

# Community recovery and its sustainability: Lessons from Gujarat earthquake of India

*Shaw et. al.* case study the rehabilitation of the village of Patank in Gujarat State in Western India after the Gujarat Earthquake

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The 2001 Gujarat Earthquake in India highlighted the need for involvement, leadership and ownership of communities in the recovery process. A multi-stakeholder, and multi-organization rehabilitation program was implemented in Patanka, one of the hardest hit villages in Gujarat.

The lessons learned during the program are summarized in this paper. Firstly, interacting and building trust with the community, proper planning processes and budget and time flexibility were important initial considerations. Secondly, implementation was undertaken jointly with the community, along with capacity and confidence-building processes. Sustainability was a major focus during implementation, so that the rehabilitation project became part of the development initiative. Finally, the most important aspect was the exit policy of the project team, leaving an institutional mechanism in the community that enabled it to serve its own needs.

## Introduction

An unparalleled earthquake (magnitude 7.7, USGS) devastated the Gujarat State in Western India on 26 January 2001 bringing with it unprecedented and widespread loss of lives and property. More than 13,000 people lost their lives and thousands were injured (GSDMA, 2002) in the quake affecting an area stretching more than 400 km, including urban, semi-urban and rural areas. Several villages close to the epicentre were completely destroyed. Over 300,000 buildings collapsed and more than twice that number were severely damaged. The earthquake was a tragic blow to the region already suffering from drought conditions and the aftermath of a cyclone three years



Figure 1: Involvement of different stakeholders

earlier. The devastation affected the area socially, economically and physically (Shaw et al., 2001).

The State received an overwhelming response from a myriad of organisations offering support for relief and reconstruction of the quake-hit areas. Several disaster management institutions and organisations launched a combined effort in the post-earthquake response, providing material and in-kind support. One such consortium included government, non-government, academic and international organizations from India, Japan and Nepal (see figure 1). Sustainable Environment and Ecological Development Society (SEEDS), NGOs Kobe, United Nations Centre for Regional Development (UNCRD), and Earthquake Disaster Mitigation Research Centre (EDM) were the major agencies involved in the reconstruction project along with the Gujarat State Disaster Management Authority (GSDMA). These agencies were supported by other organisations with technical and financial inputs.

The purpose of the consortium was to use collective group strengths and past experiences to assist the people of Gujarat. The Patan district, located to the east of Kuchchh district in Gujarat State and one of the hardest

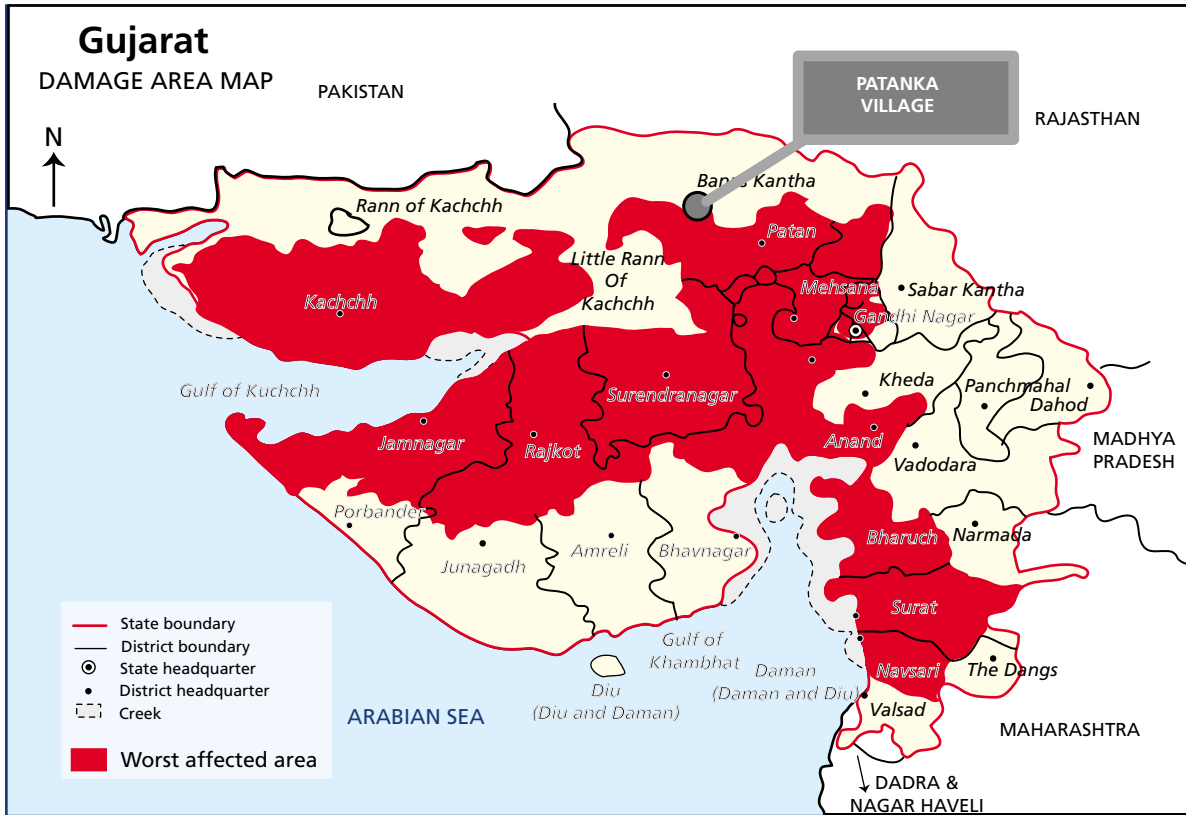


Figure 2: Location of study area in Gujarat, Western India

hit districts, was chosen as an area for intervention (Figure 2). The village of Patanka, located approximately 270 km north-west of Ahmedabad and 70 km west of the epicentre of the earthquake, was chosen by the consortium to test a 'model' mitigation approach. Previously, Shaw et al. (2003) detailed the village, its ethnic group makeup and the role of the local government. Figure 3 shows the types of damage to rural houses in Patanka.

The consortium formed a Project Team on an initiative called the 'Patan Navjivan Yojana' (Patanka New Life Project)(PNY). The project had two major goals:

1. to rehabilitate the lives of the residents of Patanka providing safer houses, better infrastructure and greater livelihood security; and
2. to provide a shake table demonstration for building local capacities in building earthquake-safer construction.

In this paper, the lessons learned from the rehabilitation of the 'model' village are described.

### Need for the model approach in community rehabilitation

The need for a 'model' approach to community rehabilitation is felt now more than ever before. The following factors contribute to this need:

1. Disasters in recent decades are causing more deaths than in the past century. Indeed, some areas are repeatedly affected by disasters, yet the relief and rehabilitation carried out following one disaster does little to protect against subsequent disasters.
2. Some areas vulnerable to recurrent disasters do not learn from past incidents and consequently experience a disaster-poverty cycle (Bhatt, 1998). Limited education and awareness among the stakeholders and a lack of confidence in disaster-



Figure 3: Damage to rural housing in Patanka

resistant practices (i.e. construction) are regarded as two major reasons for the repetition of mistakes and tragedy (Shaw et al, 2003).

3. The reconstruction efforts being largely ad-hoc, mean there is no strategic framework and coordination. Inadequate planning, coupled with lack of preparedness and mitigation infrastructure, poor information dissemination and inappropriate measures for accountability have aggravated the problem.
4. Population increases are felt in most parts of the world directly contributing to a rising trend of life loss.

Appropriate rehabilitation and mitigation practices can potentially reduce the loss of life in disaster situations (Maskrey, 1989). Over many years, attempts have been made to develop sustainable disaster management 'models' that can effectively reduce risk. Experience shows most 'models' exist as long as there is external support to the local community (Twigg, 2000). Most initiatives fail soon after external assistance is withdrawn. Ultimately, this withdrawal results in the vulnerability of the community increasing to its previous level. Furthermore, it is widely accepted that an increased coordination and capacity building among aid agencies, long-term planning and a greater understanding of the recovery and rehabilitation issues can potentially improve post-disaster actions at the community level. Accordingly, the Project Team strongly advocated the need to urgently develop a 'model' approach following the Gujarat earthquake.

PNY was conceived as a model program right from its inception. It sought to empower the affected community to become sufficiently resilient against any future disasters. It attempted to link immediate response in the form of relief to mainstream development. An important aspect of the initiative was to establish a framework of mutual cooperation among different stakeholders in the post-disaster scenario. Most importantly, it aimed at successively reducing the role of external agencies in local rehabilitation action until the local community could assume all functions. Figure 4 shows the chronology of events of the PNY project.

The work was completed by a Project Team, consisting of representatives of each of the agencies previously mentioned and four in-the-field engineers and five trained masons located on site during the project implementation.

### The process of rehabilitation

The process of rehabilitation was based on concerns relating to the community's needs in the aftermath of the disaster, the need to increase capacity and the need for the community to be autonomous and resilient to any future disasters. Experience showed that in disaster situations, especially earthquakes, affected individuals and their neighbours are the best disaster managers. Rehabilitation should therefore also be a mitigation exercise (Kobe Action Plan, 2003).

An ideal process in the post-disaster scenario needed to link immediate recovery to development. Broadly the process followed the three stages (see figure 5). In the first stage, an overall plan defined the principles and the aim of the rehabilitation exercise. The second stage was carried out jointly with the community with a two-way flow between the Project Team and the individual household. The third stage was the exit stage for the Project Team after it ensured sustainability of its interventions while the community prepared itself to integrate itself to mainstream development.

### Rehabilitation stage I: Principles and planning

The first task was setting up the basic principles for planning the rehabilitation intervention. The intervention had to be participatory increasing community involvement gradually. The program had to be flexible with enough buffers for time and resources created in the overall project schedule. The intervention had to follow the minimum standards on the quality of benefits for the community. Rehabilitation was not just a short term, gap-filling exercise. In most cases, the community faced the threat of recurrent disasters and therefore the rehabilitation was aimed at reducing their vulnerability. This implied building the community's assets, achieving sustainability of residents' livelihoods, building houses that could protect residents against



Figure 4: Chronology of events in PNY project

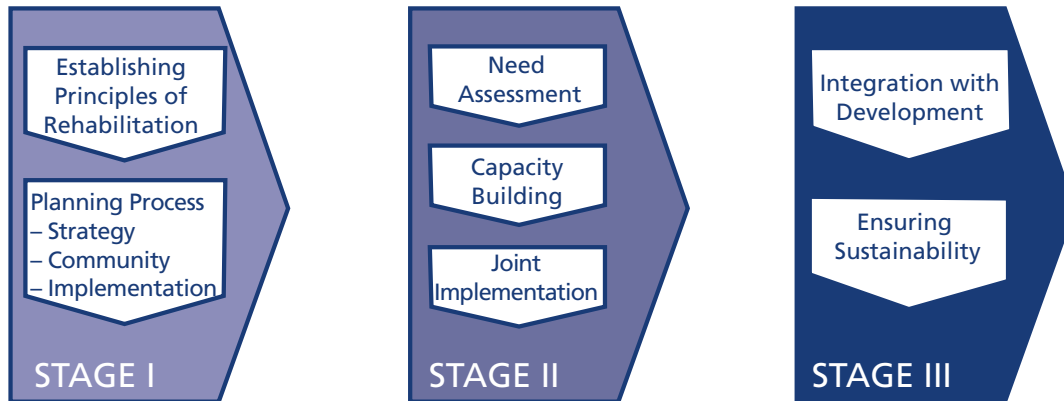


Figure 5: Different stages of recovery process

future earthquakes and building an infrastructure that could potentially improve the quality of life in the community to a level better than it was before the disaster.

The rehabilitation process also needed to be empowering. The Project Team agreed that they would not, and should not, remain with the community forever. Owing to this commitment, the community, the first responder, was sufficiently equipped to cater for its immediate needs. A well-planned rehabilitation exercise had to significantly increase the capacity of the community for a more effective response. Social, economic and psychological aspects therefore were an integral part of the rehabilitation program. The rehabilitation philosophy was that proper rehabilitation was not only about building earthquake resistant houses, but also the restoration of livelihoods, and the restoration of normal life with sustainable economic activities. 'Livelihood' could not be ensured only by safer housing and suitable income, but would need to include issues such as welfare, health care, medical service, educational facilities, labor condition, disaster prevention and others maintained in good balance.

Rehabilitation needed to also incorporate local cultural aspects and foster a 'safer construction' culture in the community. The rehabilitation program tried to establish a strong bond within the community and with different related stakeholders. The success of the rehabilitation exercise was judged by the degree to which the community replicated actions without intervention from the aid agency. Inputs on capacity-building were therefore important. Additionally, the Project Team needed to ensure that conditions would continue to exist for easy replication.

Incorporating the principles stated above, an overall plan evolved. The plan eventuating from the process had three parts: *The Strategy Plan*, *The Community Action Plan* and *The Implementation Plan*. In the first part, the Project Team drew on its past experiences and research to draw

a broad framework of rehabilitation – The Mission, Goals and Objectives. This formed the basis of the strategic plan. In the second part, the Project Team actively consulted the community as well as the local government to ensure that implementing strategies were culturally and environmentally acceptable to the people to whom they were addressed and were within the framework and guidelines laid down by the local government. The Project Team consulted with the community by organizing local workshops with the community, and involving different stakeholders (Figure 6). In the third part, the Project Team devised specific action plans for the implementation of various components of the project, these were primarily based on local needs and existing capacities. Development and enhancement of the Community Action Plan and the Implementation Plan were completed in Rehabilitation Stage II.

The role of the Project Team was to facilitate the reconstruction process. The composition of the team was therefore very important. Getting appropriate staff members with suitable motivation and skills was difficult, however suitable training and encouragement helped. Establishing good relationships with the community was the foremost responsibility of the Project Team, skills and knowledge followed. The



Figure 6: Community Workshop



Project Team had to commit to helping the community so that they could help themselves. Maintaining professional and ethical standards while performing amidst the community earned the respect and trust of the community. The ability of the Project Team to translate their knowledge into community acceptable practice was crucial to success. Furthermore the team had to ensure transparency in their accounting systems and working methods. This helped in establishing credibility for the team within the community.

## Rehabilitation stage II: Implementation

This Implementation Stage of the project consisted of three steps: 1) Need Assessment, 2) Capacity Building, and 3) Implementation. In Step 1, attention was focused on the following features: 1) Recognising the community's needs, 2) Prioritising needs as per available resources, and 3) Translating needs into appropriate action jointly with the community. Role of Government in this stage of the exercise provided a recognised legal basis for working in the community. The involvement of the government also reinforced its relationship with the community. The basic needs of the community were always the same – food, clothing & shelter. Ethnic and regional differences created further complexities in needs. However, field experiences revealed that cultural acceptance of external aid was as important as the aid itself. Local needs were determined by interacting with the community – the best way of doing so was through dialogue, demonstration and training. Carrying out relief operations immediately after the earthquake provided a window to peep into the community's lifestyle, habits and customs. This insight was supported by interactions with the community, especially women. Use of graphic material and practical demonstrations dissolved possible language barriers and increased the scope for community feedback.

Local requirements needed to be matched with available options. Failing to find the best requirement/option fit may have caused several problems, as evidenced in the rehabilitation process after the Kobe earthquake of 1995



Figure 7: Family builds its own house

(Leckie, 1996). Climatic conditions, cost effectiveness and cultural adaptability were other considerations. Options were identified through extensive research and analysis. Community interaction provided many ideas. The options developed by the Project Team had to be re-examined against community preferences.

The framework of action in the field supported by community preferences defined a Community Action Plan that had two components: Framework and Process of implementation. The Plan outlined the mechanism by which the actions would be implemented at community level. The plan also defined the action modes and the roles played by different stakeholders. Government guidelines and policies needed to be recognized and interpreted in the local plan.

Ideally, in a democratic system the government and the community are directly accountable to each other. The role of the Project Team on the PKY project was to strengthen the link between the government and community. Winning the trust of the community was critical for a joint ownership of the process. Unlike programs-driven development initiatives, a rehabilitation exercise had to be executed in the shortest possible time. Getting full community support in such a short time was difficult. The Project Team needed to make positive moves to win community trust. A 'resolution' by the community leaders was sought. Strong leaders were identified to assist in organising a common voice for the project. Leadership problems were previously observed in the Kobe earthquake (Kobe Action Plan 2003), where weak leadership caused factions within the community and hampered the rehabilitation process.

Step 2 aimed to translate the plan into action. At the first stage, the team needed to provide training to build capacity in the community. This training programme was a confidence-building exercise through which the local communities gained assurance in the technology and process. Individual householders and families drove the project, and the construction activity was adjusted to individuals' budget and priorities (Figure 7). Inadequate attention to capacity-building may have jeopardised any rehabilitation exercise. The Project Team included a wide range of capacity building activities that ranged over counseling people who had just experienced the trauma of a disaster, to empowering individuals to handle their needs in case of any future disasters.

To introduce earthquake-safer building technology, local masons were trained to replicate various building practices. Householders were so positively influenced they demanded safer houses without compromising on quality of construction.

For activities to be sustainable, strengthening existing democratic structures, compared to creating new structures, reaped positive benefits. Training in leadership was also important. A social calendar

**Table 1: Check-list for sustainable community recovery.**

STAGE I		STAGE II		STAGE III			
ESTABLISH PRINCIPLES		NEED ASSESSMENT		CAPACITY BUILDING		LOCAL INSTITUTIONAL STRENGTHENING	
Rehabilitation linked to Development		Dialogue		Training of Masons, Labor		Integration with government development schemes.	
Rehabilitation to be participatory		Training & Demonstration		Building Community confidence on disaster resistant practices		Creating assets for security	
To Follow minimum established standards		Community Feedback		Strengthening Institutional Structures at Community Level		Ensuring means for continuous capacity building process.	
Rehabilitation aimed at reducing vulnerability		Damage Assessments		Social Mobilization		Providing new opportunities for growth	
Promote empowerment		Identifying Suitable Options		Social Calendar			
To be Flexible		Preparation of Local Plans		Joint Action			
Cooperation between stakeholders		Community Preferences		Prepare Sector specific Action Plans			
Improve Quality of Life		Mechanism for joint action with the community		One to one dialogue			
Strategic Planning		Identifying areas of Capacity Building		Flexible Approach			
Mission		Meeting with Community involving government		Guidance & Supervision of Ongoing construction			
Aims & Objectives		Adapting Government Guidelines		Role Clarification & Transparency			
Establish Team		Identifying Confidence Building Measures		Establishing Infrastructure for local storage of raw materials			
		Making the first move to forge trust with the Community		Establishing systems for monitoring and evaluation of construction work.			

of activities ensured good relationships with the community.

Step 3 focused on joint implementation. Rebuilding homes and lives after a disaster extended beyond mere physical activity on part of the households. As residents rebuilt their lives, they would look for an opportunity to get closer to the long-cherished dream, while burying the past. The Project Team strived to strengthen those dreams, and not to replace it with their own. The rehabilitation exercise showed best results when the community and the Project Team carried out joint actions. At the joint implementation stage, along with capacity-building, action plans for each area of intervention needed to be drawn out. There were the housing reconstruction action plan, the house retrofitting action plan, the livelihood action plan, and the social action plan. To prepare and actualize the action plans, one-to-one dialogue with individual households helped. To achieve some action plans the Project Team needed to make itself available and amenable to all individual needs and priorities.

A previously-set ceiling on the expenditure per household with flexibility in design and construction worked the best both for the community and the Project Team. When work-sharing was involved, role clarification and transparency were necessary. Roles and transparency mechanisms were clarified in the Action Plans.

### Rehabilitation stage III: Ensuring sustainability

The effort initiated by the Project Team needed to be sustainable long after the interventions finished. In effect, intervention was designed to ensure that the community was able to take care of its development needs and was resilient against future disasters. For the intervention to be sustainable, capacity-building and strengthening/building local institutional mechanisms were absolutely necessary. Additionally, local institutions needed adequate capacity and a fixed source of income to exist and complete its programs. Thus, rehabilitation

actions were sustainable if the individual in the community was empowered and owned the project.

### 'Model' of rehabilitation

As stated earlier, one of the main objectives of this exercise was to evolve a 'model' for rehabilitation and mitigation that could be universally applicable. Extra time and resources were allocated to enable the Project Team to experiment with new strategies and activities. The program that was the focus of this case study was limited to just one community comprising of 256 households. The Project Team is convinced that what could be carried out in the community of Patanka, could also be replicated in many more communities. Scale was not an important consideration as the issue was the quality of the intervention. What could be completed in one community had the power to influence grassroots endeavours and policy frameworks universally. The lessons learned from the current initiative can therefore be summarized as in Table 1.

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