

Initiatives around Water Supply and Sanitation

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Bringing about transformation in behaviour and lifestyle requires constantly engaging with the community, generating a demand for the creation of structures for water and sanitation from the villagers themselves by helping them understand the link between lack of hygiene and economic loss, and handholding villagers through the planning and construction processes

Shrambhukia village in Balliguda looks surreal amidst the valley. The beautiful terrain, the surrounding green forest and the ever-flowing waterfalls enhance its view. Four small hamlets together comprise the village Shrambhukia, a part of Rutungia gram panchayat. The village, connected to the main road through a *kuccha* road, is approximately 16 km away from the block headquarters at Balliguda. The village has a population of 161, distributed in 38 households, and the villagers are all from the peace-loving Kandha tribe. The Kandhas used to practice shifting cultivation and are mainly dependent on forest produce for their survival.

PRADAN's engagement in the village started in 2003, with the promotion of women SHGs mobilized around savings and credit. PRADAN initiated goat-rearing and Siali leaf plate-making because the village lies on the fringes of a forest. The village also falls under the OTELP (Orissa Tribal Empowerment and Livelihood Programme) area of implementation. One of the components of the programme was developing infrastructure in the village along with micro-watershed development. The focus was to develop a model 'homestead development with round-the-year agriculture'. During the planning stage in the village, the whole community was engaged. Because the village has access to two perennial sources of water, this could be channelized to the homesteads and the fields through a flow irrigation system. The idea was well accepted, especially by the women who faced the daily drudgery of bringing water for household consumption by trekking 3–4 hours a day to fetch water either from the *jhara* (waterfall) or the *chuan* (subsurface water stream near the upper catchment). Keeping in mind the pressing need to alleviate this drudgery, a holistic plan was finalized, with the community's participation, to channelize water effectively to homesteads for use in households through a gravity flow system. The women were very excited and keen to initiate this project. Thus, Shrambhukia became PRADAN's pilot village.

No.	Name of Hamlet	No. of House-holds	Population	Category	Caste	No. of BPL Families	No. of Landless
1	Dalabali	6	31	Tribal	Kandha	6	1
2	Sindingi	8	37	Tribal	Kandha	8	3
3	Kudakpadar	13	58	Tribal	Kandha	10	
4	Shrambhukia	11	35	Tribal	Kandha	11	
	Total	38	161			35	4

Water Requirement of Kudakpadar Hamlet (Total population: 58)

Parameter	Total unit	Per unit requirement	Total requirement
For individual household consumption	58 persons	55 litres/day	3,190 litres/day
For agricultural use (10 decimals/family)	130 decimals	285 litre/day/decimal	37,142 litres/day
Total water requirement			40,332 litres/day

This was a new initiative for PRADAN; a decision was taken to visit a place where such a gravity flow system was already in operation. The exposure team comprised women SHG members, men of the village and a PRADAN professional. We went to Bhisamgiri village in the adjacent Ganjam district where household water supply has been installed through a diversion-based gravity flow. The village had a similar terrain, making it easier for the visiting team to relate to it. After the exposure visit, the women were charged up and took the lead. On return, a field survey was conducted to chalk out the route map for laying the pipeline; there were regular discussions with the community on the technical design of the diversion-based irrigation system, with an add-on component of household water supply through taps. After a series of meetings and discussions, the overall design and layout of the system, to provide water for daily

household needs as well as for round-the-year cultivation of vegetables in the homestead, was worked out.

The participation of the community was quite evident; the villagers were involved in the planning, layout designing and implementation processes. Sixty per cent of the costs came from the labour component. The terrain being hilly, heavy labour was required. Three feet-deep trenches were dug for laying the underground pipelines from an elevation of over 9 m to the foothills of the village and then to each household from a distance of around 2 km. Considering the peak discharge of 0.67 LPS, PVC pipes of 75 mm diameter were finalized (based on Hazen's William Formula). These PVC pipes then channelled water from the upper catchment to the distributaries from where the water was supplied to individual households. All the plumbing work was done

by trained village youths. Training programmes on plumbing were organized for interested village youth. They were also trained to function as service providers for maintenance and repair work.

A lot of hard work and commitment went into bringing the plans to fruition. It was a big moment when water began flowing out of water taps in the people's backyards. The villagers were overjoyed. The women of Shrambhukia do not have to struggle to bring water because they now have 24 x 7 supply of water. Women have started using water for all household chores. People have also started growing vegetables in their homestead. For the first time, people began thinking of a second crop in winter.

PROVISION OF SAFE DRINKING WATER

The women were quite happy and content to have piped water in their homesteads. Although the community had always been drinking water from the same stream, the water was not of good quality. The water supply to households was an add-on component of the diversion-based irrigation system; thus, there was no process of treating the water neither was there a storage tank. Water reached the taps directly because of the flow through gravity. Therefore, the next level of engagement started; a storage tank was constructed at the source for water treatment before being supplied for household consumption. The storage tank comprises three filter chambers to filter water for any impurities. The first chamber is filled with small pebbles to prevent moss and other floating matters; the water then passes through the second filter, which is treated with charcoal to prevent minerals and germs; and the last filter has a vertical layer of fine sand that impedes all kind of germs and minute particles. The treated

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water was then lab tested; traces of sulphate, nitrate, carbonate and iron found were under the permissible limits; however, the water had bacteriological contamination.

The water was then further treated with sodium hypochloride solution for bacteriological treatment (at

the rate of one drop of 0.5% strength sodium hypo-chloride solution per litre of water). One drop of solution contains 0.5 mg chlorine and, after the contact time, the residual chlorine in disinfected water will be to the extent of 0.2 to 0.3 mg. (As per the 'BIS 10500' specifications for drinking water in India, water can be considered free from bacteriological contamination if there is free residual chlorine of 0.2 mg per litre).

A village development committee (VDC) has also been formed for the smooth implementation monitoring and evaluation of the project. Any repair at the source level and in the pipeline system is discussed in the VDC, and the contribution from the community collected for any such work. The VDC also plans to install a water meter in every household, to check the monthly water usage in each household. The household pays the water charges; the money goes into maintenance and other costs.

At present, piped water supply covers a total of 2,160 families in 53 villages in Balliguda and K. Nuagaon blocks of Kandhamal district. This endeavour of providing safe drinking water and irrigation facilities for the homestead agriculture has been widely appreciated at the district level. Along with OTELP, Integrated Tribal Development Agency (ITDA) is also supporting the up-scaling of the activity in other villages of Balliguda and K. Nuagaon as well in the villages of Phulbani block.

AWARENESS GENERATION

With water now being available in homes, women in SHGs and cluster meetings share about how their daily drudgery has been reduced. Women are now also talking about the government's campaign on the construction of individual toilets in every homestead. This was also a frequently talked-about topic in cluster meetings and other forums. They wanted to know how they could avail of the benefits and construct toilets in their homesteads. They spoke of the problems they faced owing to the lack of sanitation. They had to defecate in the open; they narrated how sometimes they had to face humiliation. The team, in its endeavour of supplying safe drinking water, had not dealt with developing awareness in the community. It started with awareness generation around the sanitation programme, talking about open defecation/unsafe disposal of excreta and its implications on health. Discussions were generated around diseases and how we fall ill after consuming contaminated food or water; how unhealthy habits (unclean hands, unclean surroundings) have an effect on our health. Various tools such as organizing video shows in the village; placing placards and posters at prime locations in the village, schools and *panchayat bhawans* were used to ensure community participation. Discussions on living with dignity and following healthy lifestyles were encouraged in SHGs and clusters.

INITIATING THE SANITATION PROGRAMME

At the same time, a workshop of the OTELP partner-NGOs was held on the theme, in which Gram Vikas—a partner NGO—presented its model of a sanitation unit with

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bathroom and piped water supply for an individual family in Ganjam district. OTELP was ready to contribute Rs 4,500 per family for the construction of a household toilet unit. OTELP also proposed that Gram Vikas could be the Resource Agency for technical support. This was an opportunity for us to get a head-start in the Water and Sanitation Programme but we were hesitant. Unlike the piped water-supply system, which was

an add-on component of the drip irrigation system, this was a totally new activity for us. After many discussions, we finally agreed to work on the water and sanitation theme, in collaboration with Gram Vikas, wherein PRADAN would focus on community mobilization, which is its core, and Gram Vikas would provide the technical support.

We then again went back to the villages and started interacting with the community about the water and sanitation theme. We thought that merely constructing toilets would serve no purpose unless there was explicit demand and people understood its utility. This was not a simple task. One, we had to build community consensus on the sanitation programme and, two, we had to leverage with the concerned government department for funds.

We thought of focusing our intervention in those villages where piped water supply had already been installed. Once the community consensus was built, the work started in three villages in three different clusters. This was to ensure that the successful model could then be replicated in three different clusters. A village water and sanitation committee (VWSC) was formed to implement the programme smoothly. VWSC ensured that all the families in the village construct a sanitation unit

Village-wise Data of the Construction of Toilets and Bathrooms

No.	Name of Block	Gram Panchayat	Village	Total No. of of Families	No. of Toilets and Bathrooms
1	Balliguda	Sindirgaon	Kilupada	35	34
2	Balliguda	Rutungia	Kadiganda	22	14
3	K. Nuagaon	Sirtiguda	Sirtiguda	84	35

and for this they collected a 'corpus fund', toward which each family had to contribute Rs 1,000, to be paid in 4–5 installments. Technical training programmes on masonry were organized for village youths, with Gram Vikas as a resource agency. Technical training programmes on brick-making were conducted for the community.

Though the community understood the need and was also motivated to construct the sanitation unit, there still was an issue of the huge cost of construction. The total cost of a sanitary unit along with a bathroom and piped water supply, as proposed by Gram Vikas, was approximately Rs 19,700, in which OTELP would provide Rs 4,500 grant to a family.

Simultaneously, efforts went on to influence the government-sponsored Nirmal Bharat Abhiyan (NBA) programme of the Department of Water and Sanitation (DW&S), to avail of the incentive of Rs 4,600 for the construction of Individual Household Latrines (IHHLs). Also, convergence with MGNREGA programme was done for the provision of labour component of Rs 4,500 for the construction of IHHLs.

At present, the construction of a sanitation unit in the three villages is in progress, with the community having started work with the

grant received from OTELP; the community contributed the labour and provided construction material such as bricks and stones. The availability of a working capital is a big challenge because the funds are transferred only after the completion of construction. This has also affected the work progress. In Kilupada village of Balliguda block, the first payment from MGNREGA has come as a big respite and has boosted the morale of villagers.

ISSUES AND CHALLENGES

The initiation of the Water and Sanitation Programme has encouraged the community to bring about substantive changes in lifestyle. However, there are issues that need to be addressed before replicating the model in other villages. First, the Gram Vikas model (with a toilet-cum-bathroom along with a piped water system), though a comprehensive model, has a high cost, making it difficult to replicate without any external support or grant. Second, there are multiple stakeholders involved, that is, OTELP, Gram Vikas, NBA and MGNREGA; this needs multiple levels of negotiations and influencing. Third, the construction of toilets or the provision of water is not the end; a constant engagement with the community is needed to bring about behavioural changes, requiring a lot of patience and energy.

Water, Sanitation and Hygiene (WASH)



SHG members on an exposure visit to understand the household water supply system in Shrambhukia village, Balliguda



SHG members overseeing the construction of a sanitation unit in Killupada village, Balliguda



Mini-piped water supply system with solar pump in Dharaidih village, Koderma

PRADAN piloted the drinking water, sanitation and hygiene programme, aiming to bring quality changes in the life of the community with which it is engaged. The three pilot programmes in Balliguda, Purulia and Koderma were initiated through a series of interactions with and deliberations in the community. The main foci of the programme are to develop healthy habits in the community and develop low-cost models for accessing drinking water and sanitation.



An SHG member stands in front of her newly constructed toilet in Kanko *panchayat*, Koderma



Women displaying different models of sanitary units in a village exhibition in Berada village, Purulia



Women now get water in their homes through the mini piped water supply in Belkhara village, Koderma, saving them time, labour and the drudgery of carrying water from distant sources for daily use



SHG members celebrating Hygiene Day, Berada village, Purulia