Facing up to the storm   |   Chapter 7

Housing, sanitation and drinking water
Strengthening lives and livelihoods

By LT Johnson

Everyone contributes: Gram Vikas and villagers come together to rebuild schools, village ponds and homes, and to better prepare for the disasters of the future.
Gram Vikas, a rural development organisation working in Orissa since 1979, has been at the forefront of meeting the challenge of Orissa’s successive disasters. The scale of this challenge is hard to imagine: first the supercyclone, followed a year later by droughts in western Orissa and floods on the coast, and then the failure of monsoons in 2002, which affected over 80 percent of the state. Government agencies and NGOs have responded to these crises in different ways. But few organisations have looked to the long term. Gram Vikas’ contribution has been to help prepare communities to better face the disasters of the future.

Gram Vikas’ work has taken place under its Rural Health and Environment Programme (RHEP), a development initiative working closely with communities and focusing on shelter, sanitation and drinking water.

This work is based on the belief that changes in existing social and economic processes can lead to both communities and individuals becoming better prepared for disasters - and better able to withstand their effects. To do this, profitable and long-lasting ways in which people can earn a livelihood need to be established. A healthy local economy needs to be developed and maintained, and people need to be encouraged to build up savings and assets.

How Gram Vikas operates
Gram Vikas has designed and implemented various institutional and participatory processes, which enable villagers to take control of development plans and projects. These are:

Village general body: This is made up of all the households in the village. Every adult, male or female, in the village is a member. It has two groups which meet once a month - one for men and the other for women.

Village executive committee: The two general bodies nominate four men and four women to an executive committee. This is vested with all decision-making powers with respect to the RHEP. It is a separate legal entity, constituted as a trust. Among its various activities are the collection and management of funds, taking decisions relating to RHEP in their village, and control and supervision of the implementation process.

Participation of the entire village: Before starting work in a village, Gram Vikas insists that all households take part and willingly support the programme. People must agree to its basic tenets: there will be no actual progress unless the entire village willingly participates. This is more easily said than done. Different households may have differing views on the benefits or otherwise of the programme; successful development activities need social, political and cultural consensus.

Appointment of field organizers: Gram Vikas appoints one field organiser for a cluster of villages to help the committees and sub-committees carry out their day-to-day activities and provide regular feedback. Field organisers’ work is crucial because they represent the policies of Gram Vikas at the grassroots level and also because, overtime, they become authorities on various technical matters related to the building and maintenance of the physical infrastructure. A good field organiser soon gains the trust of the entire village. In case of disputes between any two members or groups, he or she is seen as the arbitrator. In many cases it was reported that villagers contributed towards building private residential quarters for the field organiser. In other words, the field organiser is treated as a resident of the village.

Empowerment of women: Village women are helped to gain strength and confidence in several ways: they are taught about sanitation and hygiene, gynaecology and childcare, for example. They gain a measure of economic independence through Gram Vikas’ savings and credit programme. Once the quality of a woman’s life starts to improve, so does that of her entire family, and the family’s income rises significantly.
Building leadership and skills: Self-help groups - particularly for women - are encouraged and fostered. Specialised skills such as plumbing and masonry are taught, as houses and sanitary blocks are constructed with a piped water connection to each household. Field organisers are encouraged to coordinate between the village executive committee and the general bodies and are, in effect, trained as middle-level leaders. Scientific farming techniques are taught.

Resolving conflicts: When setting up institutions and processes within communities, conflicts are inevitable. But the system of committees and the design of the programmes which encourage the emergence of local leadership have built-in ways of resolving them. The field organiser appointed by Gram Vikas, who is in charge of a cluster of villages, can also help with the process of arbitration.

The RHEP programme has proved to be economically viable. It consists of three components involving capital expenditure: housing, sanitation and drinking water. The cost of a house to a family is Rs 22,500 (US$500). This is repaid by the household in the form of a monthly installment of Rs 450 (US$10). When the village accepts the pre-conditions of the RHER each householder has to deposit Rs 1,000 (US$22) per household as a contribution to the common fund. In addition, common property (such as the village pond) is identified and the income from activities relating to it is routed for various collective purposes. This is how the RHEP starts to regenerate a village economy. Its essential elements are:

- individual property of a quality that protects the villager from extremes of climate and weather conditions
- common property that is put to productive use
- protection from disease and ill-health – thereby enabling villagers to put in more days of productive work
- a sense of ownership and an overall improvement in the quality of life of tribal people.

Case studies: learning from experience

Three case studies discussing the RHEP approach follow here. The first describes a construction programme to help people build permanent, disaster-proof dwelling units with loans sourced from mainstream financial institutions (A longer version of this case study was presented at the international conference on disaster mitigation and preparedness organized by Christian Aid in Orissa in October 2000). The second describes drought-proofing in a village in Bolangir district of western Orissa. The third gives details of a medium-term rehabilitation programme in early 2000 in the cyclone-affected villages of Ganjam district where communities took the lead in forging better lives for themselves.

1: Building permanent, disaster-proof dwellings (The case study was prepared by N. Ashok Kumar – Professor of Finance at the Symbiosis Centre for Management and Human Resource Development, Pune); N. Vinod Chandra Menon – Professor of Disaster Management at the Yeshwantrao Chavan Academy of Development Administration, Pune); and L.T. Johnson – Programem Manager of Gram Vikas).

A field study undertaken in July 2000 (more than nine months after the supercyclone hit Orissa) studied five villages where Gram Vikas had worked. In two of them, RHEP plans had been carried out. It was clear that in many respects, these two villages - Tamana and Samiapalli - were far better off than the other three.

The survey showed that economic losses due to the supercyclone in these villages were as follows:

- Number of income-earning days lost immediately after the supercyclone:
  - Tamana 7 days (RHEP village)
  - Samiapalli 15 days (RHEP village)
  - Baniamari 21 days
  - Balliyaput 30 days
  - Jharapokari 15 days
• **Value of damaged assets**
  Tamana reported no loss of food grain, cycles and other assets. Baniamari and Balliyaput reported 280 kg and 3,310 kg of food grain, while Samiapalli reported negligible losses. Jharapokari reported around 2,500 kg of food grain losses. There were no other asset losses in any of the villages.

In Balliyaput (which was not an RHEP village), all houses—a total of 16 thatched huts with mud walls—were completely destroyed during the supercyclone. In July 2000, villagers were still trying to rebuild lives, and pucca houses were still under construction. In contrast, the villagers of Tamana, an RHEP village since 1992, were able to go about their daily duties and economic activities within seven days of the supercyclone.

• **The different experiences of Tamana and Balliyaput**
  These two villages are within a half-kilometre radius of each other. Both reported that the impact of the supercyclone was severe and that they faced storm conditions and were knee-deep in water for several days. Tamana has 84 households, while Balliyaput has 16. Tamana reported no loss of life or assets, but damage in Balliyaput was extensive. The people of Tamana were able to get back to work within a week, while those in Balliyaput were still rebuilding their houses nine months later.

**Social viability**
The social viability of plans and programmes is more difficult to assess. But observations during field visits revealed several socially desirable benefits. Villagers were helping to create and implement the plans, women were playing an increasingly important role and generally the quality of life was improving.

**Women taking greater control**
In Tamana, the involvement of women in village activities indicates that they now take decisions which were earlier the preserve of men. Women are part of the village executive committee and have equal decision-making powers in all village matters. They are confident and are not afraid to interact with strangers. Also, through self-help groups for small savings and credit programmes, women have started to take part in the day-to-day economic decisions of the village. Interestingly, moneylenders do not operate in an RHEP village. Women have been taught about reproductive health and disease control, and as a result, their lives have become healthier. As a consequence, infant mortality and child disease have also declined. New kitchen gardens have improved the quality of food consumed: people depend far less on minor forest produce. Women also take part in income-generation activities based on common property resources like the village ponds.

**Education**
In an RHEP village all children of school-going age receive an education. Children do not work in Tamana. In contrast in Balliyaput, school age children can be seen helping their parents collect forest produce, quarrying and lifting stones for house construction. The houses and the areas between houses in an RHEP village are well-planned, allowing space for children to play.

**Participatory processes**
Underlying all the advantages and observed successes of the RHEP village is a finely-tuned process in which villagers play an active part. This ensures that projects result in tangible economic and social benefits. Care has been taken to form legal entities (village executive committees), public bodies (village general bodies), legal sub-committees on economic subjects, and motivated self-help groups with an agenda to bring about social and economic transformation. The processes involving all members of the village are transparent, and are controlled in direction and pace by an external partner—Gram Vikas. As a result, villagers feel a sense of moral ownership over the process of change and take pride in their creation. This is probably the most significant change in the RHEP village.
Women’s participation in Samantrapur, Ganjam

When Gram Vikas workers approached the villagers of Samantrapur to begin the RHEP in 1994, there was particular resistance from women. Women were neither convinced that these strangers could bring drinking water to their doorsteps, nor were they interested in investing their hard-earned money in promises they were not sure would be kept.

Their attitude was understandable. They were not involved in most of the decision-making. From December 1994 to January 1996, approximately 140 meetings were held which were attended exclusively by men. But gradually, over the years, women have become involved in all aspects of the programme. A separate group was set up for women, and as their confidence increased they were encouraged to attend the general village meetings.

‘We never thought we would sit on the same mat as the men,’ recalled Malla, secretary of the village committee. ‘But now things have changed. We no longer draw the veil over our faces, we can talk with the men as equals.’

The RHEP guidelines made the participation of women mandatory. They have been trained in basic literacy, healthcare and specialised training, becoming more capable of taking on greater responsibility. They were also given ownership of certain community assets, including a pond for pisciculture - an activity which had, up to then, been considered something exclusively for men.

Thanks to these initiatives, women now contribute more than 60 per cent of the total labour in Samantrapur. Within a period of four years, they have accumulated Rs 250,000 (US$5,555). The credit groups have ended traditional dependence on moneylenders during emergencies. Women have begun to maintain and monitor water supplies and toilet blocks, and impose fines on those who do not adhere to standards. They have proven their potential in resolving conflicts, organising mass protests, enforcing programme codes in the village and in advocacy beyond the village. They are also confident and firm when interacting with officials, banks and other institutions.

More broadly, both men and women have accepted the enriching role that women can successfully play outside their families.

2: Drought-proofing in western Orissa

Forty-six adivasi (tribal) families live in Chatrang, in Bangamunda block of Bolangir district. The village, in one of the worst drought-affected regions of western Orissa, came into the RHEP fold in early 1999; by April 2001, toilets and bathing rooms had been constructed there and a water supply established.

Though water had been scarce over the previous four years, the drought of 2000 was particularly severe. Generally, four or five families from the village migrate to places like Hyderabad, Dehradun and Mumbai every year to work in brick kilns and on construction sites. In 2000, eight additional families were forced to migrate after the standing kharif crop (monsoon crop as opposed to the rabi or winter crop) was scorched. As crop failure due to drought affected the whole region, there was no way to avoid migration.

The villagers asked Gram Vikas to help them to set up employment-generation programmes.
in the village. They had several options in mind, including renovating and deepening an existing farm pond and building two water-harvesting structures.

Gram Vikas staff conducted a technical survey, and found that once the structures were completed, the stored water would be sufficient to irrigate more than 400 acres of land (150 acres owned by Chatrang and about 250 acres of a neighbouring village) in the kharif season. It was also found that the three structures together would generate more than 15,000 person-days of employment. The total investment for the three structures was in the range of Rs 750,000 (US$16,600), of which about Rs 150,000 (US$3,300) was to be spent on masonry overflow structures and the rest on manual labour.

The understanding between Gram Vikas and the Chatrang Gram Unnayan Samiti, the registered village organisation, was that the committee would be responsible for executing and monitoring the work and Gram Vikas would pay for it. It was also agreed that, for future works, Gram Vikas would contribute 80 per cent and the villagers 20 per cent as shramdan (voluntary labour). In the case of masonry structures, Gram Vikas would contribute cement and wages for masons, while villagers would contribute stone, sand and unskilled labour. Work on the pond began in January 2001 and was completed before the monsoons. The villagers began work on the water-harvesting structures in November 2001.

Three other villages in western Orissa also started drought-proofing activities, with Gram Vikas, support.

- In Banjipalli village, Bolangir district, people renovated and expanded a pond to convert it into a water-harvesting structure, with 20 per cent of the investment as shramdan.
- In Lukapada, Bolangir district, people established a lift irrigation unit. The aim was to ensure 100 per cent irrigation coverage for the kharif crop (and 40 per cent for the rabi crop) within two seasons.
- In Tala village, Bargarh district, villagers renovated an existing pond with Gram Vikas support. This was due to be followed by construction of a diversionary weir across a mountain stream, allowing two ponds in the village to fill up and provide water to more than 150 acres of land in the kharif season.

3: The silent revolution: Kondhabanta and Talataila

A silent revolution has taken place in Kondhabanta and Talataila villages in Jagannath Prasad block of Ganjarn district, where Gram Vikas has worked since 1995. Twenty families of Kondh adivasis live in Kondhabanta, while in Talataila there are 12 families - three belonging to the general caste and the rest are Kondhs. The villages are more than 20 km from the block headquarters. There is no road to them and they are inaccessible in the monsoons. The block itself, on the border of Ganjam and Nayagarh districts, receives little attention from government officials. The critical issues identified initially in the villages were illiteracy and poor health and a vacuum in government Services.

Gram Vikas’ first project concentrated on education, raising awareness through disseminating information and health services. It also helped revive traditional grain banks and village funds. Women were brought together for a thrift programme. Up to then, people had depended on forest produce and bogodo (shifting cultivation) for their livelihoods and sustenance. Gram Vikas introduced the cultivation of vegetables to increase nutrition and cash incomes. But people’s enthusiasm was limited, and driven by individuals, not the entire community.
Giving up liquor and building a dam
In March 1999, led by women and youth, villagers of Kondhabanta and nine adjoining villages, including Talataila, pledged not to consume, make or allow the sale of liquor in the region. For Kondhabanta, this was a turning point. Soon after, the villagers built a 700-square foot community hall to house a school, conduct village meetings, and carry out collective production activities - making mats, sal plates, store grain and so on. All the families contributed stone, sand and free unskilled labour, while Gram Vikas provided the cement, steel and masons’ wages.

These two events made Kondhabanta prominent in the region. Villagers in Talataila took a close interest, but were not clear what they could do to improve their condition. A few people who were trying to make better use of the stream flowing close to the village approached the government and Gram Vikas for assistance. But there was no support for their idea because the rest of the village was not convinced of its feasibility.

Things went on at a leisurely pace in Talataila until the supercyclone struck in 1999. The bogodo crop was razed to the ground, tamarind and mango trees were shorn of foliage, and mud and thatch houses were destroyed. The villagers were devastated. They got together and started thinking of ways to face the days ahead - there were no crops and yield from the trees for the next two to three years would be substantially reduced. If they wanted to survive, they would have to cultivate something on the land. It would need to be irrigated: the long-dreamt-of dam had to be built.

In January 2000, all the families in the village got together and worked relentlessly for 20 days to build it. News reached the Gram Vikas project office and a field supervisor rushed to the village to see what was happening. The people made it clear that this time they would build the dam, whether or not they got any external assistance. They were working unpaid, and they had little to eat that month.

Seeing that the villagers were determined, an agreement was reached to help them build an earthen dam, around 100m wide and 4m high. Gram Vikas agreed to provide technical assistance and Rs 40 (US$1) per person per day for the days worked. The dam would irrigate more than 100 acres of land. The people were quick to point out that it could be used for pisciculture as well. The women added that water-supply problems would be permanently solved; previously, they had to trek more than a kilometre for water in summer.

By the summer of 2000, the villagers were able to grow vegetables. Paddy was cultivated in the village for the first time, even though the region was affected by drought. They bought a pump set with a loan of Rs 20,000 (US$450) from Gram Vikas to take up large-scale cultivation from that year. They decided how the water was going to be distributed and which land to cultivate.

Meanwhile, the excitement of the earthen dam spread to Kondhabanta. They thought that if a small village like Talataila could do it so could they. The stream was a little further off, but that did not deter them, as they had their lands around it. In March 2000 they, too, started a similar project to ‘dam’ the waters. The aim was to irrigate around 200 acres. They bought a pump set with a loan from Gram Vikas. Very soon, the catchment in both villages helped water retention further upstream.

Moving from village-based to regional action
These events have led to the two villages working together on common issues. With Gram Vikas’ help, families from both villages filed a case against a non-tribal man from Oriya Banta who had usurped their land. This spurred other villages in the area to recover their lands as well.
The women from the two villages came together to deal with the non-functioning of the tube wells in their villages. They gave a memorandum to the Block Development Officer, threatening that if the tube wells were not repaired immediately, they would hold a matia rally (a rally with earthen pots), break the pots in front of his office, and agitate. Within a week, the tube wells in both villages were repaired. The villagers of Kondhabanta and Talataila lobbied with the block for a pucca road to their villages. They also started plans for collective income-generation activities, such as the manufacture and sale of sal leaf plates for which they are trying to get assistance from the government. They also plan to build houses with loans from Gram Vikas.

**Lessons learned**

In conventional disaster management literature, disaster mitigation refers to activities that will minimise the impact of disaster. Traditionally, these are buildings like flood embankments and earthquake-resistant public buildings. In India, cyclone- and earthquake-resistant multi-purpose community centres are built, which can be used as school buildings but are effective cyclone shelters when necessary.

These kinds of constructions are often put in place after entire villages have been devastated.

But the Gram Vikas approach to preparing for disaster starts long before that. It begins with building a consensus within communities, so that everyone involved accepts the idea and agrees to contribute. Gram Vikas then proceeds to help build sanitary blocks, housing and water supply which can withstand the ravages of cyclones. This is a unique experience in the area of disaster mitigation and holds the potential for wider dissemination to other disaster-prone communities.

The drought-proofing measures in western Orissa and water-harvesting structures in villages such as Talataila and Kondhabanta have ensured that these villages do not have to suffer at all during future droughts. This was evident during the 2002 drought, when monsoon failure led to crop losses for a large number of farmers. In these villages, and others where similar actions were taken by communities, farmers had enough water in reservoirs to irrigate their paddy saplings.

**Cost-effective interventions**

In all these instances, the cost of building the facilities was a fraction of what it would have cost the government. Water-harvesting structures were built by the people in Chatrang or Talataila at costs ranging from Rs 125,000 (US$2,800) in Talataila (100 acres) to Rs 750,000 (US$16,600) in Chatrang (400 acres). The cost of irrigation per acre of land thus works out at about Rs 1,500 (US$34). In the case of government schemes, the cost would not be less than Rs 4,000 (US$88).

**Community ownership**

Another characteristic of all three case studies is community ownership of the processes and the output. In none of the villages did Gram Vikas have to return to ensure that the systems or facilities were used by the people. Neither did it have to pay for maintenance or upkeep of the structures or facilities. This was because people were involved in planning and building from the start - and fully backed the projects.

This feeling of ownership did not evolve on its own. It was the result of a number of steps taken by the organisation. These included:

1. The insistence that all households in a village must agree to participate. This condition can be time-consuming, but it ensures that issues relating to development are discussed in detail. It also fosters a high degree of acceptance and motivation.

2. The insistence that all households contribute from borrowings and/or from their own money or labour resources to build their own houses and other infrastructure.
3. The use of field organisers, alongside formal structures and agreed procedures, is also crucial.

4. The establishment of a common fund and appropriately designed community income-generating activities makes the participatory processes practical and relevant. The involvement of women in both the statutory and voluntary committees helps ensure that basic day-to-day social and family concerns are an inherent part of development plans.

5. The visible and demonstrable changes that come about in a village increase community support for the process of transformation.

The experiences here show that it is possible to design and implement interventions that produce cost-effective and community-owned processes and products. The Gram Vikas experience also proves that certain steps can produce real changes in existing social and economic processes. These involve creating a livelihood-enabling infrastructure, developing and maintaining community assets, and creating individual assets. These steps can help to prepare communities to face up to future disasters, and deal with their consequences. The case of Tamana during the 1999 cyclone and of the other villages during the 2002 drought show just how well such initiatives can work.