

Adapting to Climate Change to Promote Disaster Risk Reduction

Project coordinator: Gaurav Ranjan

Funder: OXFAM India

Dates: 2009–2010

Background

Historically, annual floods fit into the natural agricultural cycle in Bihar's rural communities. With no manmade barriers trying to cheat nature, the waters used to rise predictably and moderately, fertilizing the soil and not damaging homes. In the last decade, however, the flood patterns have become both more severe and more erratic. Although dams and embankments are in place to stem floods, they are ineffective due to poor maintenance. Homes are routinely damaged, and the increased level of flooding destroys crops instead of helping them grow. Now rice is no longer viable, and villagers in the flood-prone areas can grow only one crop a year instead of two, halving their already marginal incomes. As a result, many male villagers have to migrate for work, causing difficulties and instability for their families. Social development organizations are now treating flooding as an aspect of climate change and focusing on flood-friendly agricultural techniques to cope with the new conditions.

Scope of the Project

IDF carried out this project, funded by OXFAM India, in 40 villages spread over four blocks (Gaighat, Katra, Aurai, and Minapur) in the Muzaffarpur district. Twenty-five of these villages had already been targeted in 2008–2009.

Goal

The overall goal of the project was to increase the resilience of vulnerable women, men, and children in the targeted areas to recurrent flooding through introducing appropriate disaster risk reduction (DRR) and livelihood enhancement measures.

Objectives

- To enhance the emergency response capacity of community-based institutions and volunteers.
- To promote and replicate alternative livelihood options, with special focus on agriculture and allied activities.
- To integrate public health DRR measures into local schools, involving children and the larger community.
- To generate awareness and build community capacity to understand climate change adaptation.
- To develop collaboration and strengthen coordination with NGO partners.

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Activities

Establishing and sensitizing community-based organizations (CBOs)

First, IDF formed self-help groups (SHGs), village-level committees (VLCs), *kishan kosh* (farmers' clubs), and adolescent groups in all the new target villages. These CBOs became a prime tool for facilitating the entire process of disaster preparedness and livelihood enhancement. All met at regular intervals to learn coping techniques for DRR-related issues affecting their lives, such as agricultural innovations, water and sanitation, preparedness measures, and so on.

Reinforcing existing CBOs

The CBOs already established during the earlier projects were nurtured and strengthened. Members continued to be educated on DRR matters affecting their communities—climate change adaptation, livelihood enhancement, health and hygiene—through meetings, orientations, exposure visits, and trainings. As part of this process, community members received emergency items such as oral rehydration salts, bleach powder, ropes, flashlights, radios, and other essential materials. In addition, rescue teams composed of qualified volunteers were formed in each village.

Expanding the *Lok Sahyog Sthal* (LSS)(community resource center)

During the reporting time of this project all six LSSs previously established by IDF were strengthened and expanded to become active resources for accessing newspapers and information about government services related to employment, health and hygiene, flood preparedness, and agricultural techniques. Community members could submit questions to a help desk, and if the local person in charge couldn't provide an answer, an expert in the area would be found who could do so.

Promotion of flood-friendly agricultural techniques

As an integral part of the project, IDF intensively promoted innovative agricultural methods to minimize the problem of low productivity and limited cropping in flood-prone areas. Farmers and experts were invited to explain the new techniques.

Systemic root intensification (SRI). Using this process of sowing seeds systematically and at equal distances, villagers were able to increase their crop yields dramatically. A blockwide demonstration plot was set up in each of the four intervention blocks to illustrate how this system works, and the success of these plots had a powerful impact on the villagers, motivating many to adopt the new method. About 40 percent of farmers switched to SRI.

Mixed cropping and vegetable cultivation. Project staff showed farmers how to diversify and combine crops in new ways—wheat and oil seeds, potatoes and maize, and so on—as well as how to cultivate short-term vegetables so that they could harvest their fields several times a year. Plenty of farmers opted for vegetable cultivation along these lines and as a result made more money than they had traditionally earned from the cultivation of traditional crops.

Wheat cultivation. IDF also promoted wheat cultivation using SRI. Wheat has replaced rice as the main staple food in this area, due to a major decline in rice and paddy cultivation because of floods and erratic rainfall. The farmers used to pass on their traditional methods of cultivation from one generation to another. However, the recent climate changes have forced them to rethink the farming patterns so as to decrease the input cost and obtain a higher yield.

Health and hygiene measures

Cleanliness drives. Health and hygiene measures were promoted through cleanliness drives in 10 different locations by involving VLC members, local youth, and SHG members. Community members in all the villages, helped by IDF staff, worked together to clean their respective *tolas* (hamlets) by removing garbage and using bleach powder. During these events community members were also made aware of the ill effects of open defecation and the importance of waste management.

Installation of model hand pumps. Model deep-bore hand pumps were installed in 10 different locations, proving effective and useful for the community year round, not just during floods. The sites were carefully selected: they had to be on high ground and offer easy access to the maximum number of people. Each model had a high platform with stairs and proper drainage. Materials such as PVC pipes, heads, filters, and so on were procured at the district level and transported to the field areas where the drilling work was carried out. Community members were trained in routine maintenance to keep the new pumps in good working order.

***Swastha saheli* training**

To focus on health and hygiene issues at the village and *tola* level, each SHG was asked to identify and select a *swastha saheli* (volunteer health educator). The rationale was to enable the community to tackle primary health issues on their own. For this purpose a one-day training was conducted in six different places with two main aims: (1) to train the identified *swastha sahelis* in first aid and (2) to develop them as change agents who would create awareness in the local community of the importance of physical hygiene and reproductive health.

Workshops for external agencies

IDF held two district-level workshops for outside stakeholders in addition to large numbers of community members. Media professionals, government staff, and representatives of other NGOs participated and shared their views.

The first workshop addressed the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). Focusing on understanding, achievement, and reform in Muzaffarpur, the workshop aimed to (1) explain the implementation of MNREGA from the perspective of poor villagers and (2) identify institutional and other bottlenecks at different levels and pave the way forward.

The second workshop, covering sustainable agricultural practices in flood-prone areas

in Muzaffarpur, was designed to provide an overview of agricultural conditions in flood-prone areas, acquaint rural community stakeholders with flood-friendly farming methods, and establish a collaborative effort to address the need to promote these at a higher level. Active and retired government agricultural experts participated, along with selected community leaders and NGO partner representatives.

District-level NGO partners forum

IDF proposed and implemented the establishment of a group of 10 NGOs to model this program in other communities and advocate collectively at the district level for full provision of government benefits in flood-prone agricultural communities. The group held monthly meetings.

Public Distribution Shop (PDS) signature campaign

A meeting was held at the IDF office to design a campaign to obtain accurate information about the implementation of government benefits through the PDS. It was decided that every NGO partner organization would prepare a memorandum citing all the bad practices related to PDS to give to the concerned block development officers for further action. It was also decided to conduct village-level meetings to sensitize community members to this problem. The PDS signature campaign was conducted in the field to monitor PDS services, and after tracking the situation, the following findings came to light:

1. *Annapoorna* and *antodaya* (family benefit) schemes were normally in existence.
2. PDS materials were distributed irregularly.
3. The rice and wheat available for public distribution was of inferior quality.
4. There was no reliable opening and closing schedule for PDS shops.

Outcomes

Following is a selected list of outcomes of the intervention for the reported years:

- 2,280 women were organized in 160 SHGs in the target areas.
- Rescue teams saved 35 people from drowning.
- 27 out of 30 people survived snake bites due to prompt treatment enabled by disaster preparedness measures.
- 14 flood shelters were constructed to benefit the community during floods.
- 10 out of 12 bridges and roads were constructed as a result of active advocacy and demands.
- All SHGs together collected more than Rs 2 million and used the funds for livelihood enhancement, consumption, and emergency needs.
- 400 workers were supported in filing MNREGA applications and other employment papers.
- 250 community volunteers were trained in rescue techniques to be applied during emergencies.
- 1,439 schoolchildren received orientation on basic health and hygiene practices.

- Six trainings were conducted for *swastha sahelis*.
- 10 model hand pump units were installed in different locations, ensuring safe water for 800 households.
- 500 persons were mobilized through the PDS signature campaign.
- 75 farmers adopted SRI methods in wheat and vegetable cultivation and reaped a good yield.

Achievements and Challenges

The project brought significant benefits to the target communities. Chief among them was the establishment and strengthening of the CBOs, which rapidly became self-sustaining and therefore able to ensure that community members remain key players and assert their rights to public emergency and year-round services. With their newfound knowledge and awareness, they became less dependent on outsiders and able to take the initiative on their own behalf. As the volume of savings increased, average loans grew too. SHG members not only began to enjoy significant livelihood improvements as a result, but also to feel empowered to manage their own affairs overall. They exhibited increased self-reliance and self-confidence to address flood-related problems at different forums.

Farmers began to practice innovative flood-friendly farming and were soon able to achieve good results. Adolescent girls and schoolchildren played a key role in promoting crucial fundamental health and hygiene measures and encouraging behavioral change throughout the community. Villagers became aware of their standard employment rights under MNREGA as well as the special benefits to which they are entitled during flood emergencies.

The main remaining challenges are that when there is no emergency due to flooding, government services are not always available as mandated, and there is as yet no strong network to address DRR issues collectively at a higher level.

Case Studies

Paving the way for survival

Poonam Devi, aged 40, from the village of Basghatta in the Baraitha *panchayat* of Katra block, lived with her husband, Umesh Pandit, a wage laborer. The couple had a son and three daughters, and with Umesh as the sole breadwinner, they could barely make ends meet. Then Umesh died suddenly in a road accident, causing severe financial crisis in the family. Through one of the villagers, Poonam learned about the SHGs IDF was facilitating, and she became a member of one and began attending meetings on a regular basis.

Poonam was also selected to become a *swastha saheli* and received training in health and hygiene issues. When she heard about NRHM and a vacancy for a government accredited social health activist (ASHA) during one SHG meeting, she immediately decided to apply. Though she

was very nervous, as there were many contenders for the same post, she gained confidence from the other members' belief that she would be selected.

She did indeed get the ASHA position, and became involved in the Pulse Polio program too. Now she earns between Rs 750 and Rs 1,500 per month, which helps to provide education for her children. "I am not saying that I have won the battle of a lifetime," she says, "but my financial and social condition is improving gradually, and I am happy with my small family. I thank IDF and the entire team, without whom I could not have achieved such a position."

Finding ways to improve livelihood

Subodh Ray, aged 50, is a farmer who lives with his wife and his three children in the village of Sahnali in the Changel *panchayat* of Katra block. He has been a frequent victim of flooding, and because his two *bigha* (just over one acre) of land are mostly in a low-lying area, the yield is very low—and destruction during floods very high. As a result, Subodh's life has been a constant struggle. Despite having land, he is unable to ensure food security for his family members.

When IDF facilitated a farmers' group, Subodh joined, and out of curiosity he visited a demonstration vegetable cultivation plot in Dumri, where he was able to interact with the agricultural expert. Following regular consultation with IDF personnel and VLC members, he was motivated to initiate vegetable cultivation on a portion of his land. When he obtained a good yield, he expanded this method to the rest of the land, thus creating a new and enhanced livelihood for himself and his family.