Pakistan

Navigating the Contours of Pakistani Hazardscapes: Disaster Experience versus Policy

Location: Rawalpindi/Islamabad & Muzaffarabad (Pakistani Administered Kashmir)

Date: May 2007

Sector focus: Flood related disasters

Spatial focus: Village in the Northern Gangetic plains

Organization

The Institute for Environmental and Social Transition (ISET) is a non-profit organization with members from the North and South committed to environmental sustainability and poverty alleviation. The institute's mission is to improve understanding and to elevate dialogue as civil society responds to natural resource and environmental challenges. At the core of the organization is a belief in strategic thinking, partnership, participation, communication, capacity development, and commitment.

Bibliographical details

Khan, F. and Mustafa, D. (2007), *Navigating the Contours of the Pakistani Hazardscapes: Disaster Experience versus Policy* in Moench, M. and Dixit, A. (2007) 'Working with the Winds of Change: Towards strategies for responding to the risks associated with climate change and other hazards" ProVention Consortium, Institute for Social and Environmental Transition-International and Institute for Social and Environmental Transition-Nepal. Kathmandu, Nepal, second edition, chapter 8, pp. 193-234. Case study can be downloaded from: (http://www.proventionconsortium.org/themes/default/pdfs/winds_of_change.pdf)

Language availability

This publication is available in English.

Abstract

Pakistan, despite being the seventh most populous country in the world, has not attracted much international scholarly attention towards its human-environment related issues. Two contrasting cases are reviewed in this paper, namely: Muzaffarabad earthquake affected areas and the Lai[1] Floodplain in Rawalpindi. While the primary hazards in case areas vary in cause, frequency and intensity, the comparison between disaster risk reduction approaches and their likely outcomes is very interesting. The recent catastrophe from the Asian earthquake attracted considerable international donor attention as well as a renewed focus on the part of the government of Pakistan and Pakistani civil society on natural hazards and their impacts on Pakistan's developmental trajectory. All levels of actors involved in the relief and recovery effort are employing targeted risk reduction measures in their rehabilitation activities. Following a major flooding event in 2001, the banks of the river were cleared (at least partially) of structures and a flood early warning system was installed with support from the Japanese development cooperation (JICA). In addition, proposals have been floated to construct a major channel capable of diverting all flows into other basins and a major program for canalization and conversion of the Lai riverbed into a highway has recently been announced.

The analysis made in the case study highlights that besides the targeted risk reduction measures, there are systemic changes in Kashmir that have a much more profound and sustainable long-term effect on building resilience in the communities. Cellular mobile communication, expansion of financial services, road networks and civil society intervention will facilitate recovery and will also likely diversify livelihoods, build social capital and expand opportunities for basic services like health and education. Therefore, areas that are not considered to be part of focused disaster risk reduction (DRR) interventions may in fact lead to more sustained DRR especially if the basis for these systemic changes is led by a business model rather than by policy alone. In Lai, the development policy that is an outcome of competing organizational and sectoral interests relegates DRR to a secondary objective. The resulting risk reduction proposals, despite high initial cost, lack a sustainable business model and are as likely to increase vulnerability as they are to reduce it. Surprisingly, solid waste emerges as the main hazard identified by the majority of the residents surveyed in the Lai basin. The mortality and disease load from the unhygienic living conditions and contaminated drinking water around the Lai may actually be claiming more lives than the floods.

Intended users

This publication is intended for **humanitarian aid workers**, and **risk researchers**.

Background and context of country, location and project

Muzaffarabad city sits next the Tehsil narrow river valley formed by the Jehlum and Neelum rivers. Besides the most recent earthquake, historically the district has been exposed to riverine flooding, landslides and to a lesser extent forest fires and droughts. In addition, extreme cold spells in higher altitudes coupled with landslides have been major hazards for the rural inhabitants of the Muzaffarabad Tehsil. Some of the major past disaster events in Muzaffarabad were the great floods of 1992 and periodic slides blocking off the Jehlum and Neelum rivers. The most recent one occurred in 2007 when a landslide partially blocked the Jhelum River and killed twenty people in Muzaffarabad Tehsil. Such landslides also disrupt transportation and economic activities, and in the recent case of Jehlum, jeopardized the ongoing earthquake recovery efforts.

The Lai Nullah basin drains a total area of 244 km^2 south of the Margalla hills, with 55 percent of the watershed falling within the Islamabad Capital Territory and the remaining within the downstream Rawalpindi Municipal and Cantonment limits. Islamabad's rapid growth is reducing surface

[1] This spelling comes closest to the phonetic pronunciation of the name and is most widely used. Other spellings, e.g., Leh and Lei are also in use.

permeability of the watershed, resulting in increased flood peaks downstream. The Lai basin already receives most (90 percent) of its river flows within a period of one and a half months. The current carrying capacity of the Lai is about 10,000 cusecs [cubic meters per second] while the twenty-five year return period flood carries 35,000 cusecs of water causing inundation in the most densely populated areas of Rawalpindi. Climate change predictions of increased precipitation over approximately the same number of rainy days – in effect, higher intensity storm events -- would exacerbate this situation. Similarly, Islamabad is in an accelerated process of developing new sectors in the upstream watershed, reducing its absorption capacity. The combination of these factors is expected to significantly increase the flood peaks in the Lai. Population and economic growth along with the elitist planning of Islamabad is forcing the poorer population of the conurbation to inhabit the risk prone banks of the Lai, particularly because of its proximity to economic opportunities. Surprisingly, solid waste also emerges as the main hazard identified by the majority of the residents surveyed in the Lai basin. The mortality and disease load from the unhygienic living conditions and contaminated drinking water around the Lai may actually be claiming more lives than the floods.

- In both field study sites there are two different types of historical and contemporaneous conflicts. In the case of the Rawalpindi/Islamabad, there has been jurisdictional and institutional conflict between federal level institutions and provincial and local institutions. In the case of Muzaffarabad, there is a decades old conflict over sovereignty of the area between Pakistan and India leading to three wars between the now nuclear armed rivals. The most recent low intensity military conflict in Kashmir between the two countries lasted almost two decades, between 1986 and 2005.
- The South Asia earthquake in 2005 displaced millions of people and destroyed many settlements completely. There is a flux of internally displaced people within Pakistani administered Kashmir and in neighboring Pakistan. While many who could afford it have migrated to other parts of Pakistan, the psychological trauma of involuntary migration and loss of place-based social networks continues to handicap even the relatively better-off migrants from staging a full recovery. In the Lai flood plain at least 19,000 households lie within the historic 100-year return flood plain with most of them having a tenuous legal status over their habitation. Any effective risk mitigation program will have to include dignified and equitable arrangements for the rehabilitation/resettlement of many of these households.
- In both cases, there is an ongoing risk reduction effort underway. Some of these may have beneficial effects while the sustainability and effectiveness of others is circumspect. In the case of the Kashmir earthquake, for example, the Pakistani authorities are putting excessive reliance on centralized decision making and standardized reconstruction protocols, which are often economically, culturally and socially inappropriate. The dominance of the military mind on the reconstruction process, a reactive versus proactive and technocratic versus a mix of both technical and institutional approaches is a major challenge in the Kashmir context. Many of the same challenges also continue to haunt the disaster risk reduction initiatives in the Lai Basin. The military government of Pakistan has announced two of the most expensive public works projects in the history of Pakistan in the Lai basin. The proposed construction of the Pakistan Army's General Headquarters (GHQ) in the headwaters of the Lai without any consideration for the increased flood peaks that may be induced in downstream Rawalpindi is one such example of the short-sighted action. The proposed channelization of the Lai and construction of an expressway along its bank with DRR as a partial justification in addition to development work is another example of a strategy that is likely to be ineffective at best and perhaps even counterproductive in the long run.
- The Muzaffarabad case study was undertaken in the context of the largest calamity and relief effort in the history of Pakistan. The Lai research was undertaken over a longer period after a major flooding event in 2001.

Technical description

Hazard/risk type: Flood, earthquake, landslide, water-borne diseases

Type of assessment: Research on Disaster Risk Reduction (DRR) and Climate Adaptation Strategies

CRA process

Shared learning dialogues (which are meant to exchange information rather than extract it), and stakeholder analysis were conducted using semi-structured interviews, secondary data analyses and literature reviews. Investigative tools also included: household surveys, key informant interviews and group meetings. The researchers met with community members, federal, provincial and local government officials, members of the UN system, and organizations involved in disaster response, management and wider development activities.

Notes on Methods and Tools

Key Insights Generated for Vulnerability Reduction & Capacity Enhancement:

- In Muzzafarabad the three main DRR interventions are seismic proof building design, training of masons and training of communities in rescues and relief. All three are useful but their sustainability is not ensured. Having only two designs (one for high altitude with local materials) is too restrictive. It is also not clear if the trainings of masons and communities would continue in the future.
- In the Lai Basin, DRR constitutes mega projects, which include diversion of half the tributaries and paving the banks with a two-lane expressway after channelizing the river. The economic, social and environmental costs of these measures are very high and it is unclear how building a road along the river (launched) is going to reduce flooding.
- At the systems level a sea change of physical and social infrastructures has taken place in Muzaffarabad. Mobile phone and financial services are interventions that would bring long-term resilience and have good sustainability because they have a viable business model. The influx of a diverse institutional relief effort has supported the creation of social capital and better roads have increased access to health education as well as opportunities for more diversified livelihoods. The mega-projects in Lai do not address the wider underlying systemic causes of vulnerability. Despite being only a few kilometers from capital, clean drinking water, sanitation and access to health and transport are some of the most important problems that the communities have identified and ranked even above the floods in some instances.

Lessons learned

Systemic resilience is as important, if not more so, than targeted DRR interventions. Such changes, with a good business model, make them very sustainable. Policy driven initiatives within the broader development practice may give DRR second place when organizations compete for resources. In addition, sustainability is limited if mechanisms for maintenance are not well designed.

Key words

Disaster Risk Reduction, urban hazards, flood hazards, mountain hazards, earthquake, landslide

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