

## Community-based disaster risk reduction in the Indian State of Bihar

**Location:** Dharbanga district, Bihar state, India

**Date:** 2005

**Sector focus:** floods

**Spatial focus:** District and community level

### Bibliographical reference

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Paul Venton and Courtenay Cabot Venton. *Community-Based disaster risk reduction in the Indian State of Bihar*. Tearfund, Middlesex, 2005.

### Abstract

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With approximately 86 million inhabitants, Bihar state has the highest rural population in India, as well as the lowest rural incomes in the country. According to the World Commission on Dams, Bihar is one of the most flood-prone states in India with nearly 57% of India's total flood-affected population living in the area. During the annual monsoon season (approximately June to August), the eight major river basins of North Bihar flood large tracts of land. The intensity and duration of flooding can vary, but large numbers of villages are consistently affected, and their populations forced to evacuate to higher land. Communities in this area are extremely vulnerable economically, due to lack of land ownership and reliance on the landowners, lack of savings and lack of employment opportunities. Local livelihoods are further affected due to limited infrastructure (poor communication channels, no public transport, limited schooling) and a strong caste structure.

This case study profiles the community-based disaster risk management programme of the Discipleship Centre (DC) in North Bihar. Discipleship Centre (DC), a Delhi-based Indian NGO, has been implementing development programmes in the Dharbanga district of North Bihar for over ten years. The goal of this profiled programme is: to prepare and enhance capacities of flood affected communities of 5 villages in Dharbanga district, to reduce vulnerability to floods and thereby protect their life, property and livelihoods.

While intended end users are not explicitly stated in this publication, it would be beneficial to **community development workers**, and **government staff**. The case study uses **Participatory Rural Appraisal** (PRA) techniques to conduct a disaster Vulnerability Capacity Assessment (VCA), based on a **Participatory Assessment of Disaster Risk** (PADR) methodology. It mentions the use of focus groups, hazard mapping and seasonal charts to gather data on the hazard, its impact upon the community and the vulnerabilities and capacities of the villagers. This

is followed by helping the community to identify actions to reduce the risks to which they are exposed.

## Technical description

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**Hazard/risk type:** Floods

**Type of assessment:** disaster vulnerability and capacity assessment

## CRA process

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**Methods used:** A Vulnerability Capacity Assessment was undertaken using Participatory Rural Appraisal (PRA) techniques. Tools included: focus groups, hazard mapping and seasonal charts to gather data on the hazard, its impact upon the community and the vulnerabilities and capacities of the villagers. Following data collection, DC worked with the community to identify ways of reducing the risks to which they are exposed. An important aspect of DC's entry point for each new village was to focus on establishing trust and encouraging local ownership. Through this project, these aspects were achieved by physical interventions and social capacity building.

**Was livelihood analysis used?** Yes. A sustainable livelihoods analysis is used employing the framework of natural, physical, human, social, and economic factors contained in Tearfund's Participatory Assessment of Disaster Risk (PADR) methodology. [Refer to 'Reducing Risk in our Communities' by Tearfund available as a Comprehensive Manual in the Provention CRA Toolkit at <http://proventionconsortium.org/?pageid=43>.]

**Was external specialist knowledge introduced?** Yes. DC provided capacity and infrastructure support.

## Vulnerability analysis

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Vulnerability was defined in this publication as loss of life or livelihood assets (natural, physical, human, social, and economic) due to flooding. Flooding occurs on a yearly basis, and despite interventions, villagers are still forced to move to embankments each year. As a result of this displacement, they face severe impacts including illness, loss of work, loss of education and loss of homes.

Furthermore, according to the publication, the root causes of vulnerability in relation to Dharbanga district can be broadly identified as: lack of land ownership, lack of work opportunities, cultural beliefs regarding the caste system, government prioritization of other interests, lack of integration of vulnerability reduction into development planning, and lack of international cooperation between Nepal and India regarding flood management.

## Capacity analysis

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The Dharbanga district is rich in natural resources – for example, groundwater, forests and fertile soil. The Disaster Mitigation and Preparedness (DMP) programme has built on the existing resources by planting trees to increase soil stability and absorb floodwaters. The physical assets owned by the villagers include houses and some tools.

**Resources available:** DC has provided both *physical assistance*, through the supply of boats, raised hand pumps, and construction of escape roads and culverts, as well as *community*

*capacity building*, through the establishment of Village Development Committees (VDCs), women's Self Help Groups (SHGs), microfinance schemes and volunteer training.

**Limitations to capacity:** Communities in this area are extremely vulnerable economically, due to lack of land ownership and reliance on the landowners, lack of savings and lack of employment opportunities.

## **Action planning and implementation**

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**What actions were actually planned?** The CDM project combined physical interventions and social capacity building. *Physically* DC helped with the construction of an escape road, the building of a bridge and a culvert to aid communications between villages and allow floodwater to disperse, provision of boats for evacuation, and the installation of raised hand pumps.

*Capacity building* initiatives included the establishment of Village Development Committees (VDCs), composed of members elected by the community, as well as smaller groups with specific responsibilities in the flooding (e.g. a Village Rescue and Evacuation Team, a Village Security Team, and a Flood Evacuation Centre Management Group). Each village has also established a women's Self Help Group (SHG).

Each community created a Village Development Fund (VDF), with the help of DC. Households pledge to donate a certain sum of money each month to the VDF, and these savings are deposited in a local bank and supervised by the VDC members. The community maintains control over the funds, and uses them for mutually-agreed-upon activities, such as medical costs and boat repairs. It is difficult to assess through this case study whether these initiatives were proposed by DC or from the community.

**What actions were actually carried out?** All of the above activities were carried out.

**Have these actions turned out to be sustainable?** The training of volunteers formed the basis of this programme and gave the communities a sense of strength in their ability to cope with flooding. This has had continued effects in terms of social capacity which benefits the community more generally. Through social capacity, and the proven benefits of the programme in terms of annual flooding, there is strong indication that physical interventions will be sustained by the community in the medium and longer term. An indicator for the perceived success of the programme has come from adjacent communities who have started replicating risk reduction measures and seeking DC involvement. Trained volunteers take initiative to assist adjacent villages their own.

**Were there any unanticipated additional benefits of the actions?** In North Bihar, the caste system causes substantial discrimination and lack of opportunities for development. As a result of the DC programme, a significant attitudinal change was initiated – villagers overwhelmingly feel that they now have the confidence to effect change and feel empowered to work towards development goals. There was also noted gender-related impacts as well as reduced stress.

Through the DMP, the costs of repairing hand pumps, the loss of household possessions, tools, and livestock, the loss of life and injury, and the costs of boat rental were all reduced. This was translated into a Cost Benefit Analysis (CBA) that for every Rupee spent on the programme, 3.8 Rupees in quantifiable benefits have been achieved<sup>1</sup>. For further information, refer to *Network Paper 49: Disaster Preparedness Programmes in India: A Cost Benefit Analysis*, London: ODI, 2004, by Courtenay Cabot-Venton and Paul Venton.

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<sup>1</sup> Cabot-Venton, Courtenay. Venton, Paul. *Disaster Preparedness Programmes in India: A Cost Benefit Analysis*, Network Paper 49. ODI: London, 2004. Available at: <http://www.odihpn.org/report.asp?type=Network%20Paper&id=2686&number=49>

Furthermore, as a result of improving the escape routes for the villagers, the landowners are better able to harvest and transport their mango crop in non-flood periods.

**Were there any unanticipated negative consequences of the actions?** N/A

**Limitations on action/sustainability of actions:** Early community-based programming is being expanded to include a wider group of stakeholders, including local government officials. This helps overcome the limitations of a small-scale programme dealing with a large-scale problem.

## Indicators

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CBA was done taking in to account the cost of repairing hand pumps, the loss of household possessions, tools, and livestock, the loss of life and injury, and the costs of boat rentals. For further information, refer to *Network Paper 49: Disaster Preparedness Programmes in India: A Cost Benefit Analysis*, London: ODI, 2004, by Courtenay Cabot-Venton and Paul Venton.

An indicator of the perceived success of the programme is the enthusiasm of adjacent communities to replicate risk reduction measures and seeking DC involvement.

## Contextual notes

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**Existence/role of prior or contemporaneous conflict?** Although it is not an overt conflict, caste system causes substantial discrimination and lack of opportunities for development.

**Role of displacement/relocation.** During the yearly monsoon season, large numbers of villages are forced to evacuate their destroyed thatched-roof mud homes in search of higher land. Millions of people are displaced to makeshift bamboo and tarpaulin shelters on the embankments for the two to four months duration of the flooding. The state government often closes schools during the flood period, resulting in state-wide education losses.

**Role of prior disaster & prior recovery attempts?** N/A

**Significant historical, geographic, economic, political, or cultural issues that influenced this instance of CRA and its consequences?** N/A

## Strategic notes

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**How has this practice of CRA influenced change in policy and practice at the national and local levels?** There is no evidence that this programme has changed policy and practice at national or local levels. However, the CDM programme is a unique example of a programme where a CBA has been undertaken. The positive results have been widely distributed and, with additional support from other CBA initiatives, could form the basis of additional leverage for change at higher levels.

**How has this practice of CRA influenced the level of organization and solidarity in the locality where it was carried out?** According to the publication, life on the embankments has been significantly improved, by advance clearance of scrub and allocation of plots for specific purposes. Improved social organization has led to the drafting and agreement of flood contingency plans, so that all know where to go and what to take when the evacuation signal is given. There is a much greater sense of ability and resourcefulness within the communities.

**Less divided along class, gender, age, ethnic lines?** The women's Self-Help Groups means that not only do the women have their own group, but they also have committee members as a

part of the VDC and have received training under the DC programme. The authors noted a marked improvement in the status of women in the community, and their increased self-confidence.

**More divided along these lines? N/A**

**Are the people living in this area more able to speak out on issues that concern them?**

The DC programme has initiated attitudinal change in that villagers feel that they now have the confidence to effect change and feel empowered to work towards development goals.

**Have new civil society organizations been created directly or indirectly because of this practice of CRA?** VDCs were created and villagers cite that these have greatly enhanced community relationships as well as increasing co-operation with neighbouring villages. VDC member lists are prominently displayed in the village, increasing self esteem.

## **Lessons learned**

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- ♦ At community level, development activities need to integrate disaster risk reduction activities, utilising effective vulnerability and capacity assessment methodologies. This integration can also take place through capacity building, skills training and the establishment of village development committees.
- ♦ Advocacy is a crucial component to ensure that the root causes of vulnerability are addressed. This can take place at a local level with land-owners, as well as with government officials for improved services. Higher-level advocacy, such as improved inter-governmental co-operation on river flood management, is also needed.
- ♦ Initiatives linking together government-level policies with the “bottom-up” approaches of community-based NGOs, could be very beneficial and effective at addressing some of the root causes of vulnerability.

## **Keywords**

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Floods, root causes of vulnerability, village development committee, self-help group, village rescue and evacuation team, a village security team, flood evacuation centre management group, village development fund, cost benefit analysis.

## **Resource person(s)**

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