

Assessing Institutional Capacities for Flood Disaster Risk Reduction



Floods are the most frequent and devastating of natural disasters in the Asian region and, like disasters in general, their impacts have grown in spite of our improved ability to monitor and describe them (White *et al.* 2001).

States no longer respond to disasters, they manage disaster risks, and do so with increasingly sophisticated institutional frameworks. Throughout Asia the retreat of disastrous floods is followed by the sprouting of new agencies and institutional arrangements for planning and coordination. But

are these efforts leading to reduced risks? Are capacities for risk reduction being institutionalized? Are the livelihoods of poor and vulnerable groups being secured?

These are primarily questions about politics, institutional capacities and performance. Our primary thesis is that there are important political components to interventions in vulnerability and disaster reduction programs. Our aim is to help identify where institutional arrangements are themselves contributing causes of vulnerability.

In this paper, we derive and present an initial framework for assessing institutional capacities for flood disaster risk reduction. This paper is organized around sections discussing five questions that build up to this framework: When is a flood a disaster? Who and what should be at risk? Who is or should be responsible? How were risks of disaster changed? How was performance evaluated?

When is a flood a disaster?

In the tropical parts of Asia, most of the major cities have grown in the deltas literally building on the foundations of a rice-growing civilization. The landscape has been managed for floods for centuries. Communities whose livelihood depends on the productive functions of “normal” seasonal flood cycles have learned to live with floods and have embraced their arrival with songs and dances.

Over the last few decades, industrialization and the accompanying processes of urbanization have led to very different land-use patterns, economic structures and livelihood bases. Political organization has also changed. Floods are now perceived as much more threatening events by people for whom the idea of living with floods is anathema to a modern society built around highways and the automobile.

As the potential of floods, when they occur, to be a disaster has increased, societies have invested more in prospective structural measures (Takeuchi 2001). Decades of economic growth also mean that the domestic resources available to households, firms and state authorities

to address “disaster” risks and events have substantially increased in most countries. At the same time, what constitutes a flood disaster has correspondingly shifted from an emphasis on losses of life and famines from crop failures, to losses of property and investments.

These distinctions reflect changing perceptions and beliefs about societies’ relationship to nature. Floods are now more likely to be seen as a hazard that has to be controlled. Although all groups may be negatively affected by “catastrophic” floods, impacts of “normal” and some “major” flood regimes may vary among different livelihood-based groups. What is perceived and regarded beneficial by rural farmers may be seen as disastrous and hazardous by the urban population. Therefore, it is important to expose whose perspective defines a flood event as “hazardous” and disastrous. Not surprisingly, an operational definition of what constitutes a flood disaster remains a contentious political issue (Few *et al.* 2004).



There are two main discourses on flood disasters (Adger 1999, Bankoff 2004, Dixit 2003). The first and dominant view is that flood disasters are inherently a characteristic of natural hazards. Disasters arise inevitably when the magnitude of a hazard is high. This contrasts with the alternative discourse that sees flood disasters as being jointly produced by interaction of the physical hazard and social vulnerabilities. This alternative discourse brings into the fore social relations, structures, institutions and governance in understanding flood disaster. This view posits that flood disasters are the result not only of natural hazards but also of socio-economic structures and political processes that make individual, families and communities vulnerable (Blaikie *et al.* 1994, Dixit 2003).

Who and what should be at risk?

This is the central unasked question in disaster management. Framing disaster as solely a technical problem has constricted spaces for participation and transparency and in the process conceals



the politics of shifting risk to already vulnerable groups. The only way sharing of involuntary risks can be negotiated is to have interests of marginalized and vulnerable groups represented, the quality of evidence debated and challenged and authority held accountable for its decisions. Alternative dialogues, the mass media and acts of civil disobedience may be critical to raise issues of flood disaster programs. Without opportunities for deliberation, women-headed households, the elderly, ethnic minorities and other marginalized groups are unlikely to benefit and may even be disadvantaged by programs and policies aimed at reducing risks of flood disasters.

Debate, consultation and planning procedures for flood and disaster management need to be assessed by criteria similar to those used to analyze “good governance” (Table 1). In particular, focus is needed on issues of participation, representation and sources of knowledge. In most countries, such assessment would highlight how, at least until fairly recently, the public has been treated as irrelevant to the technical exercise of assessing and managing risks and designing institutional responses.

Things may be changing. A return to a community-based flood disaster management is being widely promoted by international agencies, but only cautiously adopted by national ones (ADPC 2000, Few 2003, Morrow 1999).

The key idea is that greater involvement of the public in decisions about all stages of a disaster cycle will make better use of local knowledge and capacities and help identify risks and pragmatic opportunities to

address them. Early results of community-based flood management strategy (CFMS) pilot areas in Bangladesh suggested huge dividends in reducing vulnerability of affected communities during the 2004 flood (Ahmed *et al.* 2004).

The area requiring the most profound engagement with wider stakeholder groups is in assessing and addressing the underlying causes of vulnerability. State agencies usually find it very difficult to do as it requires addressing fundamental issues of governance and social justice that may undermine positions of authority.

Extremely low asset levels, poor access to natural resources and insufficient rights to public goods and services are often at the core of these vulnerabilities (Blaikie *et al.* 1994, Dixit 2003).

In contrast to the neglect of questions about “who will be at risk” questions of “who will pay” are intensely debated from day one. The main debate is often between levels in the administrative

hierarchy: should funds come from the local, regional or the central budget? Local governments often find they need to locate additional sources to fund recovery and rehabilitation operations.

Constant debates and controversies between the ‘center’ and the regions requesting increased involvement and support from the central authorities, especially at recovery stages where mobilization of significant funds is essential, can turn into conflicts and gridlocks that weaken institutional performance.

In many places, there is a need to go beyond participation being defined as simply informing the public or being seen as an opportunity to shift the burden onto communities for actions that should have been the responsibility of public and authorities (Lebel and Sinh 2007). Participation should result in empowerment of marginalized and vulnerable groups in decision-making around who and what should be at risk (Osti 2004).

<i>Framework for assessing institutionalized capacities and practices with regard to flood-related disasters</i>				
Function	Phase of disaster cycle (Timing)			
	Mitigation (Well before)	Preparedness (Before)	Emergency (During)	Rehabilitation (After)
Deliberation What should be done?	How were decisions made about what and who should be at risk? Whose knowledge was considered and whose interests were represented?	Was the public consulted about disaster preparations? How were decisions to give special powers to particular authorities made?	How were decisions made about what and who should be saved or protected first? What special directives or resolutions were invoked?	How were decisions made about what is to be on the rehabilitation agenda? Whose knowledge was considered and whose interests were represented?

Function	Phase of disaster cycle (Timing)			
	Mitigation (Well before)	Preparedness (Before)	Emergency (During)	Rehabilitation (After)
Coordination Who is responsible?	<p>What national basin-level policies, strategies or legislation were in place to reduce risks of disaster?</p> <p>What structural measures were undertaken to reduce likelihood of severe flood events?</p> <p>To what extent were laws and regulations regarding land use in flood prone areas implemented?</p>	<p>How were responsibilities divided among authorities and the public?</p> <p>Was an appropriate early warning system implemented?</p> <p>Were public authorities well prepared?</p>	<p>How were specific policies targeting emergency operations implemented?</p> <p>Were there gaps between stated responsibilities and performance of key actors?</p> <p>Who was in charge?</p>	<p>Were the resources mobilized for recovery adequate?</p> <p>Were they allocated and deployed effectively?</p> <p>How was rehabilitation integrated into community, basin or national development?</p>
Implementation How was it done?	<p>What measures were taken to improve coping and adaptive capacities of vulnerable groups?</p>	<p>Was the public well informed?</p> <p>How were specific national or basin-level policies targeting disaster preparedness implemented?</p>	<p>How were emergency rescue and evacuation operations performed?</p> <p>Were special efforts made to assist socially vulnerable groups?</p> <p>Were there any measures taken to prevent looting?</p>	<p>Did the groups who most needed public assistance get it?</p> <p>Who benefited from reconstruction projects?</p> <p>Was insurance available and used and, if so, how were claims processed?</p> <p>Was the compensation process equitable and transparent?</p>
Evaluation Was it done well?	<p>How is the effectiveness of risk reduction measures assessed?</p>	<p>How is the adequacy of preparedness monitored?</p>	<p>How is the quality of emergency relief operations evaluated?</p>	<p>How is the effectiveness of the rehabilitation programs evaluated?</p>
<p>To whom and how are authorities held accountable?</p> <p>Were institutional changes made to address capacity and practice issues learned in the previous disaster cycle?</p>				

Who is or should be responsible?

Being able to count on institutionalized capacities to mobilize and coordinate resources when and where they are needed is crucial in all phases of the disaster cycle, sometimes with very little scope for delay or errors of judgment. Because there are many uncertainties involved in knowing where disasters will occur, and exactly how they will unfold, it is important that this “institutionalizing” aspect fosters flexible and adaptive responses that rely on coordination.

Coordination among agencies and stakeholder groups is important for flood mitigation, in particular, the design and execution of programs and policies to help address underlying causes of extreme vulnerability (Lebel *et al.* 2011).

Mobilizing adequate funds, both for protection measures before an event and for recovery, and rehabilitation of affected areas and livelihoods after is the core “coordination” and “cooperation” issue for local authorities, because it has a large bearing on their ability to implement plans. What will be the major sources of funding? Who will benefit most from their deployment? (Kitamoto *et al.* 2005). If local authorities have the capacity and legal framework that enables them to seek loans and private-sector cooperation, then they may be able to secure more and diverse funds for disaster risk management.

Coordination of activities across phases of the disaster cycle is necessary because there is often need to link or transfer responsibilities and budgets for programs over time. One approach is through limited-life but clear objective cross-agency and multi-stakeholder task forces that can help guide these transitions.

How were risks of disaster changed?

Wonderful planning and coordination mean nothing when it comes to reducing the risks of disaster if there is no follow-through, because of corruption or other institutionalized incapacities that prevent appropriate use and allocation of these resources.

Assessing institutionalized capacities to effectively use resources and execute critical actions requires several different kinds of measures, corresponding to different kinds of resources and actions. At the simplest and most conventional level, we need to look at actual structural and non-structural responses made in preparing for, and responding to, flood disasters.

Forecasting and early warning systems are often the weakest element in the chain of purpose-built institutions for reducing risks of flood disasters. First, there are the technical challenges of obtaining critical information and sharing it in a timely fashion. Second, there are organizational and individual behaviors that undermine otherwise sound information-sharing arrangements.

In most countries, a national-level institutional framework for emergency response is well established. Normally, such frameworks incorporate a set of administrative structures, governmental programs and legal frameworks defining the conduct and interactions between specialized task forces, that are usually well trained and able to perform skillfully in extreme situations. Often, the military is involved.

For the most part, implementation always lags far behind promises and ideals when it comes to addressing the underlying causes of disasters.

Consider, for example, issues related to housing and road construction both in mountain areas and in floodplains. Economic imperatives would argue for taking structural measures to protect these investments before disasters strike, rather than exploring their role as contributing causes of disasters after the fact. Poorly constructed roads destabilize slopes or act as channels for debris in mountain areas, whereas in deltas and wetland areas, they can prevent and alter natural drainage, thus increasing the duration and height of floods.

During post-disaster periods, there is often a flurry of programs, investments and rule changes. All such actions are far more likely to be followed up and implemented if there is a significant group of stakeholders involved, who have a sense of ownership and responsibility for them. This means going beyond the project-bounded logic of “implementation” ending when the final budget item of the initial action has been spent, towards integrating projects and programs into local development. In a real sense, it is about creating a sense of stewardship for disaster risk management. This is most likely to be fostered when there is significant decentralization to local authorities who are, in turn, accountable to local affected communities.

How was performance evaluated?

The performance of institutions and organizations should be monitored and evaluated. This has to be done with a degree of independence or the opportunities for organizations to learn, for authorities to be held accountable, and for success at reducing the risks of the next disaster will themselves be reduced.

The presence of institutionalized evaluation and monitoring procedures of the disaster management system is a must. Otherwise, there can be no improvements in performance or adjustments to take account of changing contexts such as altered flood regimes resulting from climate change. A more thorough assessment would also need to take a historical perspective to review the extent to which learning had actually taken place (Krausmann and Mushtaq 2005), above and beyond factors simply reflecting technological change or increasing wealth. Apart from social learning, conventional learning by key individuals about risks, vulnerable groups and places or about experiences from other places and times may be important in reducing risks of disaster too. The capacity for current arrangements to foster these kinds of learning should also be assessed.

An assessment framework like the one we are now discussing could itself be part of an institutionalized learning process by key disaster organizations. Regular assessment exercises by particular publics and bureaucracies could consult expert advice as needed. Thorough and well-communicated research could contribute to such evaluations.

Assessing institutionalized capacities and practices

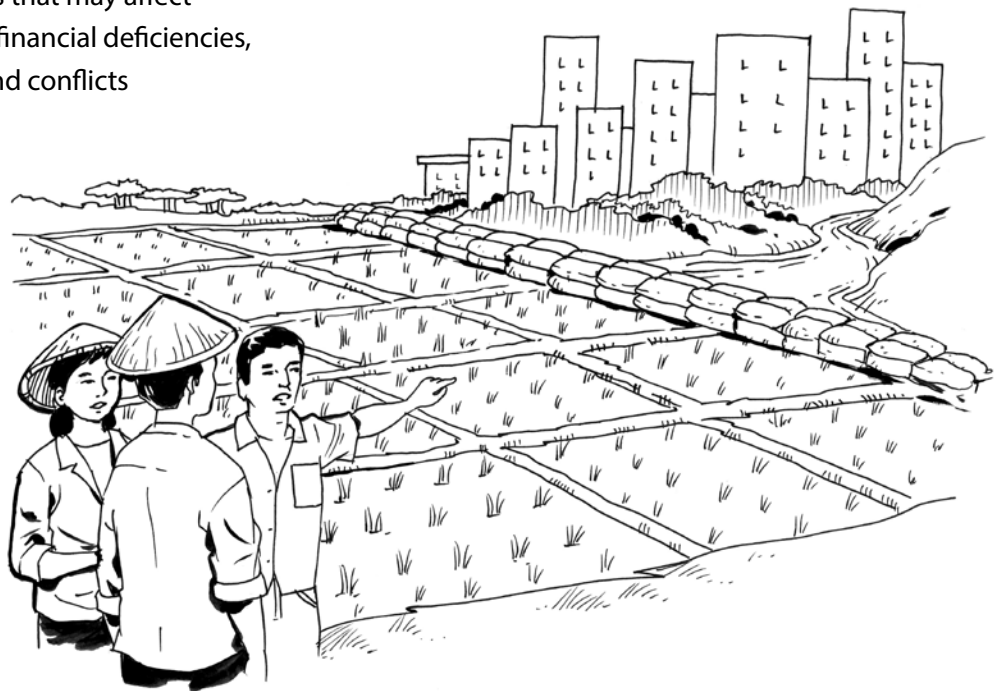
From our brief review, it is clear that significant capacities to reduce the risks of flood disasters lie both within actors and in the relationship among actors. Institutionalized capacities arise from the relations that regularly define roles and responsibilities and rules of engagement, in ways that enhance the capacity of actors institutionalized capacities.

Relationships among actors have different functions that may be institutionalized (Lebel *et al.* 2006). We derive a framework focused on four classes of institutionalized capacities and practices (See table). The capacity for deliberation and negotiation is important in ensuring that interests of socially vulnerable groups are represented and different kinds of knowledge can be put on the table for discussion and that, ultimately, fair goals are set. The capacity to mobilize and then coordinate resources is often critical to prevention and response actions. The capacity to skillfully use those resources to carry out actions transforms potential into implementation. Finally, the capacity for evaluation is important because it can be the basis for continuous improvement, adaptive course corrections and learning by key actors. We can also ask questions about each kind of relationship across four conventionally designated phases of the disaster cycle. In the case of evaluation, these questions are similar and largely cross-cutting.

Finally, gaps between stated policy goals and practice or those between design and action contribute to increased vulnerabilities. A broad variety of factors influences institutionalized practices. External factors that may affect implementation include financial deficiencies, administrative barriers and conflicts between organizations, corruption, poverty, lack of economic incentives and low participation and awareness. Situational factors might block or alter the performance of institutions or modify the designed pathways for implementation of policies and tools.

Conclusions

In spite of the better understanding of disasters, losses of life and property from flood disasters remain unacceptably high and are increasing (Vorobiev *et al.* 2003; White *et al.* 2001). Institutional reforms with the aim of reducing the risks of flood-related disasters have largely been unsuccessful. There are five main reasons. First is the misplaced emphasis on emergency relief to the detriment of crafting institutions to reduce vulnerabilities and prevent disasters. Second is the self-serving belief that disaster management is a technical problem that calls for expert judgments that systematically exclude interests of the most socially vulnerable groups. Third is the over emphasis on structural measures, which again and again, have been shown to be more about re-distributing risks in time and place than reducing them (Blaikie *et al.* 1994, Lebel and Sinh 2009). Fourth is the failure to integrate flood disasters into normal development planning in flood-prone regions. Fifth is the failure to recognize the importance of learning for building and maintaining social and ecological resilience (Adger *et al.* 2005, Wong and Zhao 2001).



This article suggests that a moderately systematic approach to diagnosis of institutionalized capacities and practices in flood disaster management is feasible and will yield practical insights.

In most flood-affected and -dependent regions, especially in the developing world, institutionalized capacities and practices to reduce the risks of flood disasters remain weak. This is especially true in the fast developing regions where the entire livelihood and socio-economic context is in flux and traditional institutions may no longer be relevant and functioning well and new relationships among firms, communities and state agencies have not emerged or kept pace with shifting risks. The mature industrial and services economies have fewer institutional gaps, but they still face the daunting challenge of escalating costs from the legacy of controlling, rather than living with, floods. The prospects of climate change further exacerbating the effects of flood regimes. Institutional challenges are going to become more important and tougher. A systematic approach to making diagnosis of institutionalized capacities and practices (Lebel *et al.* 2006b) in flood disaster management could help societies identify critical gaps beforehand and thus learn more from experience.

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Key Reference

Lebel, Y.L., E. Nikitina and J. Manuta 2006. Flood disaster risk management in Asia: An institutional and political perspective. *Science and Culture*, **72**, 2-9.

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Bibliography

Adger, N.W. 1999. Social vulnerability to climate change and extremes in Coastal Vietnam. *World Development*, **27**, 249-269.

Adger, N.W., T. P. Hughes, C. Folke, S. R. Carpenter and J. Rockstrom 2005. Social-ecological resilience to coastal disaster. *Science* **309**, 1036-1039.

ADPC 2000. *Community-based disaster management. Trainer's Guide*. Bangkok, Thailand: Asian Disaster Preparedness Centre.

Ahmed, A.U., K. Zahurul, K. Prasad, S. N. Poudel and S. K. Sharma 2004. *Synthesis of manuals on community flood management in Bangladesh, India and Nepal*. Asia Pacific Journal of Environment and Development **11**.

Bankoff, G. 2004. In the eye of the storm: the social construction of the forces of nature and the climatic and seismic construction of god in the Philippines. *Journal of Southeast Asian Studies*, **35**, 91-111.

Blaikie, P., T. Cannon, I. Davis and B. Wisner 1994. *At risk: Natural hazards, people's vulnerability, and disaster*. Routledge London.

Blaikie, P.M. and J. S. S. Muldavin 2004. Upstream, downstream, China, India: the politics of environment in the Himalyan region. *Annals of the Association of American Geographers*, **94**, 520-548.

Dixit, A. 2003. Floods and vulnerability: need to rethink flood management. *Natural Hazards*, **28**, 155-179.

Few, R. 2003. Flooding, vulnerability and coping strategies: local responses to a global threat. *Progress in Development Studies*, **3**, 43-58.

Few, R., M. Ahern, F. Matthies and S. Kovats 2004. *Floods, health and climate change: a strategic view*. Working Paper No. 63. Tyndall Centre for Climate Change Research.

Kitamoto, M., E. Tsunozaki and A. Teranishi 2005. Institutional capacity for natural disaster reduction in Japan. USER Working Paper No. 2005-11. Unit for Social and Environmental Research, Chiang Mai University, Chiang Mai.

Krausmann, E. and F. Mushtaq 2005. A methodology for lessons learning experiences at the European level. In: *Measuring vulnerability and coping capacity to hazards of natural origin: concepts and methods*, ed. J. Birkmann. Tokyo, Japan: UNU Press.

Bibliography

Lebel, L., S. Khrutmuang and J. Manuta 2006. Tales from the margins: small fishers in post-Tsunami Thailand. *Disaster Prevention and Management*, **15**, 124-134.

Lebel, L., B. J. Manuta and P. Garden 2011. Institutional traps and vulnerability to changes in climate and flood regimes in Thailand. *Regional Environmental Change*, **11**, 45-58.

Lebel, L., E. Nikitina, V. Kotov and J. Manuta 2006. Assessing institutionalized capacities and practices to reduce the risks of flood disasters. In: *Measuring vulnerability and coping capacity to hazards of natural origin: concepts and methods*, ed. J. Birkmann; 359-379. Tokyo, Japan: UNU Press.

Lebel, L. and B. T. Sinh 2007. Politics of floods and disasters. In: *Democratizing water governance in the Mekong region*, eds. L. Lebel, J. Dore, R. Daniel and Y. S. Koma; 37-54. Chiang Mai, Thailand: Mekong Press.

Lebel, L. and B.T. Sinh 2009. Risk reduction or redistribution? Flood management in the Mekong region. *Asian Journal of Environment and Disaster Management*, **1**, 23-39.

Morrow, B.H. 1999. Identifying and mapping community vulnerability. *Disasters*, **23**, 1-18.

Osti, R. 2004. Forms of community participation and agencies' role for the implementation of water-induced disaster management: protecting and enhancing the poor. *Disaster Prevention and Management*, **13**, 6-12.

Takeuchi, K. 2001. Increasing vulnerability to extreme floods and societal needs of hydrological forecasting. *Hydrological Sciences Journal*, **46**, 869-881.

Vorobiev, U., V. Akimov and U. Sokolov 2003. *Catastrophic floods of the beginning of the XXI century* (in Russian). Moscow: Desk, Press.

White, G.F., R. W. Kates and I. Buron 2001. Knowing better and losing more: the use of knowledge in hazards management. *Environmental Hazards*, **3**, 81-92.

Wong, K. and X. Zhao 2001. Living with floods: Victim's perceptions in Beijiang, Guangdong, China. *Area*, **33**, 190-201.