

INTEGRATED DOMESTIC WATER MANAGEMENT

Compendium of Case Studies

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CONTENTS

Introduction.....	1
Action For Food Production	4
Aga Khan Rural Support Programme (AKRSP).....	12
Development Alternatives	21
Dharti Sanstha.....	31
Haritika.....	38
Kaldari.....	48
Sambhav Social Service Organization.....	54
Seva Mandir	62
Seva Mandir	63
Self Employed Women Association	73
Conclusions.....	82
Annex 1: Contact Details Of NGOs	83

INTRODUCTION

To say that water forms the basis of life is an understatement. It has been very rightly said that the next world war will be waged over water not oil. Water security is very closely linked to the development and growth of a region. Water secure regions satisfy the socio-economic and cultural requirement of water while making available required quantity for sustenance of the ecosystems. Water insecurity can stem from both physical scarcity and economic scarcity. In areas with physical scarcity, the primary water supply of a country exceeds 60% of its potentially utilizable water resources and this condition naturally prevails in arid regions while it may be manifested through man made interventions as in sustained overuse. In the case of economic scarcity the water resources are abundant relative to water use, with less than 25% of water from rivers withdrawn for use by human beings. The governance and management challenges are in prioritizing the country's/region's water requirements and planning resource allocation strategically.

Challenges in the water sector include both quality and quantity issues. Due to increase in population the per capita water availability has been reduced to about 1650 cubic meter from 5177 cubic mete in 1951. On the other hand, the demand for water for various purposes is increasing due to population growth, urbanization and industrialization. Sub-optimal utilization of the created facilities and relatively lower efficiency of the facilities for water utilization also threatens water security of the region. Due to unplanned development, we face the problem of overexploitation of ground water resources resulting in considerable decline in ground water table. About 15% of the Blocks in the country are presently in the category of over-exploited blocks. Another challenge relates to over-use of surface water which has resulted in irrigation drainage problem causing water logging in some areas. Pollution of river and deterioration in the quality of ground water are well known. A large share of pollution is caused by untreated sewage from the urban areas and effluent from the industry. Excessive use of chemicals and fertilizers and pesticides in agriculture is also a major cause of pollution

Water security hence requires good governance, since water allocation systems, through

proper governance and institutional structure influence the economic productivity, social and cultural well being and ecosystem quality in a country by prioritizing the access to water resources for consumptive uses such as drinking water, agriculture, and industry and for non-consumptive uses such as hydropower, recreation/tourism and environmental protection.

Water supply, sanitation and health are closely related. Poor hygiene, inadequate quantities and quality of drinking water and lack of sanitation facilities cause millions of the world's poorest people to die from preventable diseases each year. Nearly 250 million cases are reported every year, with more than 3 million deaths annually—about 10,000 a day. Women and children are the main victims. The numbers are concentrated in developing countries.

There has been significant all round achievements in respect of creation of irrigation potential, in providing safe drinking water to our people, particularly the people in rural and remote areas, in meeting the industrial water demands, and in addressing the environmental issues. Similarly considerable progress has been made in respect of flood management. However, a lot more remains to be achieved. The Indian government has also decided to take up the Total Sanitation Campaign¹ to solve the issue inadequate sanitary facilities. Under this scheme, families that fall below the poverty line (BPL) are given a subsidy to build their toilets. This effectively excludes a large part of the population.

When dealing with water security it is essential to look at all aspects of water ranging from the source, use through disposal i.e. the entire life cycle of water. Integrated Domestic Water Management (IDWM) aims at providing safe, sustainable water for all in a village. It lays emphasis on community owned, managed systems with appropriate institutional mechanisms to ensure inclusion and equity. The idea is to manage water locally, by closing the water loop and thereby reducing vulnerability. Key principles are integration and convergence. Integrated Domestic Water Management respects and works towards establishing the linkages between, Water resources, Water supply systems

¹ Total Sanitation Campaign is a comprehensive programme to ensure sanitation facilities in rural areas with broader goal to eradicate the practice of open defecation.

and infrastructure, access to Water and its usage, Water Quality Sanitation [treatment and safe disposal or reuse of wastewater] with in a village system. This departs from the traditional liner view we adopt while dealing with water.

There are instances wherein these principles are been practiced on ground with resounding success. Development Alternatives, in a study funded by the India Water Partnership made an attempt to study these examples and document them for dissemination. Case studies for semi arid regions around the country have been explored. Projects and process from Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat and Maharashtra were studied.

Case studies were selected for the purpose of analytical field visits by doing an intensive secondary research on the backgrounds of different organizations and their completed and ongoing projects. Field visits were planned to the selected locations across the semi arid spaces of India. The team members visited the organization and had a brainstorming session with the management team of the organisation along with the people involved at the field level. The interaction provided an enhanced insight into the knowledge and diverse techniques being implemented in the field. Site visits to project locations highlighted impacts and barriers on the ground. These case studies have been documented below to showcase the good practices in the water sector, with a special emphasis on integrated water management.

The studied institutions have adopted different approaches to solve the water related problems of the local communities. Not all of them subscribe completed to principles of IDWM, however all of them aim to solve water related issues in a holistic and integrated manner. This compendium is not intended to be a comparison but a showcase of the various approaches and their applicability to local situations.

ACTION FOR FOOD PRODUCTION

This has been a good year for the rains. Green slopes are seen on the drive to the Kundai village. However there is a distinct change in character as we approach the watershed, the village belongs to. The vegetation is lush and thriving. Shrubs and trees dot the slopes as compared to the grassy undulations seen elsewhere. The water bank ensures that the water harvested this monsoon will last till the next year. The joint private pastureland maintained by the community enable them to not just provide enough fodder for their cattle but also earn extra income from sustainable sale of the produce.



Figure 1 : Kundai Farmer standing besides the canal that feeds his fields with water from the well.

The farmers of Kundai are a happy lot. They have the means to correctly estimate the right time to sow their seeds, protect the crop from rain, best times to apply pesticides. They have started growing cash crops like cotton which have substantially increased their earning capacity. Their cattle now have enough fodder to grow well all this is due to the fact that water is now available at hand, to use almost throughout the year.

Action for Food Production:

AFPRO is an Indian socio-technical non-governmental organization with Christian inspiration working for the development of the rural poor through effective natural resource management solutions. It provides technical guidance and backup support to grassroots level NGOs for the implementation of environmentally friendly projects for water, food security, livelihoods and allied capacity building. AFPRO reaches out to the country through nine field units located strategically all over India. It has a team of hydrologists, geologists, geophysicists, civil engineers, sociologists and specialists in agriculture, fisheries, forestry and livestock. The aim of the society is development of weaker sections of the rural community to move towards sustainable development through an overall increase in their knowledge and skill in areas which directly affect their standard and quality of life.

BACKGROUND

Kundai village in Vallabhnagar tehsil, Udaipur district of Rajasthan, is characterized by low and highly erratic rainfall and frequent droughts occurring almost every 3 years. More than 90 % of the total annual rainfall of about 600 mm occurs during the months of June to September. Maximum summer temperatures can reach 45 °C with minimum winter temperatures dipping to 5°C.

Of the 107 wells, only 64 are operational. The average depth of open wells is 20 meters and the pre monsoon average water level is 15 -16 meters whereas the post monsoon water level is 5 -6 meters. The average depth of tube wells is 120 meters. Groundwater availability is very limited due to poor and restricted permeability of the underlying compact banded gneissic formations. Summers are particularly bad.

Most of the land is private or government wastelands or pastures. The cultivable land is less than 30% of the total land use pattern, with only 10% being irrigated. Irrigation is restricted on only the areas close to the well. The farmers are using plastic pipes and open drainage channels for irrigation as the existing system is incapable of irrigating the entire command area. The Kundai farmers have often discussed the need of having a better irrigation infrastructure so that they may irrigate maximum land to enhance their earnings and availability of water can be assured even during water stress period. In this context AFPRO introduced the concept of a Water Bank.



Figure 2: Darija Talai Water Bank - Large Tank

Kundai has six water harvesting structures i.e. *anicut*. Traditional water harvesting structures are an important component of maximizing water availability in the region. The Dhudh Talai structure was constructed 40- 50 years back for water storage and recharge. These structures have fallen in disrepair over

time due to siltation and breaks in walls. Darija Talai has only one open dug well that was used to meet the all the water demands of the hamlet including irrigation and drinking water needs. This well is shared by 12 tribal and marginalized families.

PROCESS:

AFPRO is following an integrated approach across the water, agriculture, livestock and energy sectors with the aim of securing livelihoods for poor and vulnerable communities. Water includes appropriate rural water resource solutions, which are planned, implemented, operated and maintained by the village communities. The Water Hypothesis is being developed against strengthening of existing water resources and promotion of innovative solutions. The focus is on both technologies and capacity building of the communities with a view to reducing vulnerability to climate change. The strong emphasis on community mobilization is one of the guiding principles in their work.

Series of meetings were held with farmers to introduce the concept the concept of a Water Bank. The community accepted the concept and made additional suggestions. Thus a Water Bank; an improved irrigation system was set up in Darija Talai.



Figure 3: Darija Talai Water Tank – Renovated Well

The first step in the plan of action was conducting a topographic survey. A topographic contour map of the area was prepared with one meter contour interval depicting elevation of different land holdings and reduced level of well has been marked. A land use map was prepared based on land record data and field mapping of different land units. AFPRO with the help of their field partners conducted a baseline survey of the 12 households with respect to the crop and water yield and pumping test of the dug well. Data

analysis and preparation of structural designs followed the surveys.

Though the well had a good yield capacity, its walls were collapsing. 3 diesel pumps were pumping water out. Under the project, the sole well was renovated and upgraded. The walls were strengthened. Two horizontal drillings were made with advice of a local water diviner in order to enhance the recuperative capacity of the well. It is situated at a low lying point in the valley. Water from the well is pumped using an electric pump into the two reservoirs of 10,000 and 50,000 lit capacities constructed. One is constructed near the well. The second tank is situated on top of a small hill. This enables irrigation of the elevated fields through gravity flows and a system of pipes. This system is called a water bank.

Well renovation was taken up with the participation of the stakeholders, for which only cement was provided. Stakeholders participated in all activities from designing the water bank through construction and laying out pipes till the management of the system.

To ensure adequate management of the equitable water distribution and maintenance of the infrastructure a water user community was formed. 20 community members both male

and female were trained on Water Bank management. The committee has

An **Agro-met observatory lab** has been set up in each of the project villages. The labs have anemometers to record wind speeds, Stevenson screens wherein minimum, maximum, and dry and wet bulb thermometers are kept, as well as a non-recording rainfall gauge. These will provide the farmer information like temperature, rainfall, wind velocity, etc. at the village itself, which will help farmers plan their activities. Weather analysis data is regularly recorded and displayed at important locations in these villages, and discussed at village meetings. The farmers have been comparing scientific data with indigenous knowledge, and have started to put modern methods into practice. A local farmer Shanti has been trained to record the readings on a daily basis. He notes down the readings in his log and informs the community about the appropriate timings for sowing, harvesting, etc. depending on impending rains and chills. For example, rainfall of over 25 mm allows for sowing of maize crop a few days later; pesticide spraying is not encouraged if wind speed exceeds 10 kph to prevent drifting and wastage; if the maximum temperature is over 32°C for one week, pest incidence might happen; and minimum temperature below 18°C for a week is a forecast for crop disease incidence.



assigned duties to individuals to man the pump and ensure the tanks are periodically filled up. The intermittent periods allow for the natural recharge capacity of the well to kick in.

Around the larger storage tank, the community has developed a joint private pastureland. Each family contributed part of their non agricultural land to form a consolidated pastureland. Soil and water conservation works were taken up along the slopes. Check dams have constructed to check erosion. One small water harvesting structure drains water to recharge the well. It has been fenced to protect it from random grazing. A watchman has been appointed (paid for by community contributions). The area has been divided into sections where cattle are allowed to graze on rotation. Extra fodder is sold at the end of the season with yields increasing from 2000 to 25,000 bundles over the last three years. It also houses a nursery and intermittent forestation has been initiated. The community shared 50% of the costs of the construction. They manage the pastureland through

a 12 member community based committee who decided how much areas is harvested and when.



Figure 4: Dhudh Talai Drain

The Dhudh Talai farmers noted that structural reinforcements were needed for the *anicut* to function efficiently especially after the 2006 floods. AFPRO sent technical teams to inspect the structure and renovations including upgrading the spillway were recommended. After community consultations and approval, the anicut walls were reinforced

In order to ensure long term functionality of the intervention, in situ water and soil conservation measures were undertaken. The community contributed 20% of the costs in the form of labour. The intervention led to increasing the storage capacity of the anicut and the catchment area. The Dhudh Talai anicut catchment area is also developed as common pastureland.

BARRIERS

When dealing with common resources, it is a challenge to get all stakeholders on the same platform. When dealing with sensitive issues like water in a water scarce and, it is essential to develop a consensus between all stakeholders.

AFPRO and their field partners, Sahyog Sanstha spent a lot of time meetings with the community and convincing them the benefits of the interventions. Convincing the people to be part of the program was the biggest challenge they faced. Once the community was on board, the implementation was much easier.

Another challenge was convincing the community to pay for the management and upkeep of the infrastructure. Once they see benefits, they are amiable to pay but to get them on board initially required many consultations and discussions.

IMPACTS

Ever since the installation of the water bank and the improvement of water availability, water related tensions have ceased to occur in the community. Initially conflicts sometimes turned sour and external mediators had to be called upon. Besides water, the Water Bank also secures peace in the community.

After the installation, the well can sustain drinking and irrigation needs of the community. In addition the irrigated land has increased. The Water Bank helped the Darija Talai community through the last year in spite of the poor rains, with water being available in the lean season too. Learning from the project, the villagers are now digging another dug well in the vicinity of the Water Bank.

The Kharif maize crop which would have been



Figure 5: Kundai Farmers growing cotton after the Water Bank was made

gravely affected by the erratic rains was saved due to the Bank. After the Water Bank, farmers have added cotton and vegetables like Brinjal to their posy of crops. The Brinjal crops have been particularly successful. Deepak a young villager learnt the practice from his exposure trip to other semi arid regions. This has increased their income substantially.

Besides increasing the water capacity of the anicut, the Dhudh Talai intervention has lead to augmenting recharge to the 5 downstream wells. Though the rains were not very good last year, results were seen in the form of increased land under cultivation during the winter crop. Encouraged by the availability of water some villagers undertook vegetable cultivation.

Overall the interventions have helped increase water availability for the vulnerable communities by recharge, storage and efficient management by the local communities.

FUTURE PLANS



Figure 6: Women of Darija Talai in conversation with the DA Team

- While the programmatic aspects of the project have concluded, they are advocating their learnings at government and civil society forums.
- They are helping them identify concrete steps that need to be taken so appropriate measures to deal with climate change can be identified and integrated into national and state level response mechanisms.

LEARNINGS

- Full support by a large part of the community is a vital basis for any intervention on common resources. The investment of time and effort in consensus and capacity building with communities is very important.

- Exposure visits help in broadening the point of view of villagers especially the younger generation. Learnings form observing others; they have the power to influence their communities.
- It is important to respect and include traditional beliefs, practices and cultural references in the scientific implementation of interventions.
- If the intervention is successful, the community will recognize the value of the common resource and show a willingness to pay for the benefit derived from it.
- Small groups with socio-economic homogeneity find it easier to come together to manage and maintain common resources. Farmers are more confident about working with joint private pasturelands as compared to common pastureland as the benefits are more direct and connected.



Figure 7: Joint Private Pastureland

AGA KHAN RURAL SUPPORT PROGRAMME (AKRSP)

AKRSP (India) is an NGO working with rural communities to improve their quality of life through management of natural resources, both private and common. AKRSP (I) initially worked to improve the villager's access to irrigation by the promotion of appropriate surface and groundwater based systems. Lift irrigation, check dams, renovation of percolation tanks etc. were all promoted with active collaboration with rural communities.

In Karan, each home now has access to safe water, a toilet facility and underground sewerage. Hand in hand with the construction of sanitation facilities has been information about hygiene practices, from washing hands before meals to the use of long-armed ladles for drinking water pots. Not surprisingly, Karan received a Clean Village award.

Over the years, AKRSP developed partnerships with the GWSSB and local Panchayats and women's groups to develop context specific technologies (shallow wells in saline zones, well sealing, roof rain water harvesting etc). It also piloted the use of the low cost drinking water testing kit developed by Development Alternatives.

AKRSP:

The Aga Khan Rural Support Programme (India) AKRSP (I) is a non denominational, nongovernmental development organisation. AKRSP (I) works as a catalyst for the betterment of rural communities by providing direct support to local communities to promote activities and develop models for sustainable natural resource use and development of human resources. AKRSP (I) is active in over 500 villages in three environmentally challenged and economically vulnerable regions of Gujarat: and one region (Khandwa district) in Madhya Pradesh since 1985. The major issues / themes addressed by AKRSP (I) in three regions include,

- Coastal Salinity Ingress Prevention
- Drought Proofing /Coping
- Gir Periphery Management
- Micro Enterprise Development
- Participatory Irrigation Management
- Promotion of Decentralized Drinking Water Systems
- River Basin Management

BACKGROUND

In the early 1990's AKRSP (I) found that drinking water was emerging as a key problem in the coastal regions due to salinity ingress and recurrent droughts and rapid pace of groundwater irrigation had also led to acute water scarcity in the villages of Surendranagar. Even though, Panchayati Raj Institutions have been legally empowered to ensure provision of drinking water services in villages, studies at the ground level show that they have not been performing this function, largely due to lack of independent resources and capacity to



Figure 8: Household connections for water

carry it out. Learning from their NGO's like Utthan and ASAG, AKRSP (I) added drinking water interventions and planning to the water harvesting work for support irrigation.

Pipaliya a medium sized village located 18 km from Chotila block headquarters of Surendranagar district faced acute water shortage as people had to pull up water from 80 ft depth from a well which was located at a far distance. A water supply scheme was started in this village in 1994 by Gujarat Water Supply and Sewerage Board (GWSSB) to reduce the problems faced by villagers. An overhead storage tank, two stand posts and two cattle trough were constructed. Even though the planned structures were ready for unknown reasons, the scheme never came into operation.

In 1999 GWSSB abandoned this plan and dug a bore well to meet the drinking water requirements of the village. An electric motor of 7 horse power was installed to lift water from the bore well but this scheme also faced several operational

problems for example the motor was not functioning properly; the galvanized pipes used were making it difficult to remove the motor for check up etc.

PROCESS:

Community-led initiatives of water supply and sanitation programmes have been central to most AKDN environmental health efforts. Programmes in sanitation and hygiene promotion are particularly important. The water related sectors in which the organization is focusing are drinking water, water harvesting, water recharge, and water management. AKRSP (I) believes in partnership, and networking.

There is a geographical focus of interventions across the state. In the Saurashtra region, the main focus of the organisation is to develop roof rain water harvesting structures as the water is saline and rainfall is relatively high. The paying capacity of people in the region is also relatively high. At other places there is more stress on water shed and water recharge approach. They work in close collaboration with Government (e.g. WASMO) which gives them a wide reach and helps in cost management aspects

With respect to sanitation, AKRSP focuses on hygiene and identification of behavioral trends. Primary emphasize is on soft components and then they switch

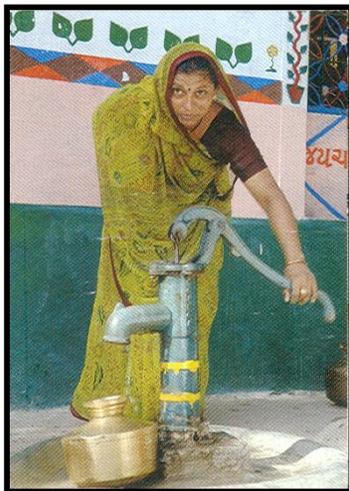


Figure 9: Adequate water is now available for daily needs

over to the hard components. They have built twin pit toilets in almost twelve villages for the poorest of the poor. Toilet interventions are not very high in the priority list, as other basic necessities need to be met first. Also this has a cultural aspect, which stresses more on behavioural change. The cost burden of these toilets to the villagers depends on the type and status of villages. There is a wide range. For some of the very poor households, it costs them nothing as the whole cost is borne by the organization. Some households have to pay 25 %, where as some others have to pay up

to 70 %.

Water supply and sanitation programmes are coordinated with other environmental health activities, with a special focus on the needs of women and girls. In the village of Karan, Siddhpur Taluka, in Gujarat's of, AKDN helped the village reach the goal of 100 percent sanitation.

To solve the drinking water problems in Pipaliya, AKRSP (I) with the Gram Panchayat in the village formed a Village Development Committee (VDC) during a Gram Sabha. People with help of this VDC decided to work on reviving of the existing Water Supply System. The estimate came to Rs 3.79 lacks, of which people agreed to contribute partially. As parts of technical aspects AKRSP (I) repaired the pipe pumping up water to the overhead tank. In five different areas of the village underground tanks were constructed and the overhead tank supplies water to these underground tanks. Each underground tank is provided with a hand pump to lift water from tank to reduce the wastage of drinking water. Soak pit have been made near each tank so that hygienic conditions can be maintained around tank.



Figure 10: Pipaliya Water Supply System

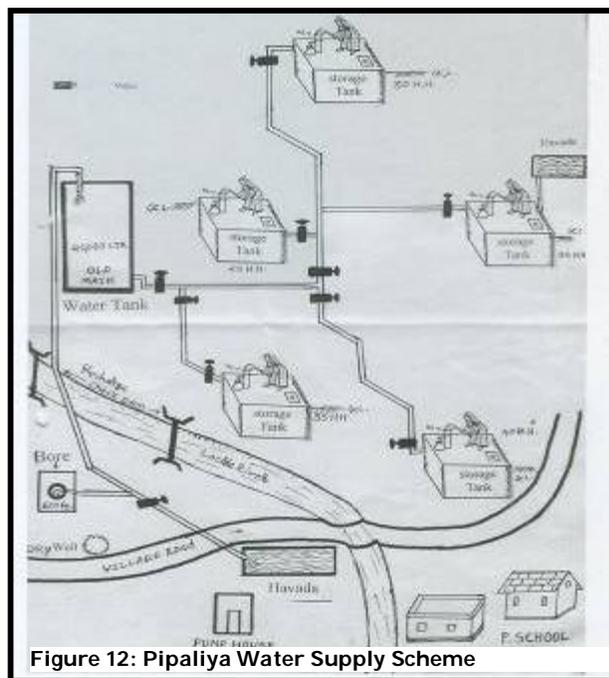
Due to heterogeneous nature of the village community AKRSP (I) had to be very careful in dealing with the people. Sensitizing the village leaders by individual meetings and dialoguing with them created mutual trust and sensitivity to work in the village. The major process in the village included organizing Gram Sabhas in the villages and individual contacts. A PRA exercise was conducted in the villages, with participation of woman and poor. It was decided to constitute a Village Development Committee (VDC) for the smooth implementation of the project, conflict resolution, pre and post management of project and liaison with other departments.

The VDC has taken up major responsibility at village level right from project planning, site selection, contribution collection, material procurement,

distribution, logistic and other arrangements at village level. Also a Pani Samiti has been formed comprising 10 members (equal proportion of men and women) for management of the water supply scheme. For sustainability the construction of an underground check dam has created a potential water storage capacity, which will ensure recharge in the bore well.

The approach adopted by the foundation for their interventions is community led. AKRSP (I) convenes a meeting of the Gram Sabha, during which the situation and possible interventions are discussed. Sometimes villagers approach AKRSP (I) directly on learning about interventions in other villages. The interventions are thoroughly discussed with the villagers and decisions are taken in consultation with them. Separate Pani Samitis are formulated for the different structures. These Pani Samitis nominated by the household clusters in the village construct manage and maintain the structures.

In some villages a cluster approach is adopted to reduce wastage of water. Also it is more convenient for each household cluster to effectively maintain them. The community is activity involved in implementation of the intervention. Contributions in cash and kind (sweat equity) are solicited and agreed upon by the community. Nominal monthly maintenance contributions are paid by the community.



Religion can be used at a trigger point. In one instance the tank was built in front of the temple so as to give some informal sanctity to the water tank. It would also ensure that the surrounding areas are kept clean, thereby protecting the water in the tank as well.

Woman representatives of the tanks are responsible for keeping the tank clean; informing the pump operator when the tank needs to be filled and telling him to close the valve after the tank gets filled so that water is not wasted. The male representative of her cluster assists her with the more laborious work, such as repairing the cluster hand pump whenever necessary.

BARRIERS

Sanitation is a tricky topic to deal with. It does not find a lot of cultural acceptance. Hence interventions related to sanitation do not find a lot of success. AKRSP (I) has put sanitation on a lower priority. Tier focus is on water supply and drinking water related interventions.

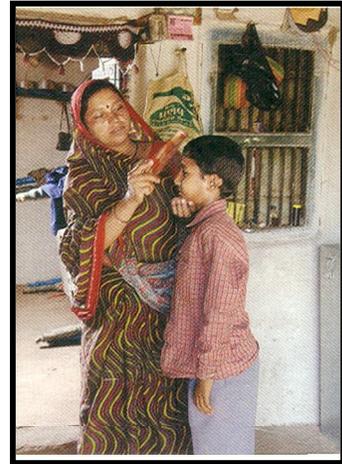


Figure 13: Women with leisure time to spend with children

In a heterogeneous community village consultations and process have to be very sensitive. Sensitizing the village leaders by individual meetings and dialoguing with them created mutual trust and sensitivity to work in the village is an important step.

IMPACTS

Over 400,000 beneficiaries across 900 villages in four states (Gujarat, Madhya Pradesh, Maharashtra and Rajasthan) have organised themselves into more than 1400 village-level institutions. AKDN's integrated community health programmes reach out to over 240,000 people in four states in western and central India.

In project villages, homes have access to safe water, toilet facilities and underground sewerage systems. Some villages like Karan received a Clean Village award. Children have started going to school. The women have free time to devote to other household activities and even productive income generating opportunities.

Change makers

30 year old Gauriben is a dalit woman representing her cluster of households on the Pani Samiti of Mokasar village, Surendranagar district, Gujarat. Her husband Bhanabhai runs a chakkda (motorcycle rickshaw) and also trades in leather. Though landless, Gauriben is proud that all her children go to school. Her daughter commutes by bus every day to Chotila town to attend the secondary school, while her two sons study in the village primary school. *"My children now go to school clean. I don't have to go out to collect water; I have free time and I look after my children."* Gauriben and her family live in a semi-pucca house but have started constructing a concrete house of their own

A few years back, Gauriben often had to walk almost 12 kilometres to collect enough water for her family. *"Everyday, I had headaches and backaches from walking long distances with heavy pots of water balanced on my head"*. Although Bhanabhai would sometimes fill 200-litre drums of water and transport them back on his chakkda, these instances were few and far between. For Gauriben, her life seemed to revolve around this endless search for water. *"I was worried that my daughter would have to lead the same life in a few years' time"*. Summers were especially bad. The erratic electricity supply worsened the situation as she could fill water from the agricultural wells only if there was electricity. Mismanagement of resources was another constraint. When there was water in the bore well, the pump was often left running, wasting water and leading to frequent motor breakdowns of the. The Pani Samiti of her village was unable to improve the system.

On a visit to relatives in the neighbouring village of Tramboda, she saw for the first time Roof Rain Water Harvesting Systems (RRWHS) constructed with the help of the AKRSP (I). On returning they approached AKRSP (I) to help them with their drinking water problems. AKRSP (I) convened a meeting of the Mokasar Gram Sabha, during which the construction of nine decentralised water storage tanks linked to the existing piped water supply system, managed and maintained by separate Pani Samitis nominated by the nine household clusters in the village, was discussed. Each household agreed to contribute Rs. 50/- in cash and voluntary labour for deepening the existing well and constructing the decentralized water storage tanks. Gauriben managed to convince her cluster group to construct the tank in front of the temple so as to give some informal sanctity to the water tank.

Today Gauriben is the woman representative of Tank Number 6, responsible for cleanliness and maintenance. Villagers pay Rs 10 every month for the reassurance of having water at their doorstep. Since she no longer walks long distances to collect water, her headaches and backaches are a distant memory. *"I feel proud when visitors to the village compliment me on the cleanliness of my tank"*, says Gauriben with a smile. And now she is also able to spend more time with her children and play carom with them.



FUTURE PLANS

Major components of AKDN's rural development programme plan include institution building, social organisation, natural resource management (especially in the area of water management and water-use efficiency including in coastal areas), productive infrastructure development and human resource development (especially of women), enterprise promotion, increased agricultural productivity and credit and savings services. AKRSP (I) will continue to work for promoting and strengthening community institutions at the village level.

The network is working on developing a differential model for sanitation service delivery to ensure faster and larger roll out. They want to overcome the cultural barriers that impede the spread of sanitation facilities in villages.

LEARNINGS

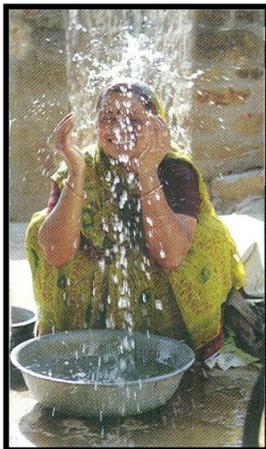


Figure 14: Health and cleanliness levels have improved

- It is important to take into account local cultural beliefs and customs while planning interventions. Sensitivity to local traditions will ensure better acceptance and success of the interventions.
- It is important to prioritize interventions as per the needs of the community. They know what they want and their point of view needs to be heard. Maintaining a community focus will improve the likelihood of the interventions being effective.
- Training and capacity building of local communities is essential. Local village level institutions should be empowered to take their own decisions. Capacity building is required at the institution level as well among the other villagers so the system is dynamic.

- A cluster approach can facilitate the process of consensus building as there are fewer stakeholders. It can also enable better management and maintenance of the resources and infrastructure.
- Behaviour change is a time taking process. Emphasis on soft aspects like awareness creation and consensus building among the communities is of paramount importance. This is often neglected in favour of hard infrastructure construction. But behaviour change requires constant reinforcing of the need to change.

DEVELOPMENT ALTERNATIVES

In the peak of summer, the temperatures are reaching 50°C. This is a hard time in the year. The search for water occupies most of the women's day. They traverse many kilometres in search of the elusive elixir.

However in a few villages of Bundelkhand life goes on as usual. They have water at their doorstep and it changes the world for them. They have time to invest in other productive activities, time to spend with their children. This is possible because of the collaborative interventions of Development Alternatives and the Arghyam Foundation.

These villages are called IDWM (Integrated Domestic Water Management) villages. They ensure that water is locally managed through its entire life cycle providing enough water for all needs human and environmental; by the community themselves.

Development Alternatives:

DA is a not-for-profit organisation set up especially to promote sustainable development. Over the past 27 years, it has become widely recognised as a successful innovations organisation with a primary mission to create sustainable livelihood options in the developing world that can be replicated on a large scale. DA's belief in the power of enterprise and the utility of the market has led to the establishment of its own green businesses, designed to take low carbon, resource efficient pathways to inclusive growth in areas such as rural housing, renewable energy, water management, sustainable agriculture, waste management and recycling from local to global scale.

BACKGROUND

There is an acute water shortage in the villages of Bundelkhand currently. It is very ironical to find the perennial rivers like Betwa and Jamni flowing in the vicinity while just a few kilometres away, people are struggling with all their resources and time to collect water to meet basic needs. Bundelkhand has a rocky and undulating terrain with a high surface run-off but very low ground water recharge. Women and children are spending anywhere between three to five hours to fetch water for

domestic needs, for which they might have to walk or bicycle for kilometres. In villages like Bagan (Niwari block of Tikamgarh) and Ganeshgarh (Badagaon block of Jhansi), there is just one public hand pump catering to the needs of 45 to 60 households on an average. Sanitation and waste water disposal were unheard of concepts.

Five years back, Gopalpura, a non descript village in Jhansi district, Uttar Pradesh like most other villages in the region faced severe water scarcity, along with numerous other related problems ranging from sanitation and waste disposal to crop failure. Scanty rains are the norm in the Bundelkhand region, and the last four years had seen a severe drought hit the village. Matters got worse as the wells, which had been the dominant source of water, started to dry up.

The situation was dire and by no means limited to just Gopalpura. Surrounding villages were in the same quandary. Migration or waiting for a slow dry death seemed like the only options. Development Alternatives has been working the region for the last 25 years. They realized the grave situation and initiated the IDWM project with the help of the Arghyam Foundation.

PROCESS

'Water for All and Always' in Bundelkhand region – catalyzing local action project is a collaborative effort of Development Alternatives and Arghyam Trust. It was initiated with a vision of finding appropriate solutions in meeting the qualitative and quantitative requirements of basic



services like water and sanitation in rural Bundelkhand.

Figure 15: Women carrying water over long distances in the past

They adopted the IDWM approach. The approach is built around the issue of

sustainability in terms of both source creation and its management (quality and quantity), and building of institutional systems at various levels (village, block, district levels) for community based management of water and sanitation challenges. In a nutshell, an integrated approach to water and waste water management.

The focus areas to achieve IDWM are

- Sustainable Source Development
- Integration of Water Supply and waste water management
- Capacity building for Institutional systems design and inter-sectoral integration at various levels.

The key aspects of sustainable source development encompass both quality and quantity management. Primary focus was on building the capacity of various stakeholders both at block headquarters and village level to design institutional systems.

Initially Focus Group Discussions (FGDs), and Household Surveys, were carried out. They were focused on sensitizing people about the interventions for effective implementation. The knowledge and data captured was analyzed and list of issues specific to the villages was identified. Priorities were set for three different groups – women, farmers and elderly in the village. This was followed by a village level meeting to discuss the issues collectively and prioritizing the projects as per the needs of community and scope of the project. Effective village action plans were formulated to maximize the output.



Figure 16: Community consultations with DA team

As the implementation of such a project involves a major change in human behavioral aspects, time was devoted in awareness generation, information sharing and meetings with the community besides the construction work on the ground. The concept of Integrated Domestic Water Management (IDWM) was shared with



Figure 17: SJVS meeting

the community to convince people for using the toilets. Change in age old mindsets and practices takes time. Also construction of toilets involves a fairly large financial expenditure and physical labour that adds to the burden of the already resource poor villagers. Thus this process is long and complex.

Under these situations the field team undertook a multi pronged approach involving the PRIs, schools, self help groups (SHGs) and other *samitis* in the villages. They also dealt with individuals on a one to one basis. They adopted a community focused approach and utilized important calendar days to spread the



Figure 18: Family with their toilet, Rajpura

message effectively and efficiently.

The owners of the house had the responsibility of investing labour to dig the pit and make arrangements for the bricks and sand. This was where work got stuck in most of the cases as the people did not have either time to dig or money to

arrange for the material. At this juncture the field team has to really motivate people to complete the tasks so that the toilets can be completed in the prescribed time. Once the pit digging was complete, the members of DA field team arranged for the materials like the pan, pipes and cement. This material is stored in some safe and secure area in the village under the custody of either the SHG women



Figure 19: Tap stands making water available every 100 meters

member (as in Rund karari) or with Samagra Jal Vikas Samiti members who can take the responsibility of storage and stock maintenance.

Other construction and repair related work like fixing tap stand, extending water pipe

lines, soak pit and underground drainage etc. was carried out with help of village level

institutions. Access to drinking water by way of piped water supply was the main aspect of the project. It was the key issue raised and identified during the PRA exercise. Hand pumps and common tap stands were installed to ensure water was available at accessible distances.

Relationship with Panchayats was strengthened by meetings and discussions, as confidence building activities. Special Gram Sabha meetings are conducted to make people aware of different govt. schemes. Various aspects are discussed in these meetings ranging from Jalabhishek abhiyaan, Naudamp tank, Vermi compost to Biogas and other village related matters. Linkages with Gram Panchayats (GP) were established for leveraging funds from various schemes. Efforts were devoted for communicating the objectives of the project to integrate them into the community's objectives.

Change Makers

- In one a handicapped person was willing to dig the pit for their toilet as he was convinced that this is a people's issue and people should take an active part in the whole process irrespective of their health, age and financial situation.
- A small girl came to the team and said that right now her parents are not in the village hence she does not have any money. But she wanted the team to do the layout so that later she may ask her parents to start the toilet construction.

Efforts were being made to understand and identify schemes in the government set-up for leveraging. In this process, government officials (especially CEO) of

relevant departments (e.g. Public Health and Engineering) were contacted and were convinced about the ongoing efforts being made under the project. Consistent attempts by the team to keep the files moving in the official system were successful when some of the BPL households in the villages under this project got subsidies sanctioned under the Total Sanitation Campaign and Nirmal Vatika Scheme. Extraction of funds from Panchayats for the construction of toilets is being carried out. In villages like Gopalpura, Sarpanch has constructed drains in the village to ensure that waste water from households does not accumulate and create unhygienic conditions. SJVS ensures regular cleaning and maintenance of these drains.

Along with construction activities being carried out in the various villages, continuing efforts were made to sensitize and motivate people through workshops, focus group discussions, community awareness and training programmes. Meetings were organized at people's houses as it provided a source of motivation. The place where the meeting is held gets noticed by the community and as result the person involved is further encouraged. Awareness programs and competitions regarding sanitation issues were organized in the schools with the help of teachers. Watershed approach was adopted to identify location for construction of water conservation structures like check dams, gully plugs, farm ponds, etc were constructed to conserve monsoon run off and ensure ground water elevation.

People who had already constructed toilet in their house were contacted, so that they can advocate the benefits to their neighbors and community. They were being used as effective 'links' to take the message further and as change agents. Periodic inspection is being conducted to monitor the progress of construction of toilets in each household. Periodic reminders are being given to the ones who have not started construction of toilets. Training and capacity building activities of



Figure 20: Competitions for local children

community, especially women groups, on sanitation issues were organized.



Figure 21: Jal TARA Filter in school

Samagra Jal Vikas Samiti or SJVS was designed as an institutional mechanism set up for implementation, management of systems and asset creation. The key feature of SJVS was that its participatory approach. The members and their roles were selected from amongst the villagers by the community itself. The values inculcated in the members of the SJVS and the proactiveness of the committee came to be a decisive factor in ensuring water supply in the village. This committee was formed at the village level to take all decisions for

implementation, monitoring and finance management of the project work, with the group comprising of 10-12 people; this creates a pressure group for strict vigilance over resource management as well as smooth functioning of the implementation process. It comprises of four leaders – the president, vice-president, the treasurer and the secretary. As a mandate, the secretary has to be the DA's field staff involved with the community mobilization processes with the village. SJVS has also opened a bank account to ensure transparency in dealing with money issues.

It is remarkable to see that SJVS has evolved as a village level committee which looks at other issues of development in addition to water like roads, drainage, agriculture, etc. and as developed as a pressure group to influence and leverage various government schemes and programmes like TSC, NREGS, etc through the gram panchayat.

Involvement and role of SJVS / community based groups was enhanced by involving them in the financial management of projects. To solve the problem of irregular water supply and its management related issues, the responsibility of regulation of pump has been given to the panchayats to ensure proper and effective functioning.

Water quality testing training has also been given to the community. Selected members of the community seasonally monitor all the sources of water in the village for a series of parameters like pH, turbidity, hardness etc. The results of the monitoring are displayed on the village notice board. In Gopalpura, the Sarpanch carries out this task. A few months back during the course of his tests, he discovered that the tap near the school had got contaminated. This was due to the open drains and garbage dumped close by. He cautioned the villagers of against using this water for drinking. This saved the villagers a great deal of trouble that would be caused due to the spread of diseases.



Figure 22: Malkhan Singh, Gopalpura Pradhan who conducts seasonal water quality testing

BARRIERS

Since the project involves finance, there is mistrust among the communities with respect to the intent and motive behind the interventions. Trust building is essential to overcoming these obstacles. Programs dealing with sensitive issues like sanitation require a lot of interaction with the communities prior to actual implementation.



Figure 23: Check dam in Bundelkhand

The cultural mindset is attuned to open defecation. The seniors especially are uncomfortable going anywhere but under the open skies. Even when toilets have been constructed, they refuse to use them. This requires intensive capacity building within the community to encourage behaviour change.

IMPACTS

The women in these IDWM villages no longer have to travel far and wide in search of water. It is available a few steps away. The scene is very different from that of a few years back. Women are washing clothes outside their homes while the grey water runs down the village drain to a soak pit. Hand pumps supply enough water to satiate the needs of the community. The village school has been fitted with a sand filter to ensure safe drinking water to children. Most houses have a toilet and open defecation has decreased by over 80 %. The village water and sanitation committees are functioning efficiently. The people seem content and happy.

FUTURE PLANS

DA will continue working on the IDWM concept, expanding the scope geographically. Providing safe water is their mandate. They are also working on innovative models which combine water and livelihoods i.e. agriculture.

The learnings from the field are being fed into policy dialogues at various levels. This will ensure that the good practices implemented in the 5 villages can be disseminated to the larger audience.

LEARNINGS

- Convergence with government schemes is an asset towards reaching the goal. Panchayati raj institutions can play an important role in leveraging appropriate government funds and schemes.
- The integrated domestic water management approach includes the entire life cycle of water from the source, through the uses to disposal. This holistic



Figure 24: Events promoting hygienic practices and sanitation

approach ensures that the needs of the community for all sectors are met and eliminates internal conflicts due to competing claims on water

- Local community members can be groomed as change makers. When the message comes from one of the community, it is better received. The community is more likely to trust and accept new ideas from one of their own as compared to external agents of change. This requires intensive handholding in the initial stages.
- Sustainability of any initiative or project lies in its acceptance and management by the community itself. Projects which ensure systems and processes within the community for decision making, planning, implementation and maintenance of the assets created are more successful and sustainable in the long run.
- Training and capacity building of local communities is a key step in the process. The village level institutions need to be empowered to take informed decisions and manage their water resources. Women can play an important role in this process.



Figure 25: Drawing competitions for school children to raise awareness

DHARTI SANSTHA

The village of Mahadevkapura holds a distinct honour, that of being 'open defecation free'. What these three words mean is that all the 35 households in the village have given up on the age old practice of relieving themselves in the open. Each of them now has a toilet that the entire family uses right from the women to the children and the senior citizens.

Some families have even constructed a bathroom along with their toilets. There is sufficient water for their daily needs. Water is supplied via hand pumps installed for small groups of households. With the time spent in getting water from far off sources now saved, the women now have time to set up and manage an Anganwadi for the village children.

Dharti

Dharti started work by recovery of ravine affected areas of Bundelkhand. They focus on socially backward communities. The main occupations in the region are agriculture, livestock rearing and limestone mining. As the ravines started claiming more and more land, people started migrating away. In addition water scarcity worsened the situation. Dharti began work using local knowledge to deal with the water crisis. Dharti started its work from a village in Morena (Dimini) in 1998 and has been expanding to the nearby areas since.

BACKGROUND

This drastic change from our village stereotype has been possible due to Dharti's interventions. Mahadevkapura is a small village with just 35 households. Majority of its inhabitants are from socially and economically backward communities.

Situated in a drought prone region, they faced severe water scarcity issues. They reached a crisis a few years back due to continuous droughts. This led to high school dropout rates. The region has a dropout rate of almost 70%. Migration rates are also very high. In certain village the only male members are children and the infirm and elderly.

Sanitary toilets were unheard of. Open defecation was the norm as in other villages in the region. This led to rapid spread of diseases and escalated health costs. In short situations were rather bleak. Dharti's interventions have brought about a wave of change.

PROCESS

Dharti's work revolves around two related concepts of water and sanitation. They encourage local level protection of water sources. Revival of traditional ponds, wells and tanks as well as conservation of existing water structures is



Figure 26: Hand pumps with soak pits and pit for cattle drinking water

promoted in the communities. The idea is to strengthen and sustain the water sources over time. Rain water harvesting is undertaken for storage and use of water via roof water harvesting structures as well as for recharge. Check dams and bori bandhan (small earth dams) are constructed to retard the velocity of flowing water and enabling recharge to raise water levels.

People's participation plays a very important role in the process. Communities are involved in the project and their contribution in terms of sweat equity or cash contributions is sought. With WaterAid's help, 3 hand pumps were installed in Mahadevkapura. The community put them up themselves. Dharti organized trainings for mechanics and caretakers from the community itself. They also arranged for toolkits for the trained mechanics to carry out regular maintenance. These technicians also travel to other villages repairing their hand pumps. This has become an additional source of income for them at INR 200 per hand pump.

The Public Health and Engineering department is to conduct water quality testing trainings at the Panchayat level. This is often neglected at both ends due to lack of adequate manpower and political will. Dharti raises awareness among the community about these trainings. They also facilitate seasonal water quality

training by providing kits and capacity building.

With respect to sanitation, behaviour change is the most important component in the process. Dharti has adopted the Community-led Total Sanitation (CLTS) approach. They enter a new village, where they do not have any previous intervention. They start at the site where the locals aggregate every day. The conversation begins with small talk, about mundane village matters so the villagers thaw and there is an ambient atmosphere for discussion. The team then asks about one good place and one bad place in the village. The bad place is generally the area where the villagers go to relieve themselves. The team then insists on going to see it.

After much cajoling, the villagers take them to the spot. By this time a huge crowd has collected due to the curiosity about the new people with the strange demands. Most adults and many children follow the team into the fields, where they look for a fresh pile of human refuse. The team ensures that the crowd accompanying them stays put through the field visit. Once there the Dharti team discusses the life

cycle of the refuse lying there. This has to be handled sensitively as it can get quite graphic and offensive to the community. They talk about how flies can carry germs from there to their homes and food bringing a host of diseases.

This visit leaves a very dramatic imprint on many people. When the Dharti team visits again, they are amenable to listen and take steps towards building sanitary latrines. Triggers like events, religion, health, respect and dignity issues are key drivers. It is often pitched as a gift for the new



Figure 27: Wall painting about water infrastructure

brides who come to the house.

Some others take time to get convinced. Peer pressure is used positively to

persuade the rest. Other strategies are naming and shaming defaulters. They also confiscate the *lotas* that people use while going on their daily chores. Fines are also imposed on the remaining open defecators.

There are still a few mavericks who refuse to listen to the team. In such instances, the team resorts to “Billi vidi”. Since their aim is freedom from open defecation, they tell the community to dig holes and cover them with mud later like the way a cat works. They even go to the instance of waiting for them with spades to cover the refuse with mud once they are done. This humiliates people enough to agree to the Dharti team.

They also take villagers on exposure trips to other model villages across the country, for them to see and experience firsthand the benefits of being open defecation free. These villagers come back and influence their peers to take proactive steps in



Figure 28: Toilets in school compound

making their villages' open defecation free. The Nirmal Gaon concept is an incentive towards this goal.

Under the WaterAid project, they provided materials worth INR 500/- to build the toilet. Together with the community and Panchayat contributions, the toilets were built in INR 2000/-. At present rates, this works out to INR 3500/-. Soak pits are made around hand pumps. Waste water is directed to kitchen gardens to achieve the double benefit of meeting the household's nutrition needs while managing disposal of water.

Dharti has helped formulate Village Water and Sanitation Committees in each of the villages. These committees are comprised of 50% men and 50% women members. They are instrumental in managing the water resources of the village, ensuring the entire community is involved in all interventions and their maintained there on. The members work as change agents convincing others in

the village and outside. They maintain leverage registers wherein they record activities carried out and contributions from various stakeholders. VWSC baithaks are also recorded. Panchayati raj institutions, Mahila Mandals and schools are actively involved in the process.

Cleanliness competitions are held at a village level to promote better hygienic practices. Wall paintings are used to reinforce messages. They also conduct school awareness programs. Dharti organizes hand washing days, where they visit individual households. They spend 45 minutes to an hour discussing issues of water, food and nutrition. Personal hygiene habits, diseases and waste disposal practices are discussed mutually and improved. Impact studies are carried out to measure the change in the lives of the community. The entire program cycle takes about 3 years per village. During this time Dharti engages in intensive interaction and consultations with the community at large and the core VWSC in specific.

BARRIERS

Sanitation is considered a taboo subject. People do not like to discuss it. When the topic is raised they brush it aside. Many villagers get offended when the conversation veers around sanitation issues. In fact there were times when they drove the Dharti team away. The team spent a lot of time in awareness and trust building among the communities.



Figure 29: women taking lead in toilet construction

There also mistrust in the community about toilet construction as it involves money. They question the motives of the Dharti team in the process. Trust building in the community is important for them to agree to the interventions. In order to maintain transparency, after the work has been completed the accounts are painted on the structure.

IMPACTS

Dharti's capacity building exercises paid off with people being motivated to build

their own toilets. In Mahadevkapura, an illiterate woman, Dakobai went against her mother in law to construct a toilet in her home almost overnight. She convinced her husband and they dug the pits through the night and got their own toilet constructed.

These villages are very well maintained, cleanliness is given importance by each villager. A total of 218 villages are now Chikungunya free. The health status of the village has considerably improved. Health costs have also reduced.

Dharti is developing a model of mini water supply. The ownership of the system is with the Panchayati raj institution. They are planning to expand the intervention geographically.

As villages realize the benefits these interventions bring them, they spread the word to their relatives in other village. Thus a network of change agents has been created who are instrumental in spreading the message further.

FUTURE PLANS



Figure 30: Children operating hand pump while simultaneous water fills up in toilet tanks

Dharti has been instrumental in facilitating 30 villages to be open defecation free. They propose to expand this feat to neighboring villages. Efforts are on to strengthen the Village Water and sanitation Committees and empower them to function independently and effectively.

Besides the toilet construction they are also looking at intensifying trainings and propagation of hygienic habits. They are looking at closing the loop of waste water by encouraging kitchen gardens at a household level.

LEARNINGS

- Capacity building and trainings are important in empowering the community.

Special emphasis needs to be paid to strengthening the village water and sanitation committees to empower them to sustain the process beyond the project.

- Exposure visits play an important role in convincing the community that the interventions can bring them benefits. They also help in opening their minds to more possibilities and enrich the project with their inputs. Those exposed to the field trip also help in convincing the rest of the community.
- The idea is to prevent open defecation. Sanitary toilets are one measure. However it is important to keep an open mind to even simplistic solutions like mud pits in order to initiate behaviour change in the community. Hygiene training needs to go hand in hand with building toilets especially when attempting behaviour change for sustained results.
- Intensive involvement with the local people creates a strong bond with the community. This bond is one of the prime reasons for success. People Involvement at all levels is important from the Panchayat raj institutes, women, children etc.
- Trigger based approach can lead to faster results as they provoke people into instant action. Issues like respect, dignity and religion invoke strong responses. If handled sensitively they can bring positive results.

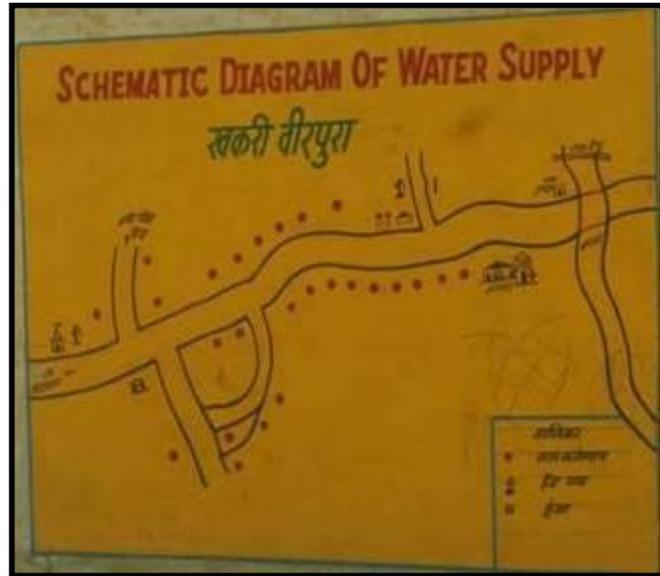


Figure 31: Women and children benefited from the developments

HARITIKA

Khakri Veerpura is a small village in the Nowgaon block of Madhya Pradesh. It falls under the rain scarce drought prone area of Bundelkhand. Isolated trees dot the dusty thirsty land. Not a soul is in sight. Humans and animals alike are closeted indoors to escape the sweltering heat. It is not unusual for the afternoon temperatures to cross 50 C. As we drive through this rather dismal landscape, we hear a strange sound is heard; the sound of running water!

On closer inspection we see a young boy washing clothes by a tap. This gift of water is what sets Veerpura apart from the other villages in Bundelkhand. The entire village is connected by an underground piped water



supply system. Each house is equipped with a latrine, a bathing room or an outdoor tap connection. Water is available round the clock. A designated member of the community pumps water twice a day as and when electricity is available and ensures uninterrupted water supply is maintained. Another set of community latrines are built near school for the children and teachers to use during the day.

Haritika:

Haritika is a not for profit organization that works with people whose lives are dominated by extreme poverty, illiteracy, disease and other handicaps. One of their focus areas is poverty reduction, especially in the Bundelkhand region. They also work on natural resource management, integrated water management with emphasis on water and sanitation, local governance issues, Agriculture Extension, Children Education, Women Empowerment and Health. After analyzing the problems of the different agro climatic condition and in consultation with the members of various villages level institutions and community based organizations, they develop interventions at the village level.

BACKGROUND

Until last year the people of Veerpura depended on the rain to take care of their basic necessities. Due to the close proximity to streams of the Bhadar River basin, the villagers extracted water for domestic and irrigation needs during the monsoon. However the streams are not perennial and the respite was short lived. Traditionally they used dug wells to meet their water demands however in the past few years, tube wells are coming up with increasing frequency. The depth required to dig for water is also increasing over time. In addition the people are not very prosperous. Majority depend on agriculture as their only source of livelihood. Agriculture is very closely linked with the availability of water and the village is in a water scarce zone.

Haritika believes that land based activities that create assets are the key to working towards poverty alleviation. One of the leading causes of poverty in Bundelkhand is barren land. As agriculture is the main livelihood in the region and the area is drought prone, irrigation is a primary concern in addressing poverty alleviation. Under this premise Haritika started construction of dug wells in the region. However realizing the close links between water and people they began to work under the domain of domestic water and sanitation also. Veerpura has benefited from these interventions to escape its dry and dismal plight.



Figure 33: Community working on building earth dams

PROCESS:

Haritika has adopted an integrated basin approach to deal with the water scarcity problem in the region. The Bhadar river basin in Nowgaon block of Chhatarpur

district in Madhya Pradesh was scientifically studied with the help of Advanced Centre for Water Resources Development and Management (ACWADAM) and Society for Promoting Participative Ecosystem Management (SOPPECOM). The Bhadar river basin consists of around 21 villages (including Veerpura) and encompasses an area of about 10378 hectares. Currently, it supports about 25000 people. The tributaries of the Ken and Dhasan rivers flow through the region. The idea is to systematically look at the entire basin for land and water resources development in order to augment the sub-surface ground water systems and increase the flow of streams and rivers for an extended period of time, and, to increase the storage of surface water through water harvesting structures.

In the region, compact granite fractured rocks favour high discharge of water in the form of base flows. Due to this increased sub - surface flow, the availability of water in streams and in valleys increases substantially. The area has innumerable number of small streams draining into the smaller nalas flowing through the area. These nalas and streams are seasonal in nature and are alive only during monsoons. This network of nalas and streams are part of the Bhadar river basin.

The groundwater system in the Bhadar river basin is mainly in the form of a shallow unconfined system and a variably deeper and highly

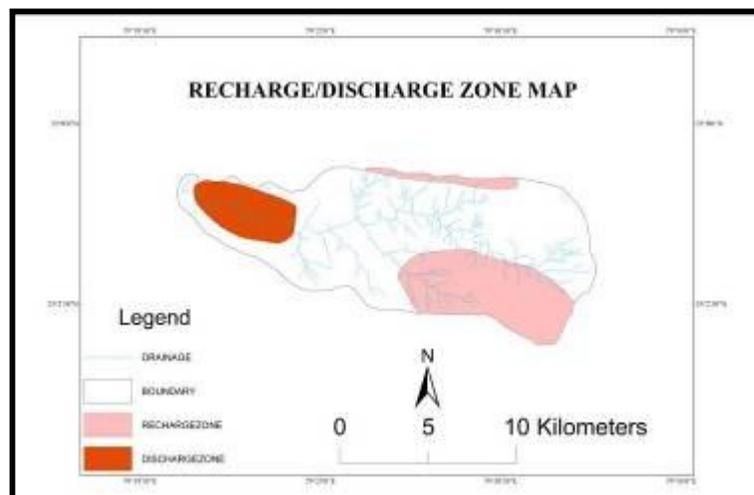


Figure 34: Mapping of recharge and discharge zones to help in planning interventions

inhomogeneous confined aquifer system. The hydro-geological mapping of the river basin revealed the potential of dug wells over tube wells. It also brought out that certain portions of the river basin, are more conducive recharge zones (indicated by both the geology and the fluctuating water levels in wells) while others are discharge zones (where groundwater discharges to the surface and the

natural fluctuation of well water levels is not significant) giving an indication of what conservation structures – recharge or harvesting – could be deployed through a river basin treatment programme and whether existing structures could be put to better use through a strategisation based on the hydro geological characteristics evident at different locations in the river basin.

Using this knowledge as a basis, Haritika decided to introduce interventions in the surrounding villages. The approach is participatory, community based and demand driven. Villages are selected on the basis of the scarcity of water faced by the community and the willingness to pay for the system. Initially potential target areas were identified around the village. Interventions are focused on streams



Figure 35: Water Tank supplying piped water to households

which do not affect the flow of the main river i.e. the distributaries which flow for a short distance and end. A series of checked dams were constructed on the streams and the nalas. These check dams act as reservoirs, which are used to recharge the dug wells built in close proximity to the dams. Thus a sustainable source of water is created that lasts even after the monsoon ends. All drinking water schemes are supported by sources strengthening measures. A participatory self regulatory mechanism is in place that ensures that the water is used judiciously and not over exploited by any individual for personal gains.

The next phase involves establishing the village water supply network. The source of water is dug wells. Based on the hydrogeology of the river basin, it was found that dug wells are more suitable to meeting water needs as compared to tube wells that exhaust aquifers. The water from the well is pumped and stored into a distinct red overhead reservoir tank. An efficient underground pipeline system then relays the water to each household.

Different models of the reservoir tanks were considered. In certain villages, multiple overhead reservoir tanks of low capacity were constructed for sets of 5-6



Figure 36: Decentralized water tanks catering to clusters of households

households. Thus 2-3 tanks were constructed at distinct areas in a single village. However, this model did not work very well due to the lack of ownership for the reservoirs, free riders and the high costs to be borne by a smaller number of households. The currently used model is a single tank of high capacity, which supplies water to all the households in the

village. This not only reduces the per capita distribution of the construction cost but also centralizes the distribution system aggregating all stakeholders to a common platform.

The tank is strategically located at the highest point in the village to minimize energy demands while pumping water. The height of the tank is determined that the highest house should receive water at a pressure of 7 m. In addition the tank is placed on stilts. The area under the tank effectively doubles up as a meeting room for the Village Water and Sanitation Committee (VWSC). After the setup of the overhead tank, each household is provided with three connections - one for the toilet, one for the bathroom and an outdoor one. Twin pit toilets are constructed. The outdoor tap is supplemented with a soak pit. Excess water is diverted to a small patch nearby used to grow vegetables. Depending on the



Figure 37: Toilet and bathroom constructed in Veerpura

needs of the household and the space available the toilets are constructed within or outside the house. Under this programme household connections are provided therefore due precautions are taken to ensure long term sustainability of domestic water sources. All water schemes are supported by source strengthening measures.

Major focus is given on drainage line treatment to improve ground water availability.

In order to ensure smooth functioning of the facilities provided even after the project has ended, it is important to involve the local community in its functioning. In order to do this, Haritika forms a Water and Sanitation committee at the village level (VWSC). The VWSC comprises of members of the Panchayati Raj Institutions (33%), lower castes and women (33%). A representative of Haritika is also part of the committee. The bank signatories for the committee are one representative each from the women group and Haritika. The purpose of this committee is to keep a strict vigil over the proper functioning of the system, look into grievances of people and accordingly take necessary actions. Reconstitution and strengthening of village level institutions through a series of awareness creation and theme based training programme with the basic objective of ensuring system sustainability

When the project was initiated in Veerpura, a corpus fund was developed for the



Figure 38: Pump house in Veerpura

VWSC. In order to ensure participation and ownership among the community members, each household contributed Rs. 1000/- towards the fund. The interest from this fund is used for the Operation and maintenance of the tank and supply system. Although this

money is not used for the construction it creates a feeling of ownership among the community. They value the system created as they have also contributed towards it. They gain a stake in the project and expect it to function effectively thus also forming a pressure group for the VWSC.

In addition, a monthly user charge of Rs. 70/- per household is collected to pay for the wear and tear and operator charges. In order to insure effective and optimum functioning of the system a local responsible person is appointed the task of managing the pump house and ensuring water is pumped into the tank on a daily basis. Vrindavan is assigned the task for Veerpura. A particular time is fixed depending on the electricity supply and convenience of all to insure proper supply of water (approximately 5 hrs daily). There is cost sharing on the capital as well as O & M expenses, keeping in line with the concept of decentralized decision making.



Figure 39: Vrindavan – pump house in charge

Haritika spends about one year in every village building capacities and constructing the water and sanitation system. On an average the per capita costs of these schemes are in the range of Rs. 850-1150 for the current population where as standard per capita norms for drinking water supply schemes are Rs. 2200. After the construction is complete, they closely monitor the VWSC meetings closely for the first year. Then they gradually space their attendance to every quarter to ensure institutional mechanism are functioning effectively.

BARRIERS

The project being planned by Haritika was a very ambitious one. Initially the entire village was not willing to invest in the project, so connections are only provided to interested people. However after observing the successful implementation at their neighbours' houses, many more came forth. At this stage it would be difficult to lay out new lines for the late comers. The process is expensive and logistically very intensive. At the same time, these new interested parties cannot be left out as well. Haritika foresaw this issue. In order to combat this situation, when laying out pipelines for the first time, they connected the entire village with the main line. Joints were left for each house. As and when people are ready to join the project, lines are drawn from the joint in the main line

to their homes. This process reduced costs for the new joiners and ensured equitable distribution of the resource. Today each house in Veerpura has a connection.

Another concern for such an ambitious project is availability of funds. Such projects are generally grant based and operation and maintenance after the end of the project tenure becomes a problem. During the project duration Haritika combated the fund crunch by leveraging various government and private funds. The O&M costs are met by the VWSC contributions. The careful employment of right set of strategies in the right areas, and as a result the whole concept played out in favour of their project, providing them with sufficient funds to execute their strategies with ease.

IMPACTS

The watershed approach of the project has led to multiple benefits:

- Water is now available to meet the basic needs of the people.
- Soil erosion is checked with the help of bunds and check dams.
- Check dams insure water availability while reviving surface flow in the streams.
- As water is available, afforestation activities have been taken up which augment soil conservation measures.
- Agro forestry is being introduced in the area with up to 10% fruit crops in fields



Figure 40: Family Toilet in Veerpura

FUTURE PLANS

- Action research projects to test certain technical interventions like SALT, Cadastral map based GIS for planning and monitoring etc.
- River basin Master Plan in District Chhatarpur.
- Water supply schemes in villages along the Karpiya river basin.
- Expansion of Programme in 20 more villages in district Chhatarpur, Madhya Pradesh.
- Alliance with National Rural Employment Guarantee Scheme Programme in Chhatarpur for the river basin works.

LEARNINGS

- The present programme interventions clearly demonstrate that through a concerted effort of source and system sustainability, drinking water security can be ensured even in the water stressed region of Bundelkhand.
- The success of water-recharging structures demonstrates that favourable geological conditions can lead towards recharging of shallow aquifers.

Other Interventions:

One of the major objectives of Haritika is to enhance productivity of the land and water resources available to the farmers, towards initiating and supporting endeavours for sustainable agro-climatics. The Farming system Research and Development portfolio in Haritika is spearheading one major intervention; Participatory Varietals selection and promotion (PVSP). The PVSP method facilitates farmers to test varieties brought from all over the country by the farmers themselves. Farmers select the best one on the basis of preferred traits of the varieties. They are advocating the use of foundation seeds.

Special training is given for irrigation, nutrient use, timings etc. to maximize the farmers' crop yield. As a result, the farmers' repertoire of knowledge regarding farming practices has increased significantly. Haritika's multi-faceted strategy turned out to be a boon for the community. This not only made the farmers self-sufficient and people more aware, but also provided large amount of growth opportunities in various spheres ranging from social to economical.

They have facilitated the formation of a Producer's company with 1200 stakeholders. Farmers from the Nowgaon region have gotten together to form this company. They manage a nursery and supply saplings, seeds and other services to the other farmers in the area. One of their successes stories is Chilli. Planting chillies while waiting for crops to harvest is a practice being adopted in the region and has given proponents quick profits.



KALDARI

The majority of the population in India lives in villages and practices agriculture as their major occupation. Migration to urban areas due to lack of opportunity in the villages is sounding the death knell to them. Kaldari was one such village plunged in darkness till they decided to change their destinies.

The Sarpanch with a motivated school teacher has brought about a sea of change in the village. There is water and energy available to the community at all hours. They have amenities like for education (school) and recreation (town hall). The roads are tarred and pucca. They are insured by LIC. There is no instance of alcohol addiction in the village. The entire community is involved in the improvement of the village. Basically it adopts a sustainable approach to solving rural problems, one of the community's own initiative.

Integrated rural development refers to all round development and enhancement of natural resources present in the rural setting coupled with the capacity building of the people to enrich their lives and live in harmony with nature. It looks into aspects of education, sanitation, agriculture and other subsidiary occupations, water and soil management, forest conservation, energy demands of the people etc.

BACKGROUND

Kaldari (Purandhar taluka of Pune district), is a small village tucked away amidst small, brown, treeless hillocks some 80 km from Pune, in the western Indian state of Maharashtra. It is situated on the foothills of Purandhar hill. The village has 6 wadis. The population of the village is about 2250 with 436 families. The main income source is Agriculture. Major crops grown are Rice, Bajra, Groundnuts.



Figure 42: Interactions with school and college children

The area receives very heavy rainfall but due to the steep slopes and a shallow soil profile, the percolation rate of the water is very low. Hence people have to generally go without water for over four months a year. The name Kaldari itself refers to an unfortunate valley.

From Parinchay (the closest bus stop) to Kaldari, which is about a 20 km stretch road, there were no street lights at all, which resulted in an unsafe journey at night for the villagers. Like any other rural village, Kaldari also faced a power cut for up to 12-14 hours per day thus creating a very unstable life for the people. If there was any fault in the electricity cables it used to take almost 3-4 days for the government technicians to come and repair it. Till then the village used to be in darkness.

PROCESS

This village has turned itself around without the help of either any government agency or NGO. With the initiative and inspiring example of the village head Sarpanch and the local school teacher, the people of the village have created a model that should and can be replicated elsewhere.



Figure 43: Series of bunds for water and soil conservation

The Sarpanch set the ball rolling when in the early nineties he learnt of a government scheme, which rewards villages for cleanliness. He encouraged his fellow villages to get out and clean their surroundings. With the help of Shramdaan i.e. contribution of time and labour in order to do the job, they were successful in cleaning the entire village and eventually winning the award money. Continued efforts over the next five years won the village a princely sum of over 15 lakhs. This money was used to develop village infrastructure. The main aim was cleanliness and water conservation.

To tackle the water issue, watershed management activities were undertaken in the catchment area of the village. The villagers have managed the entire watershed

by drawing contours on the slopes of the hill. They constructed check dams and earth bunds to decrease the velocity of flowing water. This helps percolation of water and retards soil erosion.

The village also has a water conservation scheme, where 80 thousand litres of water are pumped from four wells into a couple of reservoirs. The basalt base makes it difficult for water to percolate and the only way it can be saved is through water harvesting. However the water can't be diverted to the fields because of the uneven landscape.

Also there are two percolation tanks, which store water, and this water is used after the monsoon thus abating the water scarcity issue. There is also a small dam, which holds water for the post monsoon time in the little stream that flows by the village. This reservoir pumps water to a tank located upstream of the settlement. The water, though, finds its way to 30 common taps across the village.

Each house has a toilet built outside the house. Sanitation is a neglected aspect, as it considered 'dirty'. People often don't even talk about the subject due to this stigma attached to it. However here every single house has built their own toilet. One enterprising family has gone ahead to build two toilets one for public and one for private use!

The toilets are attached to biogas plants (floating dome model). There is also a provision for adding cattle dung as slurry. The gas generated is piped directly to the house and used for cooking. Some households have connected their toilets to a pair of soak pits. The decayed wastes are used as



Figure 44: Model toilet structure with twin pits

manure in the fields. They take about 3-4 months to get prepared. Thus they alternate between the two pits. Each toilet is constructed at the cost of INR 2000/-

In addition there is a drain, which connects each house in the village and leads the waste water out of the village to an adapted aeration pond. Water from the kitchen



Figure 45: Toilet Soak pits in Kaldari

and bathroom is directed towards the drain for common disposal. Waste water from the 18 public water posts is collected and used for gardening or saved for drinking by animals. All houses are painted in yellow, and cleanliness slogans attract attention.

The significant part is that the village finances these projects with the prize money it gets, without any political backing. All these constructions have been built using available government schemes to buy resources and raw material needed. But the labour contribution is by the villagers themselves. This makes them respect what they have and not take it for granted. They value it and take care of their village. This also enabled them to stretch resources to the maximum and not waste them. Hence the same resources can be used for much more than government estimates.

Agriculture is the main source of income. Some farmers have started drip irrigation schemes. However there is also a dairy equipped with a chilling plant. The waste water generated from the plant is passed through a sand filter and then used for irrigating Ayurvedic (Ancient Indian science of medicine) plants. The villages have undertaken to protect the nearby forest land and have declared cutting trees from therein as punishable. They have also stated a garden where one can plant trees in the memory of deceased members of the family. It is aptly named 'Smritivan' or the forest of memories.

BARRIERS

When implementing a village level process, the biggest challenge is incorporating the concerns of all stakeholders. When the motivation is internal it requires a strong leadership to helm things. The Sarpanch was able to provide this leadership in Kaldari. Also a senior school teacher helped convince people and

build consensus on the activities undertaken.

As there was no external funding, all financial resources were from government schemes and plans and the nominal tax collected. This meant that the infrastructure was built slowly over time. There were no instant answers. Hence it was important the motivation of the people was kept up.

But despite the good work, the village has its share of worries—poverty and migration. On average, at least one member from each family has moved to nearby cities in search of work.

IMPACTS

Solar street lamps with sensors which switch on and off as per the sunlight are installed along all the roads of the village. The main road of the village is tarred as compared to the dusty paths characteristic of Indian villages. A common hall has been built by the villagers where all big functions like weddings, birth celebrations etc. take place.

Besides the development visible in structures, the people have resolved on certain issues for the personal growth. There is no use of alcohol or tobacco or gambling. Each house pledges to educate their children



Figure 46: Check dam in Kaldari

both girls and boys, to resolve fights and disputes among themselves and to maintain cleanliness both personal and community.

FUTURE PLANS

The Panchayat and the school master are continuously striving for the development of the village.

Their focus areas are renewable especially solar and wind energy. They are also introducing measures like smokeless chullas, solar cookers in households.

LEARNINGS

- People have worked and development their village on their own initiative without direct help or interference from NGOs or the government. With adequate guidance and capable leadership, change is possible in the most desperate quarters. If PRI's are strengthened and empowered they can make a huge difference in their villages.
- The villagers leveraged government schemes and monies and used it for the development of their village. They have explored and successfully implemented the concept of convergence before it became common place.
- The communities' involvement in all stages of the process is imperative for the success for the interventions. When there is a consensus among all stakeholders, implementation process are eased.
- Since the community has so involved in decision making as well as construction of the infrastructure in the village, they feel connected and involved in the process. There is a sense of ownership of the activities and ensure they will maintain structures after the project is over.



Figure 47: Solar panels powering milk chilling unit

SAMBHAV SOCIAL SERVICE ORGANIZATION

The word 'Slum' brings to mind an image of a dirty, unhygienic group of makeshift shanties with long lines of people waiting at the Municipal water pump. Thus slums are associated with unhygienic and unsanitary conditions. Given the paucity of space and water, open defecation is the norm. Early mornings and late evenings see people lining up along pre determined patches with a bucket of water. This creates disease hot spots and slum dwellers are often plagued with gastrointestinal ailments among others. But in and around Gwalior slums the scene is very different. People are taking a stand against these unsanitary and undignified (especially for the women) activities and building their own personal toilets. Sambhav is now providing loans to urban poor to construct their own toilets.



Figure 48: Toilet in Gwalior Slums

Sambhav has been working on developmental and income generation activities for the last 20 years and has presence in eight districts of Madhya Pradesh and two in Uttar Pradesh. Sambhav Microfinance aims to make available better financial services to those who need it for their well being, entrepreneurship, gender equity and social security especially for marginalized, backward and poverty struck community through formation of community institutions and development of leadership.

SSSO:

Sambhav Microfinance is a unit of Sambhav Social Service Organisation. SSSO over the last two decades has been actively working in the rural and semi-urban area of Madhya Pradesh on specific issues related to women empowerment, child health, education, water & sanitation and a number of other community based development issues. The Microfinance programme started its operations in Jan 2007. The objective of the Sambhav Microfinance programme is to financially empower women so as to increase their acceptance and participation in community processes. SMFI receives its operations and systems fundamentals through ACCESS Development Services and is also part of the AMFA Alliance, SADHAN and Friends of Women World Banking. Vision-help the poor to increase income, build viable businesses, and reduce their vulnerability to external shocks and enabling the poor, especially women, to become economic agents of change

BACKGROUND

Gwalior is faced with an acute water shortage especially in the summer months. The decreasing water table coupled with increasing population is leading to a severe water crunch in the city. The piped water supply network does not extend far beyond the walled city. Local authorities responsible for supplying potable water are extremely hard pressed due to resource constraint. Tube wells are no longer able to pump out water due to low water table in the city. This inadequacy of water is a major deterrent to providing (and adopting) adequate sanitation facilities. Based on the work they had carried out in the past, they identified reasons for inadequate sanitation in the area.

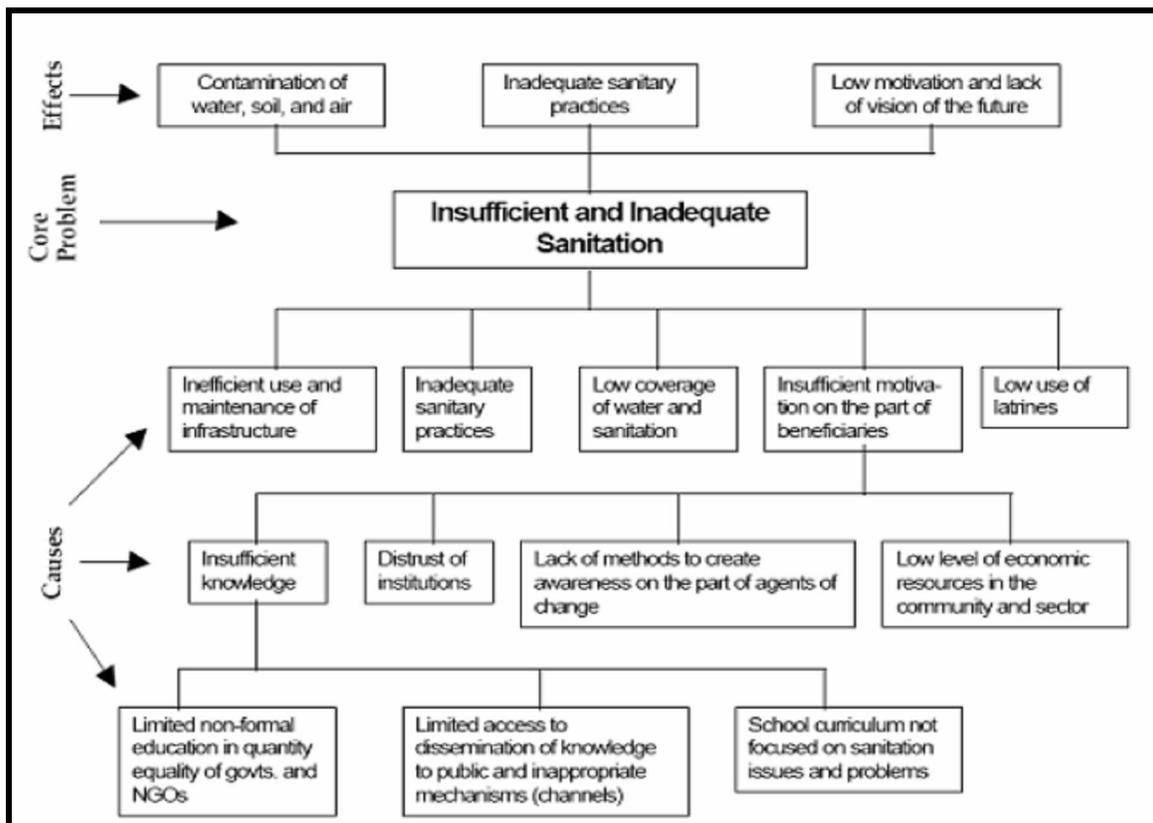


Figure 49: Cause and effect chart to identify intervention spaces

With this project Sambhav chose to attack the problem with a two pronged approach combining awareness with accessibility to finance. Sambhav believes that “free “is a bad word. When people get something free they do not value it as

there is no sense of ownership. Hence it leads to misuse and mismanagement of assets. Hence they developed microfinance projects to enable poor people to build their own toilets.

Their focus is in urban and semi urban areas especially slums. These blocks are often neglected, as most sanitation campaigns focus on villages. Congestion and unsanitary conditions in urban slums increases the need of interventions in these areas. Lack of awareness both about hygiene issues and available schemes pose a stumbling block in overcoming sanitation goals. The Sambhav microfinance scheme combines both these aspects, providing sustainable alternatives for appropriate sanitation.

PROCESS

Sambhav has been working in the project area for the last 20 years. Hence a certain rapport has been built with the community. This enabled fairly smooth implementation of the project. As the project is being implemented in urban and peri-urban slums the scarcity of space (especially open spaces) exerts a great pressure on people to build toilets.

The microfinance approach was originally adopted in November 2007. It propagates product based loans. It introduced a 'house repair loan package', which included a loan of ` 20,000. Toilet building could be included into the package.

In 2009 an exclusive product for financing toilets was brought out under the Financial Inclusion for Sanitation and Hygiene (FINISH)

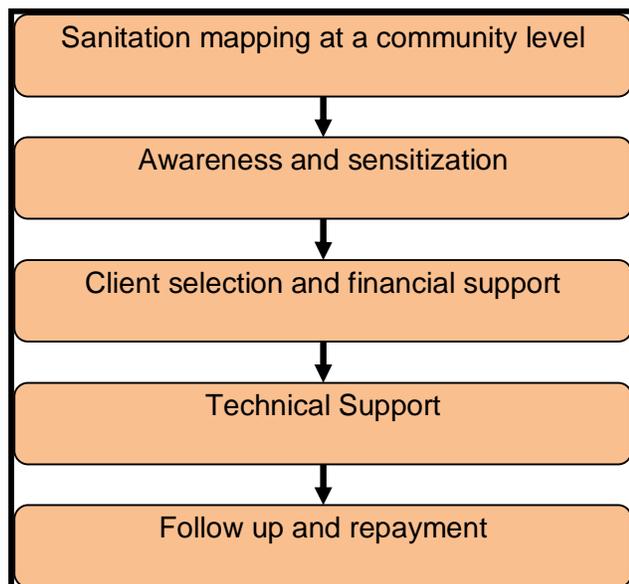


Figure 50: SSSO Process Flow Diagram

programme. It involved provision of loans, ranging from ` 7,000 to ` 10,000, for constructing of sanitation facilities. The process framework is depicted below.

Since Sambhav microfinance schemes have been operational in the area for the last two years, there is currently a demand for the toilet loan. This required intensive awareness campaigns and sensitization to bring home the benefits of adequate sanitation facilities to the communities.

The communities or slums are selected based on the

- **Availability of Water** as sanitation facilities are water intensive. Better the sources of water in an area, more motivated are the people for the construction of toilets.
- **Economic Condition** of community members (ability to repay the loans): this includes their borrowing and lending experience (Credit History).
- **Community Participation**, especially women participation
- **Scope of Sanitation work:** the number of existing toilets gives an idea of how much more work has to be done in that area depending on which they can formulate their targets and action plan. Also, the people of that area would have a better insight towards sanitation, thereby reducing the chances of hostility.
- **Sewerage network:** especially in urban areas the presence of a sewerage network can reduce construction costs as only the superstructure is needed.
- **Geology:** A place with an uneven topography will require a higher cost of construction relative to an area with an even topography.

Sambhav was created with an aim of working for the Sahariya population of this region in 1986. Sahariya historically has been identified as one of the highest exploited and developmentally backward class. Initially Sambhav focused its work on tribal groups in Lalitpur, Tikamgarh, Shivpur, etc who had no water resources, no land, and no occupation. Sambhav's initial intervention with the Sahariyas was to address the issue of Bonded Labour and Land Rights. Strategy adopted to achieve this objective included information sharing, group formation and collectivization of women for accessing the government schemes and raising the level of self esteem. The second phase of Sambhav's intervention clubbed along health, education and women rights as its prime focus. In the field of IDWM, SSSO works towards improving access to sanitation, safe drinking water and better hygiene, promoting water conservation and sustainable agriculture through watershed development.

- **Presence of any other schemes:** If there are any other schemes being currently employed in that area, by suitable leveraging benefits can be extracted out of these schemes to supplement the project and reduce the financial stress on the individual.
- **Demand from people:** The foremost, condition of successful implementation of any project is the maximum involvement of people. The best area for implementation would be the one with the most eager people or where the demand for the scheme as per the people is high.

Once the slum is selected, meetings are held with the community explaining the need for sanitation and the product. Loans are disbursed under the Grameen model i.e. in groups. The product is biased towards women groups. 4-6 members make up a group. The advantage of this model is that the group exerts a pressure on all its members to make the monthly repayments thus keeping the default rate at a record low of 0.78%.



Figure 51: Women SHG meetings

The groups undergo a 5 day training. In addition Sambhav provided technical support for construction. The clients are given a time of 15 days to complete their structure. To ensure that they comply with the stipulation, their progress is monitored after 7 days. If sufficient progress is not seen, the progress is monitored every 2 days to insure completion within the stipulated time. In the case of non compliance the loan is withdrawn. In cases of death or disease a case specific leniency is maintained.

In order to maximize their clientele, they constructed toilets in some extremely poor households to set an example for the rest of the community. As it is often seen, people follow best when lead by example. When they see something that is appreciated by others at one house, then the others also try to replicate the same. Even if it just for that fact that they do not want to be left behind so to say. By this

technique other people also got motivated to enrol themselves in this scheme, and as a result Sambhav got a very high percentage of participation. Besides the communities have come to realize that building a toilet is a property asset, one extra room. To date, Sambhav has been successful in targeting 1100 households from 2007 and 930 households from 2009.

The loan is given on the basis of what type of sanitation system is being made, for e.g.:- ` 7000 for only toilet with one soak pit and ` 10,000 for toilet along with a bathroom. A double pit toilet costs up to ` 15,000. However if a sewer connection is present the costs fall to ` 5,000.



Figure 52: Model Toilet for Slum areas

The loan parameters are set so that they are attractive enough for the slum communities. The repayment of loan is based on small affordable monthly instalments so as not to have too much pressure on the clients. The tenure length ranges from 12 to 24 months as per clients' convenience. The 24 month tenure is rarely opted for. The most common one is 18 months. The tenure amount (Rs 300-350) fixed was neither too high to intimidate the borrowers nor too low to be casually ignored. Even the interest rate was fixed at an optimal rate of 18% per annum. These measures turned out to be quite effective as the defaulters rate was found to be a mere 0.78% which very remarkable. In case of extreme non compliance in spite of these measures, they have a write off policy after a period of 3 years.

BARRIERS:

One of the biggest barriers in implementing sanitation programs is the reluctance of people in adopting these techniques. This has been overcome by intensive awareness campaigns.

Currently the most popular product is the loan for construction of single soak pit toilets. The low cost and ease of construction make it desirable to the

communities. The double soak pit at around ₹ 15,000 demotivates the people. Besides the high costs, the paucity of space also proves to be a deterrent towards constructing double pits. However the decision of having only one soak pit can backfire in the near future. It is roughly estimated that a soak pit will take approximately 5 years to fill for a family of 5. But once filled, the soak pits do not have an emptying mechanism. Certain options such as letting the manure dry out while using a neighbour's toilet for a couple of weeks or setting up enterprises for cleaning soak pits periodically using suction machines are being explored. However there is no concrete plan as yet. This issue if unresolved threatens the sustainability of the facility.

IMPACTS:

The microfinance approach leads to the following benefits:

- Improvement in quality of life in the area. It contributes to preserving women dignity and privacy by offering an alternative to open defecation.
- There is improved socio-economical status due to increased assets.
- The development of appropriate, safe and affordable sanitary systems leads to cleaner and hygienic surroundings addressing the spread of sanitation related diseases in turn reducing infant and maternal mortality rate.
- Creation of livelihood in the community through delivery and execution of sanitary systems required in the programme
- Increased savings, working days and alternate investments.



Figure 53: Women using sanitary toilets in their homes

FUTURE PLANS

- Scaling up of the model to reach over 100 slums / villages in the next 3 years spanning 19800 households.



Figure 54: Model Toilet option

- Ongoing IEC activities
- Training of new animators for implementation in new areas.
- Interaction with government officials and related stakeholders to involve them in the process.

LEARNINGS

- Financial inclusion of the economically weaker sections of the society is essential for their progress. Innovative solutions like microfinance when appropriately applied can successfully integrate the poor into the development path.
- Training and handholding become especially important when dealing with a complex project involving micro finance. The communities have to be trained in concepts of money management, lending and borrowing, in addition to the cultural mindset that has to be moulded.
- Peer pressure is used as an effective tool in motivating community members. When pressure for building toilets is internal, the success rate is much higher, as compared to an external driving factor.
- Convergence between various players is important to building successful programs. New stakeholders like banks and funding agencies can be brought into the equation directly and in a profitably manner using the microfinance approach.
- People tend to take free things for granted and such infrastructure has the danger of falling into disrepair and disuse. When the community invests in

infrastructure financially they have a sense of ownership on it and it is less likely to be abandoned.



Figure 55: Children benefiting from the scheme

SEVA MANDIR

Up to few years ago Karmala ranavada watershed used to be a dry area whereas now water is available in the hand pumps throughout the year. Seva Mandir involved the village people in handling the project activities like farm bunding, dry check dams, nullah bunding, plantation, horticulture, vermicomposting etc. One large part of the watershed is enclosed by mud and vegetation hedge (made of cacti, dry branches, etc) by a group of farmers jointly practicing mixed cropping. Today they are reaping the benefits of these activities. Water flow down the hill is hindered, water levels are higher and agriculture has improved. In another watershed, Babri Kadoonia the activities conducted were dry check dams, kuchha check dams, contouring, and nullah bunding. Today there is cropping in erstwhile dry spots. At places the water level in wells had almost reached up to the road level.



Figure 56: Area enclosed for community mixed cropping in Kherwara

Seva Mandir:

Seva Mandir is a non-governmental organization (NGO) working for the development of the rural and tribal population in Udaipur and Rajsamand districts of southern Rajasthan. The work area encompasses 626 villages and 56 urban settlements. In total the organization reaches out to around 70,000 households, influencing the lives of approximately 360,000 persons. Seva Mandir works in the following areas

- Livelihood which includes water shed, irrigation , pasture land, Joint Forest Management, Agriculture, Vermicomposting, income generation, Horticulture, vegetable farming, nursery raising, fisheries, women SHGs, Tailoring, goatary, groceries shop etc
- Capacity building in the area of health, education and women and child development.
- Institution Building
- vocational counselling and trainings for youth in villages and placement services through 'Ajeevika bureau'

BACKGROUND

Kherwara Block covers 110,211 hectares, and shares borders with Gujarat state. It is located in the Aravali Mountain range, and is predominantly rural, with only one urban settlement. The Block has 268,000 inhabitants, three quarters of which are tribal. The local population continues to remain dependent on the natural resource base for a large part of its livelihood needs. In Kherwara, people primarily depend upon agriculture and animal husbandry for their livelihoods, but these systems are not enough to provide for people's needs due to small land holdings and poor irrigation infrastructure. In the non-agriculture season, a substantial portion of the population migrates mostly to Gujarat to find labour. The forested and common lands, which constitute 72% of the total land area, are excessively degraded. Only 13% of the land under cultivation has some form of irrigation.

Karmala ranavada is a 700 hectare watershed in the Kherwara block. It is an undulating terrain. Few years back this part of the watershed, a water deficient area used to remain dry for most of the year, especially when the adjoining Som River dried up. Consequently irrigation and other water needs of the nearby areas were adversely affected. The whole area turned into a dry and non agriculture patch where even animals did not get adequate vegetation to graze. Another watershed, Babri Kadoonia is spread across three villages and an area of 699 hectare. This includes almost 400 families and is a tribal dominated area.

Seva Mandir:

Seva Mandir's mission is to make real the idea of society consisting of free and equal citizens who are able to come together and solve the problems that affect them in their particular contexts. The commitment is to work for a paradigm of development and governance that is democratic and polyarchic. Seva Mandir seeks to institutionalise the idea that development and governance is not only to be left to the State and its formal bodies like the legislature and the bureaucracy, but that citizens and their associations should engage separately and jointly with the State. The mission briefly, is to construct the conditions in which citizens of plural backgrounds and perspectives can come together and deliberate on how they can work to benefit and empower the least advantaged in society.

PROCESS:

Seva Mandir adopts the watershed approach towards water security. The process of developing a watershed entails careful and participatory planning and also active involvement from the local Gram Vikas Committee (GVC). As such, watershed development activities serve not only to strengthen local livelihoods but also to strengthen village institutions both of which better enable villagers to address their other developmental needs.

Seva Mandir work through village committees known as Gram Vikas Committee (GVC). These normally comprise of about 11 members among which 5-6 are women. Members represent all caste and class groups in the village. Each GVC has a development fund, Gram Vikas Kosh (GVK). Built primarily from community contributions, the GVK allows villagers to come together and establish local resources necessary to meet village development needs. All the developmental work done in the villages involves contributions from the village community. Depending on the type of activity and other resources available this ranges from 10-20 per cent and sometimes even more.

Five villages fall within the Karmala ranavada watershed. A big committee comprising members from all 5 villages has been formed. This committee has been operational since the last ten years. Initially the villages had different committees for different activities. But as Seva Mandir began initiating watershed activities they were integrated into one Gram GVC. They now have one Gram Vikas Kosh with a corpus fund of approximately 7-8 lakhs. They have a meeting on the 22nd of every month where approximately 100 people from all the five villages participate and discuss all pertinent issues including education, health, water etc.

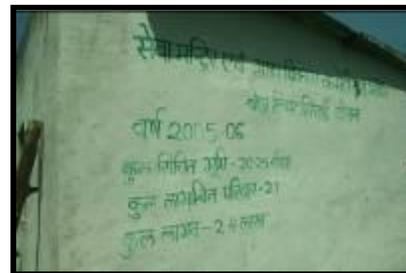


Figure 57: Wall painting on pump house with construction details

Through regular meetings the strategy adopted was to manage the area in a community mode. Individual land holdings were combined to be jointly managed. Individual owners now take care of it in rotation.

As a common understanding developed, mixed cropping practice was adopted where crops, fruit trees, timber trees, fuel wood trees fodder crops are grown on the same land so requirements of food, nutrition, fuel and animal fodder are all met.

For water arrangements a comprehensive system was developed by the



Figure 58: Water tank for storage and supply to fields

community. Water from an upstream point in the river (where water remains even in the dry period) is pumped to a huge water tank situated at a height with the enclosed area. With the help of pumps it is diverted to four distant different points in the area. From these outlet points, the water spreads to the fields through gravitational flow, irrigating the entire area. The yield is

obtained from this area it is a joint yield. This season they are growing papaya, maize, Chilli, lady finger crops in the mixed cropping system. This community management system has turned this whole area in to a green and productive spot.

Similarly in the Babri Kadoonia watershed, development activities have been undertaken along with the GVCs. A stream flows by the watershed. Every 1 km, *anicuts* have been constructed by the community. Anicuts are small traditional bunds on streams stalling water and allowing it to recharge as well storage structures. During the programmes, bamboo plantations were carried out, now each household has bamboos. Seva Mandir arranged for earthworms and the villagers make vermicompost at village level. It is even sold at rate of 7 Rs per kg as a source of extra income.

Across the watersheds, Seva Mandir's approach and work reflects that community involvement is very high in the management of local affairs. GVCs have very good participation and involvement of both men and women. Seva Mandir helps in the formation and functioning of the committee, through facilitation and guidance; the work is mainly done by the community. Their ownership of the initiatives,

interventions and decisions forms the core of the work done.

Local people from the communities have been involved with Seva Mandir since many years. These are people who know the area, belong to the region, have homes and work in the area, hence have ownership on the area and work. As they were part of the community, it facilitated and eased the process of networking and rapport building.



Figure 59: Anicut in Babri Kadoonia

BARRIERS

One of the dominant problems in the area is the 'dakan pratha' (witch hunting). Another is domestic violence against women. There are multiple aspects of gender discrimination evident in this area. 60-70 per cent work on ground is done by women which covers mainly the work as earth digging, mud carrying, masonry etc. GVC as well as women SHGs are working hard to bring a change. They conduct group meetings where gender issues are discussed.

The work is being done on a watershed level. This involves three to five villages working together. It is a challenging task to get all the various stakeholders on a common platform. They all come with different aspirations and different agendas. Budgets and decision to be taken are collectively and can cause friction unless very sensitively handled. Seva Mandir has invested a lot of effort on networking and consensus and capacity building of the communities to facilitate smooth functioning of the joint village development committees.

IMPACTS

Earlier people from different villages used to live separately without much contact. During the process of watershed development people have started living in an organized manner. They are raising issues collectively in meetings and looking for

solutions as a community. After the catchment's development the communities started dealing with the issues of seeds, agriculture technologies, improved animal husbandry etc in Babri Kadoonia.

As the water level rises, irrigated farming is done along with dry farming. Earlier vegetable farming was not done on a big scale, but now with water availability the vegetable farming is done in a big way. Similarly migration rate are also going down in last few years.

With water availability people have started growing BT cotton which is otherwise a high input crop. According to him this is an issue of concern as this will in long run harm the soil but as this is a good cash crop people prefer to grow it.

The villagers have begun to raise demands to the Government for good mustard and gram seeds. The community representatives keep in touch with the government authorities and seek benefits like animal camps organized by the Government where Veterinary Doctors are available. Improved varieties of goats and lambs have been introduced in the villages, thus increasing their income.



Figure 60: Water Storage due to anicut

FUTURE PLANS

Seva Mandir continues to work with the GVCs in the watersheds. Projects are developed in consultation with them depending on their needs. They are placing a larger emphasis on building the strength and capacity of the existing village development committees, creating new village funds and committees, organising a range of trainings and capacity building activities for the members. The focus is on women members of GVCs, stressing on increasing their participation in local

governance and preparing them to take on more responsibility in their GVCs as well as on the master trainers, village volunteers and Seva Mandir staff to enhance their understanding of institutional development and various government schemes. In addition, they are taking more watersheds into their fold.

LEARNINGS

- Community development processes are successful when they enjoy community involvement and participation. It is essential for the community to own the



Figure 61: Farmers involved in village committee of Babri Kadoonia

- interventions and project and take it forward on their own. The NGO plays a very important facilitating role in the process.
 - Involving local people in the integral processes of the project enables the process of creating an ownership in the community and
- in winning their trust. Field animators from the field understand the situation on the ground as well as the aim of the project and are able to link the two well.
- Need based projects are more attuned to the needs of the community. The project gives the community what they want rather than impose alien views and activities on them. The success rate of these projects is also much higher.
- It is important to integrate traditional knowledge and cultural beliefs while planning interventions. This enables the community to accept them faster and better. Thus impacts are more direct and prominent. Also there is a lot of knowledge in traditional resource management practices, which is very apt to today's scenarios
- Training and capacity building of village level institutions is an integral part of any development project. These institutions should be empowered to take decisions. Also they should be involved in all stages of the project from design

and conception to implementation and maintenance.

- Convergence with government schemes and plans helps the overall development of the community. The capacities of the community can be built enough to enable them to identify and pursue these schemes depending on their needs and requirements.
- An integrated approach involving water and livelihood security is more amenable to the community. They understand the complexity and connectedness of natural systems and are in tune with them. An integrated approach offers better coverage than individually dealing with these sectors.



Figure 62: Seva Mandir team in conversation with DA team

Delwara is a small town approximately 40-45 km away from Udaipur which is famous for its beautiful temples especially the Jain temples. Seva Mandir has been working with the communities in Delwara since the last five years. This has special importance as this is a heritage route on the way to Udaivada. Here there is group of Devkul Patan temples. Earlier there were more than 4000 temples with a 1300 year old history. It has a population of 6000 people and 700 households. Though a panchayat (village) it has problems of a town. Like any other place, water and sanitation are the prime issues of concern in Delwara.

Palera Talaab is the prime source of water to the town and hence its lifeline. As water level rises in the Talaab, downstream structures in the town get filled. Three years back the Talaab had turned into a mere dumping ground full of garbage, polythene and filth with barely any water. As this was the main source of water it led to a lot of problems for the people living in Delwara. The main Bavdi had to be filled via tankers to meet the water demands of the settlement.

Sensing the grave situation, work began in the direction of reviving the pond. A citizen's forum Nagrik Vikas Manch was formed in the town in February 2004. Initially it comprised of a few nominated members, in 2007 it became an elected body.

Awareness campaigns were initiated; shop keepers as well as citizens were made to understand of importance of Palera Talaab. Through *shramdaan* the pond was cleared and cleaned. Feeder channels were desilted and cleaned. As a result, this year the Bavdi got filled on its own. The generous rains also helped. The water level this year has reached up to the highest level. Earlier it took a month's time for Palera to get completely filled; now it takes about eight days time. Observing the change in condition, the community realizes their responsibility in keeping the pond clean.

Though work on the Palera Talaab was originally not on the agenda of the panchayat and later it was brought on and more work was done under NREGA. NVM proposed and pursued government schemes. NVM works closely with Panchayats. They play a role in planning and implementation. The coordination of civic bodies with Government agencies can thus lead to positive results.

53 water harvesting structures have been made in Delwara. One of them is a community water tank wherein water is used for community events and it is maintained by community. One water tank was made in the Bhil Basti with help of Panchayat. The panchayat drilled the tube well and arranged for a motor; while Seva Mandir constructed the overhead tank and channels with stand post for distribution of water. This convergence has enabled women who were earlier

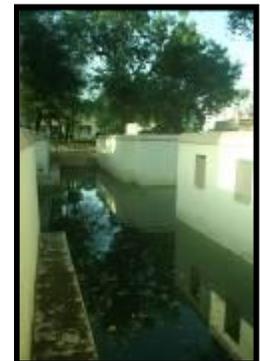


Figure 63: Traditional Water tank revived by local communities

spending hours to bring water climbing the hill, to get water at their door front. Most of these women from the Bhil Basti earn livelihood through labour and now have more time to earn livelihood and improve their standard of living by beginning activities like patchwork, embroidery and stitching.

Open defecation is a major problem in the area and efforts are being done to create a replicable model. To fight this 130 more toilets need to be made. 80 are in progress. Interestingly, more toilets are made in areas inhabited by the economically weaker sections of society, like the Khatiks and Muslims. All the toilets are made need based. For toilet each beneficiary has to submit 1100 Rs and dig the pits / tank. The money for the upper structure comes from the Manch fund. Labour and masonry support is from the beneficiary. The total



Figure 64: Toilet in Delwara

beneficiary contribution is almost 25 %.

For maintaining the cleanliness in the area, all families have to pay Rs 10 a month as 'safai shulka' to the Mohulla fund. If any Mohulla defaults, cleaning is stopped there. Rs 15 are submitted by each family in the Mohulla Kosh for community sanitation tanks and sewerage pipes cleanliness. 11 Arogya Mitra (Friends of your Health) are working for ensuring cleanliness. One cycle rickshaw is used to collect the 'kachra' door to door to the dumping yard. Plans for segregation and disposal are underway. Some of the Mohulla water tanks are cleaned by the money which is submitted as the initial amount by the families. Bhil Basti has the highest Mohulla Kosh as they submit Rs 30 a month.



Figure 65: NVM Structure

Delwara is divided into 18 mohullas, each with a mohulla committee of at least five people including women and representatives of all the communities. Two members (one woman) from each committee form the general body of 36 people. An eleven member Executive committee is selected with three to four post holders. This is a non formal set up but is very formal in its functioning. The NVM has a three years tenure and it works on the principle of participation.

In the beginning the Panchayat was not aligned to the process. It took almost three years to bring them into the fold but now it is working very well. The mechanism adopted is that if one leads the other supports. Another challenge is that only up to 65 % families give the safai shulka. Such issues are discussed in the mohulla meetings. On every 4th of the month, a General Body meeting is conducted and such issues are discussed. The decisions are taken here are taken back to the Mohulla for further action.

This work is done by Seva Mandir under Peri Urban Settlement Development Project for the last six years. Seva Mandir works in close collaboration with this committee facilitating its functions. They give advance from the project fund to NVM. Accounts are settled at six monthly intervals. Seva Mandir helps in designing projects as per the needs of the area and people and handles the funding. The beneficiary has to submit 10% of the cost of implementation to the Mohulla Fund. Each Mohulla committee has a bank account and the contribution amount is submitted to this account. Work is being done on the basis of responsible citizen and liable governance. Seva Mandir has worked to make people responsible and accountable.



Figure 66: Women with leisure time to invest in productive tasks

SELF EMPLOYED WOMEN ASSOCIATION

In 1995 SEWA initiated the Water Campaign led by women leaders in 483 villages. This campaign was the result of a call for work at a large scale. As the problem was on a very large scale, it was felt that the solution should also look at a large scale, which works on a long term basis. The first step of the campaign was to develop a deeper understanding of the water-related issues at the village level as water scarcity and availability were critical issues. As part of this campaign women surveyed all the villages to identify the different water sources and their status.

SEWA

Sewa is a membership-based movements and trade union with more than 400,000 poor, self employed women members. Its primary goals are to organize women workers to obtain full employment and economic self reliance. For this purpose SEWA combines four specific strategies:

- Organizing women, since individual poor women have no voice
- Building new skills and capacities so that women can become owners and managers and not just producers and laborers
- Encouraging capital formation, at the household, group and community levels with the income earned
- Increasing social security to enhance women's well-being and productivity and reduce the impacts of sickness or sudden crises on fragile household economies

BACKGROUND

Gujarat is a chronically water-deficient state, particularly in its northern and western districts. Salinity of the soil is also a major issue in many of the districts, including Patan, Surendranagar and Kutch areas. The main issues faced by people with regard to water are the non-availability of clean drinking water, high fluoride content in the water, water scarcity and shrinking of the water table, and salinity.

Understanding that the traditional art of embroidery has good potential for earning livelihood for the rural women, that aspect was taken into consideration by SEWA and there was no dearth of big orders. But it was found that women were unable to complete the orders as their much time was wasted in arranging for water, which was their prime responsibility. This led to the situation that they

loosing the opportunity of earning livelihood which was otherwise much needed for them This was the initiating point of the water campaign in 1995 known as 'Women Water and Work'.

During their survey, they found many of the water sources were depleted or in disrepair. People had limited or no access to water. Hand pumps in many villages needed repair. Wells needed deepening or a motorized pump to draw water. In areas with piped water supply also it was noted that the villages at the tail end of the chain were not getting water especially in winter and in periods of drought. Traditional sources got neglected or had gone dry due to negligence. Due to acute shortage of water people in the villages were left with no option other than to migrate.



Figure 67: Women availing water at all hours

Women are engaged in fetching, collecting and preserving water. they were forced to fetch water from far off places losing up to six hours a day -time that could have been used for productive activities. Moreover carrying the heavy loads over such long distances often led to health problems and exhaustion. Without water, they know that their villages cannot develop. Whenever there were meetings, the absenteeism of women was noted.

PROCESS:

SEWA works on the principle of demand and supply. There was a need for interventions in the water sector. Sewa started their water campaign as a result of the realization that if women complete household work in a timely manner, only then they have the time to work, to earn and to manage the house in a better way. When a woman talks about water she talks in holistic manner i.e. for all the requirements in a household, its recycling, it's reuse and so on (basically IDWM) whereas offices/ departments mostly see it compartmentalized manner.

At the initiation of the campaign, there were discussions at the village level about their current situation. They decided that the existing water bodies can be made better if managed properly. The women traced out who was responsible for this situation and worked with those agencies to improve the water supply. This campaign resulted in concrete results: water began reaching women through the repaired pipe-lines and hand pumps. Also, women became clearer than before about how to run their campaign and what their demands should be. They decided to focus on making potable drinking water available in every village and to work towards women managing and maintaining their village water supply through water conservation, harvesting and repair and regeneration of water sources.

Trainings are given to women which include aspects like re-use of used water, technical and managerial aspects etc. These trainings have been done for more than 25 000 women and there are different levels of trainings.



Figure 68: Women undergoing training

Promotion of rainwater harvesting is a major initiative of SEWA's water campaign. Grassroots women play a leading role in disseminating information about and gaining local acceptance of roof rainwater harvesting as an alternative to more centralised water supply systems such as piped water supply. This is a viable option to ensure water availability as it is a simple, easily manageable and highly effective technology.

Roof water gets collected in an underground water tank (pucca) through pipes. In Gujarat's semi arid areas, with an average annual rainfall of around 300 mm, a roofing area of 30 sq m provides a family with 9,000 litres of safe drinking water. This is enough to provide a family of five with 20 litres of water a day for three months. SEWA has trained women to do the masonry work and some of these women have helped in the construction work of these structures at their village

level. The women at the village Bandwad build it using mostly locally available material.

In some houses this tank was not very big and was within the covered area of the house whereas some have a huge tank outside the house; slightly raised above the ground. In years of drought when there are no rains, they use it to store water (pucca underground water tank) which comes through water tankers. The people, especially women are trained to maintain these structures.

The tanks should be cleaned with lime and the first rain should be used to flush the accumulated dust from the roof tiles. For the cleaning of water the women use traditional technology. They keep lime in a perforated earthen pot hanging at one side of the underground tank. The water when it comes in contact of this pot gets cleaned through lime reaction.

People in the villages already knew of rain water harvesting and in this existing pool of knowledge, scientific and engineering knowledge was also added. Initially the engineers had to go to the villages and make the people understand the structure and the logic behind it. Slowly this was picked up by the rural illiterate women.

With time, these illiterate women became the engineers and were able to transfer the knowledge to others at the village level. This is how they reached the level of management. In this process approximately 4000 individual tanks were constructed and many were shared tanks. School children were also involved in the management process. Tanks made in the public places were managed by the village communities.



Figure 69: Women technicians repairing a defunct hand pump

As Gujarat Water Supply and Sewerage Board (GWSSB) could not attend to complaints of malfunctioning of handpumps in a timely manner, a new contact

came about as per which, handpumps were overhauled annually, monthly check were carried out, and if needed repairs were carried out. GWSSB pays Rs 582 per pump and provides spare parts. Women 'water technicians' trained in repairing the handpumps and borewells. These women are able to repair the water source, test the water quality. These technicians are earning around Rs 5000 annually, an important supplement to the highly volatile incomes from the agricultural activities.

SEWA with local grassroots women, has been campaigning to revitalize traditional water sources. Together they have set up local water committees to repair traditional sources. Simultaneously work started on the reclamation and revival of traditional water bodies with almost two lakh families in more than 500 villages lead by women 'water managers'. Work includes pond repair, channel desilting, bund improvement, constructing outlets. In some of the villages, ponds have been lined with plastic to block the entry of saline water, wells were desilted, cleaned, and a new border and a concrete platform were constructed around them. A large number of wells were fitted with a pulley to make fetching water less strenuous.

20 years back it was impossible to talk about sanitation as the availability of water for even drinking purpose was a big challenge. Things have changed after the campaign was initiated. Measures like using pulley (ghirri) at the wells, use of long sticked utensil for taking water from the container, filtering water through cloth etc to keep the water source and water clean have already been undertaken at village level.

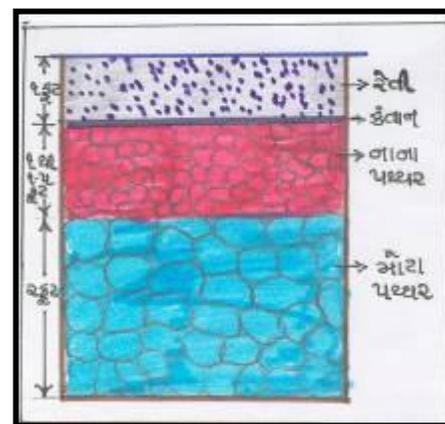


Figure 70: Filter Mechanism

Besides the concept of water harvesting and water saving, the aspect of recharge is also shared with women through trainings. Soakpits are made in the villages to encourage recharge in the absence of a drainage and these attempts are mainly area specific.

As issues emerge, they are discussed in meetings. The process is participatory so people realize that these interventions are for their benefit and they have a role to play. SEWA's role is at this stage so as to see and strategize that how things can be taken from this step to the next step.

BARRIERS

Women are not traditionally seen in roles of importance and decision making,



Figure 71: Women participant in local meetings

hence this was a major challenge faced on the field. In addition for women to convince their family about an intervention, especially one that has a cost no matter how negligible is a great effort. Santokh ben said '*mere ghar ke log iske khilaf the.. mera ladka kahta tha ghar mein kuan nahin banega...*'. With much difficulty she convinced them how useful rainwater harvesting structures are. In addition it is also not a very high cost technology. Capacity building and trainings play a very important role in overcoming these barriers.

The government setup is sometimes not very conducive to empowerment of communities. The trained handpump technicians are unable to work at their full capacity. The conflict is that these women do not want to fill the tenders for taking this work as they say that since we are the users we should be given this work. The challenge is that present rates are simply insufficient to fulfill all the contract obligations.

IMPACTS

Between 1995 and 2008, 88.5 crore litres of rainwater was harvested by constructing 3933 underground tanks. In addition, 10.4 crore litres of water was conserved and harvested in ponds and wells, thereby recharging the water table.

A network of barefoot campaigners, engineers, managers is spread across 14 districts. 200 Pani Samitis spearheaded by women are managing their local water

recourses. This network has laid the foundation of a strong decentralized system of management and governance managed by the communities especially women themselves.

The interventions have led to a substantial improvement in access and availability of safe drinking and domestic water. As women now have more time, they are more productive, engaging in embroidery and related works, contributing to the family income. As financially active members of society their social position also has improved.

FUTURE PLANS

Sewa plans to expand the network of water campaigners to cover more women. Also they plan to focus on improving and enhancing their technical expertise. Trainings and capacity building will be expanded and intensified.

Water related infrastructure is capital intensive. Repair costs are often not budgeted for in government and private schemes and programs. They are trying to engage with various stakeholders to help bridge this gap.



Figure 72: Women technician involved in hand pump repair

Women still face strong opposition from men in the community as well as government officers. There is gap that needs to be plugged.

LEARNINGS

- Women have a deeper and more holistic understanding of water. They have to be involved in the management of water resources at the community level. When empowered, they can create a larger impact.
- Trainings and capacity building are very important and essential components of any successful program. Besides the direct stakeholders there is also a need to

sensitize the rest of the community, especially when women are involved in important positions.

- The need to integrate traditional knowledge with engineering is vital in rural areas. With time, even illiterate village women can be trained to be technically competent to deal with basic wear and tear and maintenance of infrastructure.
- The underlying strategy is to link environmental protection with livelihoods. The integrated approach provides for a larger and more sustained impact in the lives of the community.
- Once the community sees tangible benefits, their attitudes change positively. It is important to be able to convince them and show them that the interventions will help improve their lives.



Figure 73: Women with more leisure time and fewer health issues due to water availability

Name: Dhuliben Bhavanbhai Khant
 Age: 45 years
 Village: Suka Vantada
 Block: Dhansura
 District: Sabarkantha

Dhuliben, a semi-literate farm laborer is currently active as a spearhead team of water campaign. A mother of 2 sons and 2 daughters, she joined SEWA 7 years back with the full support of her family. As her husband was the only earning member, their economic condition was bad. They were engaged in rain fed agriculture.

“Necessity opens all the doors for your success,” says Dhuliben. Water was their major problem. She raised demand of drinking water and related issues at different forums. After meetings and discussions it was found that existing hand pumps could be repaired and recharged.

She underwent a 3 day ‘water management training’ from Jal Sewa, a 3 day Hand pump repairing training and another one for bringing out fallen hand pump line. Subsequently she organized 7 women respectively from her village and the neighbor village-Vaghajina Muvada. Along with the teams she repaired 10-year-old unattended hand pumps. Within one month they over hauled 200 hand pumps. This was a major achievement in her life. She, an untrained uneducated village woman had done what government technicians could not.

This work is sometimes very risky when she has to pull out the deep pipe climbing 3-4 feet high on the pipe in her traditional attire- sari. She conducts meetings, gram Sabhas, video replay, rallies and water management trainings to bring awareness in the community.

“I am working in number of development activities so I never lose hope in any kind of adverse condition, I struggle and door of success opens. It was not easy for me when I joined SEWA and started working. My work of repairing hand pump being non-technical woman was a big challenge to stand against technical people’s monopolies work. While repairing hand pumps, it was tough to face village men as they will pass comments and laugh sarcastically, they will see the hardship but nobody will come ahead to help”. added Dhuliben.

She is versatile lady; she is also agewan (leader) of a savings group, encourages poor women to save. During the 2004 flood she took a lead, conducted village surveys and distributed relief material accordingly. Apart from all these activities she emphasizes on bringing awareness of drinking water usage as well she trains women to make soak pits and revival of traditional water resources.

She takes leadership for the benefit of the village community at large. She takes dynamic decisions like once in a village meeting she opposed the decision of deepening pond village with the JCB machines, she convinced the villagers to deepen it manually. This gave opportunity to villagers for livelihood. Once when she found that neighbourhood village was facing drinking water problem she intervened and activated the water committee. She organized gram sabha and lisoned with their gram Panchayat for water pipe laying by labour and cash contribution from the community. In the same manner she moves from village to village and her dream is that all villages should have easy access of drinking water.

CONCLUSIONS

There are certain learnings that hold true across all the projects and organisations studied.

- A holistic approach integrating aspects of livelihood and water have better chances of long term success. The different uses of water need to be built into schemes and programs. The IDWM approach combines these aspects.
- The involvement of local people in the process is crucial to acceptance and longevity of the project. Examples such as AFPRO's work in Udaipur, Rajasthan; the PRI in Kaldari, Maharashtra among others, highlight the important role the community plays in the success and sustainability of interventions.
- Training and capacity building are important tool in involving local communities in the process. The local community needs to be empowered to be able to take informed decisions with respect to their common resources in a participatory manner.
- Convergence and integration between various stakeholders including government agencies, local communities and CSOs form the crux of financially and logistically viability of projects. Networks and partnerships should be strengthened to facilitate this leverage.

ANNEX 1: CONTACT DETAILS OF NGOS

NGO	Contact Details
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Kaldari	Mr Ankush Parkhande Kaldari, Purandhar, Pune, Maharashtra

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