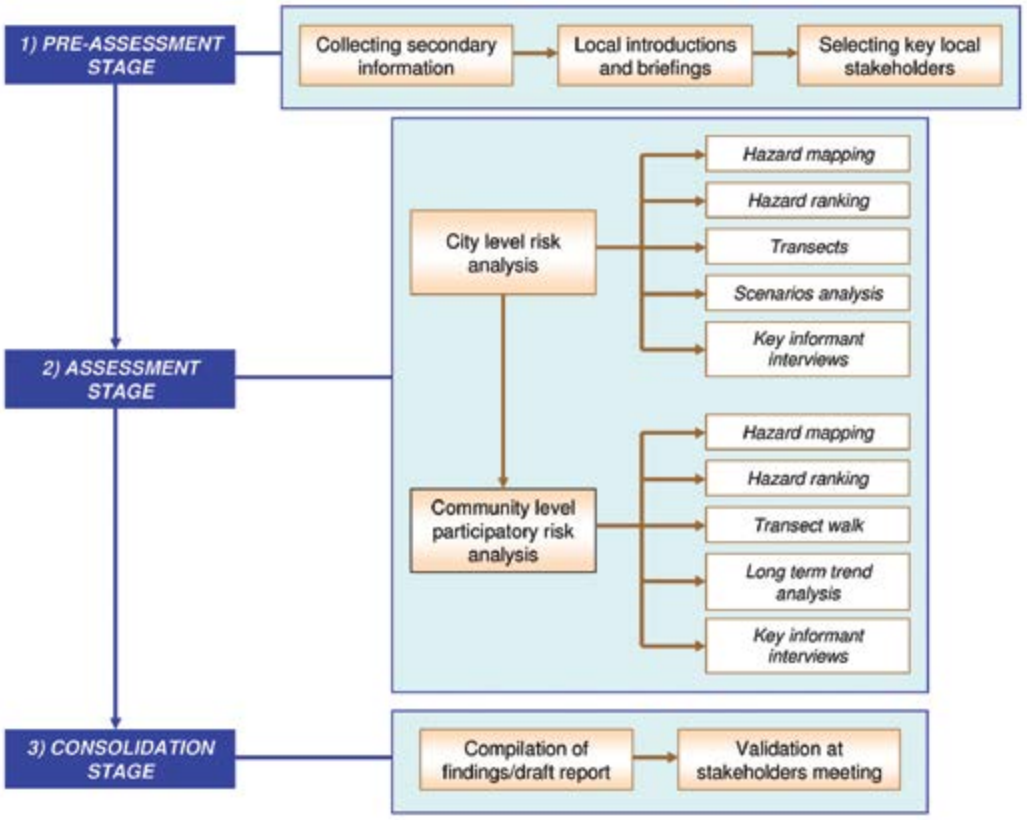

Figure 1. Context setting and local assessments

The annual rainfall rate is 2,500 mm, the majority of this falling between September and February. Resultant floods (1977–2010) have averaged 3.5/year, with over a third of these rated as serious or extremely serious (local experience indicates that the period of flood inundation can last up to a week). Saline intrusion is an additional problem for the surrounding agricultural areas, which provide much of the city's income and food production.

Methodology

The overarching methodology was framed by the principles of Participatory Action Research (PAR), where the purpose is not only to conduct research but also to facilitate action for positive change. The main research product, an assessment toolkit, was developed specifically for application in an urban context. It was underpinned by two discrete, though connected, assessment stages: firstly, context setting and local assessments (Figure 1); and secondly, future risk analysis and evaluation. These stages were embedded in a broader support framework for those carrying out the local assessment activity.

The operational stages of the assessment toolkit comprised:

- Pre-assessment (collecting secondary data, local introductions and briefings, identifying key local stakeholders);
- Local assessment (city and community-level risk analysis);
- Consolidation (draft report, with subsequent validation at stakeholder workshops);
- Climate change scenarios (integration of a top-down expert approach with bottom-up vulnerability assessment).

Results

The discussion is structured according to four headings: the design of the toolkit, case study findings, the integration of different approaches, and adaptation options.

Toolkit design and application: The toolkit proved to be a useful platform for local stakeholder input to be integrated with

the expert knowledge of scientists; with the output from the different exercises providing valuable information for identifying and prioritising local exposure/sensitivity to climatic hazards. This resource provided a solid basis for consideration of adaptation options.

Although the assessment toolkit was deliberately designed to be flexible and easy to use, some of the activities still had to be improvised by the local teams when carrying out the ground surveys. These "modifications" further emphasized the need for flexibility in the design of toolkits intended for use by non-experts. One major finding was that the focus on current-day hazards led to the unintended consequence of people equating disaster risk reduction with climate change adaptation. Hence, clarity of purpose needs to be addressed when assessing local climate risks.

Case study findings: It was found that more time and effort was needed to prepare for the stakeholder engagement stages. This relates not only to comprehensive stakeholder mapping, and establishing contact with different groups, but also to the time needed to explain and contextualize the tools and activities; and sometimes to provide education on climate science.

It is not just future climate risks that need to be addressed — both cities face much more immediate development needs and local adaptation responses need to be cognisant of the broader sustainable development context. An important issue raised was the difficulty in separating climate-related impacts from those compounded by human action and intervention; sometimes referred to as "pseudo natural" hazards (UNDP, 2002). This can be challenging in practice as illustrated by the impact of flooding and water-logging which is undoubtedly being influenced by human drivers.

The integration of different approaches: This study set out to integrate a bottom-up vulnerability assessment with a top-down expert-led climate risk approach; however, for practical reasons the local assessment process relied heavily on the community's personal experience of climate-related hazards. This focus resonated more with the local stakeholders as they were able to make sense of variability and extreme events much more so than longer-term climate change. Given the socioeconomic conditions, and the rapid changes to demographics and the built environment, more chronic day-to-day concerns have greater immediacy for local communities than some point in the distant future. As such, it is important to note that more climate science and higher resolution scenarios are not all that is required to move towards more climate-resilient communities; targeting existing vulnerabilities framed by shorter time periods, including better integration with disaster risk reduction activities, would be an equally valuable approach.

Adaptation options: For each of the case studies, an incremental approach which tackles existing climate risks in the first instance through "win-win" and "no regrets" adaptation responses will not only have the benefit of addressing more immediate development needs but can also strengthen community resilience in the longer term. Furthermore, by focusing on existing problems it is likely to be easier to garner policy support than dealing with much longer time frames, which are made more complex by issues of uncertainty.

Inadequate infrastructure was identified as an issue in both cities, with engineering options identified as a major adaptation response; however institutional barriers to change were also emphasized by stakeholders. Indeed, a strong statement from the Satkhira workshop was: "It is not that we don't know the problems, or the solutions, rather the issue is institutional." Adapting to climate change is therefore not only about engineering outcomes; it is also important to recognize adaptation as a social learning process that enhances local adaptive capacity.

Conclusions

The primary goal was to develop and test an assessment toolkit that would enable communities in fast-growing secondary cities in the Asia-Pacific region to identify local climate risks, and to begin the process

of adaptation planning. A secondary, though equally important, goal was to actively promote participatory approaches that would ensure that a diversity of perspectives was considered. The toolkit was shown to act as an important mechanism for promoting inclusiveness; highlighting the value of effective stakeholder engagement and the considerable benefits that can arise from knowledge sharing and a cross-fertilization of expertise and ideas. This was a central tenet of the activity undertaken.

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