

Financing Disaster Resilient Infrastructure

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Risk to Infrastructure in Uttarakhand

- Uttarakhand State Government budget outlay for 2017-18 is Rs. 39,957.8 Cr, of which Rs. 3555.2 Cr (almost 9%) will be spent on Capital Expenditure for Infrastructure.
- This includes
 - Water supply, Housing and Urban Development;
 - Rural Development;
 - Irrigation and Flood Control;
 - Energy;
 - Public Works;
 - Industries; and
 - Transport.¹

¹http://budget.uk.gov.in/files/Budget_at_a_Glance.pdf

Risk to Infrastructure in Uttarakhand

- Infrastructure is at risk from earthquakes, cloud-bursts, floods, landslides, glacial lake outburst floods, fires, and related events.
- Estimated total cost of recovery and reconstruction after the June 2013 disaster was Rs. 43115.3 Cr.²
- Estimated indirect loss of Rs. 6532.5 crore to Tourism alone and 24811.15 crore in total economic losses.³

²World Bank and ADB assessment, 2014

³<http://www.worldbank.org/en/results/2014/07/29/rapidly-assessing-flood-damage-uttarakhand-india>

Role of finance in increasing resilience

- Pre-disaster - early warning, risk assessment, critical infrastructure, additional up-front costs, monitoring, incentives
- Post-disaster - speed of response, recovery
- Reconstruction - costs to build back better

Part I

Financing mitigation

Mitigation funding - India

Mitigation related expenditure in Budget 2016-17 :

Project	Budgeted Expenditure (BE)
National Cyclone Risk Mitigation Project	Rs 642 cr
Dam Rehabilitation and Improvement programme	Rs 24 cr
Flood forecasting	Rs 60 cr
Flood Management Programme	Rs 150 cr
Total	Rs 876 cr

Mitigation funding - India

In September 2016, the Ministry of Finance has made a provision of 25% of total outlay for all CSS schemes as “Flexi-Fund” to provide States with flexibility to meet local needs, pilot innovation and carry out restoration/mitigation measures for natural calamities.⁴

⁴http://doe.gov.in/sites/default/files/Guidelines_FlexiFunds_Schemes.pdf

Mitigation funding - some international experience

- A review of Australia, USA, Mexico, and Canada shows that their disaster mitigation funds are primarily used for:
 - Risk assessment: Hazard, exposure and vulnerability assessment, development of risk atlas and early-warning systems;
 - Local capacity-building around disaster prevention;
 - Sometimes used for particular projects undertaken explicitly for reducing risk: such as embankments, cyclone shelters.
- The mitigation fund usually has a small corpus. As an example in Mexico the FOPREDEN fund has a corpus of \$25 million.
- In Canada, the National Disaster Mitigation Plan has earmarked \$200 million over 5 years. Budget 2017 earmarked \$2 billion to create a *Disaster Mitigation and Adaptation Fund*.

Risk assessment

- Need to assess risk with clear methodology
- Data on hazards
- Assessment of exposure and vulnerability
- Expected financial consequences
- Risk bearing capacity of stakeholders
- Financial burden, financing gaps

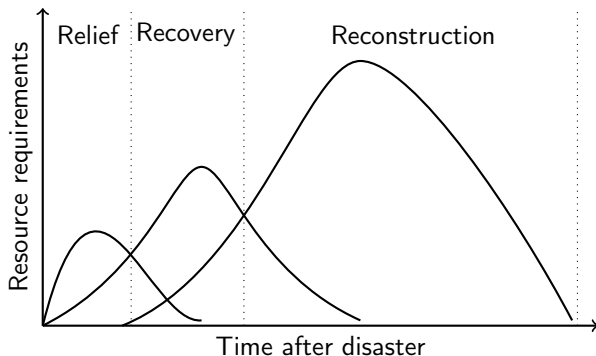
Part II

Response fund

Residual Risk

- Nature of fund requirement evolves with time after a disaster.

Figure: Phases of post-disaster funding needs.



Source: Ghesquiere and Mahul (2010)

Relief, Recovery, Reconstruction funds

- Section 46(I) and 48(I)(a)&(b) of the Disaster Management Act, 2005 (DM Act) mandate the setting up of National(NDRF), State(SDRF) and District(DDRF) Disaster Response Funds respectively.
- NDRF is constituted to supplement the funds of the State Disaster Response Funds (SDRF) of the states to facilitate immediate relief in case of calamities of a severe nature.
- The guidelines for the NDRF state that the funds will be used to provide immediate relief in cases of severe calamity and explicitly exclude expenditure on preparedness, restoration, reconstruction, and mitigation — stating that these are to be met from plan funds.
- Depend on past utilization of funds. May not be appropriate for disasters of low frequency.

Needs assessment

- Post disaster needs assessments are often done to determine the need - in terms of amounts, and by which sectors and to what use.
- India does not have a requirement for a formal needs assessment
- There are often difficulties in obtaining funds in a timely and adequate manner.
- Within a federal structure with many alternate uses of money there needs to be a transparent and effective system for assessing and meeting these needs.

Part III

Risk transfer

Hold or transfer risk

- In a federal structure state governments typically transfer risk to the central government.
- The central government can hold residual risk or transfer it.
- The government's Public Debt Management Agency should decide what to hold and what to transfer, keeping the national balance sheet in mind.
- This depends on various factors:
 - Size of country and government balance sheet
 - Frequency of disasters
 - Intensity of disaster

Tools for holding or transferring risk

List of these financial tools available to retain or transfer risk.⁵

Table: Retention vs financing risk, ex ante vs ex-post

Risk Retention	Risk Transfer
Ex-ante	
<ul style="list-style-type: none">● Dedicated reserve fund● Contingent credit facility	<ul style="list-style-type: none">● Insurance● Cat bonds
Ex-post	
<ul style="list-style-type: none">● Budget reallocation● Taxation● Debt● International aid	

⁵ OECD, 2012

Part IV

Monitoring and incentives

State capacity

- Bulk of infrastructure is publicly owned. Setting standards and monitoring them is the responsibility of the state.
- What about private construction?
- More than Rs 1 lakh crore of infrastructure assets are under construction in Uttarakhand. A large chunk of it is private.
- The state has limited capacity to monitor.
- Housing insurance with risk reflective premiums used an incentive for reducing the incentive for risk. Evidence not conclusive.
- Insurance companies have the incentive to develop capabilities to assess risk.
- Banks that lend to infra projects insure loans to transfer risk. This uses insurance sector capacity for monitoring.
- Issues with existence, size and nature of insurance market.

Part V

Conclusion

Looking ahead

- Is the framework for risk mitigation funds adequate?
- Is the framework to disperse funds timely and provide liquidity for post-disaster needs adequate for response?
- For recovery?
- And, for reconstruction and building back better?
- How can we do better?

Thank you.