WATER AS REGENERATIVE INPUT

SEWA'S EXPERIENCE

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List of Abbreviations

DWCRA	-	Development of Women and Children in Rural Areas
DDP	-	Desert Development Programme
FPI	-	Foundation for Public Interest
GIC	-	Gujarat Irrigation Cell
GJTI	-	Gujarat Jalseva Training Institute
GWSSB	-	Gujarat Water Supply Sewerage Board
IPCL	-	Indian Petro Chemicals Corporation Ltd.
JRY	-	Jawahar Rojgar Yojana
MIC	-	Minor Irrigation Cell
MID	-	Minor Irrigation Department
NA/RWSS	-	Netherland Assisted Regional Water Supply Scheme
NGO	-	Non- Government Organisation
O&M	-	Operation and Maintainence
PDC	-	Plasticulture Demonstration Centre
PP	-	Pani Panchayat
PS	-	Pani Samitis
SEWA	-	Self Employed Women's Association
SRWSS	-	Santalpur Regional Water Supply Scheme

WATER AS REGENERATIVE INPUT

- REEMA NANAVATY

"The Rice does not cook, and the tea turns sour, and people continuously suffer from diarrhoeal and skin diseases. This is the water we drink and bathe, with from the village pond", laments Jomiben, from Madhutra. She is not alone. Some 110 villages covered by Self Employed Women's Association, under Netherland Assisted Regional Water Supply Scheme NA/RWSS, had similar difficulties.

One of the most important and crucial components of the 'Banaskantha Women's Rural Development Programme', is the "Water as Regenerative Input Programme".

The main objectives of the Water as Regenerative Input Programme are :

* Water is perceived as economic and ecological regenerative input contributing towards sustainable economic activities. This is first.

* Second, under water related activity census of water resources and availability and quality of water carried out and maintenance system for protecting quality of water and physical structures are being developed. In the first two years concentration on public-wells is envisaged.

* It was also planned to develop three village ponds, using brick and plastic lining technologies. It will strengthen the working of Pani Panchayat and create area-wide demonstrative impact. Three demonstration centres and one solar based desalination plant will popularize water saving technologies.

* The public bore-wells and water ponds are community assets, yet they can be maintained and run by forming water-users co-operatives with exclusive or equal membership of women.

The project area is an arid region, covering 72 villages in the Radhanpur and Santalpur talukas, in the extreme west of Banaskantha District, in North Gujarat. The hostile climatic conditions, with saline land and water, wind blasts with sand storms and frequent droughts has reduced the communities from subsistence to survival level. Agriculture is the main occupation, which is rainfed. Very often it fails due to droughts. Dairying, the second major occupation, next to agriculture, also suffers due to non-availability of fodder. Hence, the communities are forced to migrate in search of work, water and livelihood. This phenomenon adds to rapid desertification.

The Banaskantha Women's Rural Development Project, of SEWA, is an outcome of the initial action research of two years from 1989 to 1991, under the guidance of Foundation for Public Interest (FPI). This is a regional development programme with women in leadership role. So far about 15,000 local women, through their local groups are participating in the programme in 72 villages. The women have been organized under Government of India's DWCRA (Development of Women and Children in Rural Areas) programme into 51 groups under eight major economic activities leading to eco-regeneration and anti-desertification. Both lead to economic regeneration and anti-desertification. Both lead to economic regeneration to stabilize the communities in their villages. Table No. 1 gives the activity details.

Table No. 1.

Sr.No.	Activity	No. of Women
1.	Water as Regenerative Input	1,500
2.	Artisan Support Programme	5,500
3.	Eco Regeneration Programme	3,000
4.	Minor Forest Produce Collection	1,600
5.	Dairying and Animal Husbandry	2,000
6.	Salt Farming	500
7.	Savings Groups	400
8.	Shakti Packet	1500
	Total	**16,000**

However, the Banaskantha Women's Rural Development Programme, is one of the components of the Integrated Santalpur Regional Water Supply Scheme (SRWSS). The RWSS provides drinking water, on of the basic necessities of life, to 107 villages through pipeline over a distance of 100 kms. A battery of 6 tubewells, dug in the Banas river, is the precious source of water.

Pani Samitis (PS)

The operation and maintenance of the village level facilities, for drinking water, such as stand post and cattle trough is the responsibility of the village communities. Hence, Pani Samitis (Village Water Committees) are formed to take over the responsibility. Originally, Pani Samitis comprised of 2 male members of the village, the Sarpanch and the line man a local level functionary of the GWSSB.

The roles and responsibilities of the PS are as follows :

1. Clean the Cistern (Water Tank) every 15 days and Chlorinate the water.

2. Maintain cleanliness around the stand post and cattle troughs.

3. Maintenance and repair of taps at the stand post and village line.

4. Minimize wastage of water and reuse of waste water.

5. Cost recovery i.e. collect Rs. 14/- per head per annum towards the O&M cost.

The PS were formed in about 72 villages since 1986, but were all defunct. FPI, in 1989, was assigned with an action-research, to operationalise the PS.

As a part of the action research FPI and SEWA, conducted exposure programmes for 236 PP members from 32 villages to :

1. The headworks of the RWSS, to explain in detail, the entire working of the RWSS, and the costs involved in it. This was a major learning exercise for the PS members, since uptil now, they only believed that, water from the river is diverted into the pipeline to bring it upto the village, so there must not be any major costs involved.

2. Secondly, exposure trips to the Plasticulture Demonstration Centre (PDC) of the Indian Petro Chemicals Corporation Ltd. (IPCL) were conducted, to propagate the importance of water harvesting and conservation, and the new technologies available.

As a result of these exposure programmes, the communities realised the importance of the RWSS, minimised the wastage of water, and agreed to the revival of existing water sources, harvesting of rain water, whenever available. As a result, 42 village panchayats resolved to revive their village ponds for harvesting rain water, as an alternative source of water, using the Rural Development Funds earmarked for their village.

Rain Water Harvesting : Agrifilm Lined Pond

The "Water as Regenerative Input" Program is based on the recommendations of the action research on PP by FPI. One of the recommendations for operationalising PPs and strengthening the RWSS, was to augment the existing, traditional sources of water such as village ponds and tanks, build up democratically functioning Water Users Groups or Co-operatives, and thereby influence and facilitate the functioning of the PPs.

SEWA, therefore, since 1991-92, started mobilising the local communities for taking up revival of the traditional water sources, mobilise local resources by way of local contribution from the people, and some funds from the JRY. Finally, the most crucial was the technical knowhow for upgrading and constructing the structure. This was a long struggle. First, people were not ready. When people were ready, the experts were not available.

A series of meetings were conducted with the GWSSB for technical assistance, however, GWSSB felt, its role was more in providing safe drinking water and not for such open structures. Water was seen as a unitary source by villagers as it came out in the action - research of FPI. But GWSSB limited its activities to sectoral areas.

The Minor Irrigation and the Irrigation Department, have expertise in designing and constructing small check dams and dams. Village ponds were too small for them.

The Ground Water Corporation, when consulted felt, had expertise only in ground water sources.

Water is divided into its use, source, and location. But all are very inter-connected is forgotten.

The situation was getting worse for SEWA in activising Pani Samitis becoming difficult to maintain the morale and the momentum gained for community participation and also, with monsoon approaching nearer all were worried. Finally, SEWA hired private engineers for providing the needed technical assistance, but that failed. For them profit came first. Unfortunately, very valuable time and energy was lost, as monsoon already set in. The year 1991, was a drought year and hence there was time available, to materialise the efforts.

Hence, the Pani Panchayat members did not lose hopes and spirit, and SEWA, again in 1992 requested the GWSSB to provide technical expertise. It was negotiated that the GWSSB only prepare plans and estimates and not take up the responsibility for execution, since this does not fall in their guidelines. The GWSSB showed some willingness, but still not fully convinced of its role, actions were yet to come.

Mobilising Local Resources and Water Committees :

At the same time, to further mobilise local funds, the village panchayats auctioned the harvested pond water, ranging between Rs. 35,000 to Rs. 85,000/- depending on the size of the pond. SEWA, also tried to link up with the Desert Development Programme (DDP). They focus on fighting deserts not on harvesting water.

In village Jhandala, construction of the village pond was carried out. The slope, catchment and excavation works of the pond were repaired in July 1991. Around 900 local village labourers, all of them women, got employment for 2 most crucial drought months and Rs. 2,30,000/- were paid as wage labour. Thus, not only the local economy was regenerated, but also the local ecology. Unfortunately 1991 was drought year and there was complete failure of rains, and hence the major economic benefits of water harvesting structures could not be materialised.

However, in 1992, the monsoon was very good. The taluka received 735 mms. of rainfall. As a result, the constructed pond harvested maximum amount of rain water, which lasted for the three seasons and provided water which is used for drinking purpose and even agriculture.

Cash Benefits

The Jhandala village ...yat auctioned the pond for irrigation to local farmers to take high ...lding Jeera crop. The pond fetched all-time-high auction price of Rs. ...00 for a period of 4 months beginning from October ...2 to January 1993. Over and above this, the Panchayat made an agreement with the bidder to ...ovide water to 6 small local vegetable cultivator on the pond side b... ...ing Rs. 150/- each as welfare fund from them. The bidder in turn is ... g water to the farmers at the rate of Rs. 15,000/- each for the season of 4 months. Some 6 farmers are buying water.

Approximately 2000 mounds of Jeera crop estimated at a rate of Rs. 1800/- per mounds was cultivated. This will fetch an income of Rs. 36,00,000. How the small effort of lining a pond has caused ripple effects is worth ...ng. Some come and thank SEWA. Most of them are local villagers.

The Jhandala Panchaya... ... owns a bore well. The panchayat has auctioned the Borewell for ...s. 35,000/- a year to the local farmer. The Borewell water is in turn sold to the farmers at the rate of Rs. 60/- per hour.

...heckdam

SEWA also took up repair and safe stage construction of a checkdam at village Madhutra. The village Panchayat, the Minor Irrigation Department and SEWA collaborated in planning, designing, construction and ...mentation. The operation and management is done by the local p... ...yat.

The local village communities contributed by sharing the transport cost, the raw material and labour came from the irrigation department and the checkdam which was washed away in the floods of 1990 and was repaired in 1991.

However, 1991, being a drought year, no water was stored. But the village panchayat collected Rs. 150 each from the farmers, whose fields fall in command areas of the small checkdam. Rs. 2,500/- were collected and the panchayat carried out pitching on the inner side of the dam, as a safety measure. SEWA members, the women helped in this cost-sharing.

During 1992, due to heavy rains, the dam proved to be a boon. Large quantity of water has been checked and retained in the reservoir. Local money was used to build local ecological asset which gave economic benefits.

One more example, a group of 15 farmers pooled in resources and have laid down PVC pipeline over a distance of 1.5 kms. at a total cost of Rs. 50,000/-. This helped irrigate 40 acres of land for Jeera cultivation. Approximately 3000 mounds of crop was estimated. Besides 7 more oil engines to irrigate the near-by fields were also to be installed. This will fetch an income of approximately Rs. 4.5 lakhs to the village from this small harvesting structure. Local initiative, local planning, local cost sharing. Thus, some experience was gained and success realised from the 2 modest efforts.

In 1993, the village communities, the water committee and SEWA, were determined to take up the challenge, and construct the pond. SEWA, approached the Secretary, Rural Development, and pleaded for some help. Finally, the Secretary, Rural Development, through the Minor Irrigation Cell of the Jilla Panchayat, arranged for providing the needed technical assistance.

SEWA, also contacted IPCL, and requested for technical expertise. IPCL readily agreed to collaborate and provide all possible expertise. However, IPCL does not have expertise in civil works, but agreed to train the Water Team and Village Water Committee, on the use and lining of agrifilm.

Construction of Agrifilm Lined Pond : The Santalpur Experience :

In December, 1993, the team of Engineers from the Minor Irrigation, visited several village pond sites. From this, 3 sites were selected for constructing agrifilm lined pond during 1933-94. However, since this programme was the first of its kind in the entire district, it was decided to first construct one pond, and then replicate it further. Hence, the village pond of Gokhantar village, in Santalpur taluka was selected.

Preparation of Plans and Cost Estimates :

In the first stage, to prepare the plans and cost estimates, the entire village pond was emptied, by pumping out water. In this area, the rain water collected in the pond turns saline on storage for more than 2 to 3 months. The Village Water Committee, then worked out a plan to empty the pond, as to :

* who will take the responsibility for operating the pump. The committee selected two persons for operating the pump, since the pump had to be operated day and night, to empty the water in 7 days. Also, the site for fixing the pump was selected.

* The committee then discussed and worked out the plan for discharging the pumped-out pond water. The water being saline, could not be allowed to flow in the nearby fields. Hence, the committee, hired 15 labourers from the village, dug up a channel 100 mtrs. long to direct the water into the adjacent rivulet. Three persons in turn, continuously supervised the pumping of the water.

* The fuel (Diesel) for operating the pumps, was bought by the committee. The transportation cost was provided by village panchayat. Since the diesel had to be brought, from a distance of 18 kms. from the village. One of the Committee members provided his tractor. The fuel cost was borne from the project funds.

* The committee then finalised a group of men and women, who would assist the engineers, in taking measurement. Once the measurements were taken, the Water Team of FPI, along with the Engineers from the Minor Irrigation prepared the plans and cost estimates.

* Meanwhile, the committee, supervised the removal of all the Ganda Baval tree (Proscopis Juliflora) from the side walls and bank of the Pond. The entire operation took about 20 days. The wood from the removed Ganda Baval trees was auctioned, by the committee for Rs. 3000/- in the village. Thus the local people themselves planned, designed and executed all the tasks.

Challenge and Struggle :

When the pond was completely emptied a 1 to 1.5 ft. layer of salt deposit was found at the bottom, which was scraped out. However, this was not the end of the problem of salinity.

Having, not checked the salinity ingress, the pumping was stopped, and preparations for excavation and slope of the side wall were being made. In a weeks time, due to salinity ingress, salt and brine oozed out, and the pond was again filled with 2 ft. of water. Hence, pumping had to be done again to drain out the brine.

Due to such heavy salinity ingress it is not feasible to apply brick and cement mortar lining on the side walls of the pond, hence, the Engineers, advised using stone and cement mortar lining.

The Committee then, collected information on the nearest quarries for the possibility of assuring the supply of needed quantity of stones. Also, the stones need to be uniformly cut and be of regular length and width, as it should affix properly for lining, and not damage the agrifilm at the bottom.

The nearest quarries, were 3 quarries at Gangodar in Kutch at a distance of 140 kms. and 2 quarries at Dhangadhra in Surendarnagar a distance of over 300 kms. Hence, the local supply was completely ruled out. The next was the question of cost of stones, as compared to bricks, and the carting costs. The committee, along with the engineers, Water Team of FPI and SEWA, discussed the total cost of stones, compared it with the estimate prepared.

This was in February and March, the peak agriculture season for harvesting cotton and Jeera. However, 3 of the committee members committed themselves to work, visited the quarries at Gangodar and Dhangadhra, negotiated the rates and supply of stone and brought the final quotations.

This was put before the entire committee, the engineers of Gujarat Irrigation Cell. Water Team of FPI and SEWA Organisor, and the supply was finalised.

But, the struggle was still not over, Eventhough, with continuous pumping of over month, there was continuous ingress of salinity. Hence, the base of the pond would not dry up, resulting into 2 ft. of dampness. This made the excavation and slope work extremely difficult for the labourers. They could not work, standing in the brine, continuously.

The next alternative was to try tractors for excavation and slope work. But the tractors would get stuck in the dampness. The pumping was on, for the last month and a half. Severe heat, hot wind and continuous pumping had no impact on salinity ingress and dampness due to brine continued. This drastically hampered the work. The village community was desperate on one side, while on the other had the monsoon was approaching, any waste of time or hindrance of work was costing immensely, resulting into great loss.

It was tried to create a passage track for the movement of tractors, by dumping sticks and branches of Proscopis Juliflora, so that at least the slope could be constructed. However, the thorns of proscopis hampered the movement, and on the other hand, the proscopis started sprouting which was even more dangerous for the lining.

The next alternative tried was dumping dry hay from the field waste. But the dampness was too high and it needed large quantities of hay (to prepare the entire track) which was not feasible. Every one was puzzled and worried, the MIC Engineer, the Water Team of FPI, SEWA, as all the trials failed to check salinity ingress. On the other hand there was the pressure from the village communities, since the monsoon was hardly a month away. The MIC engineers lost all hopes and decided to abandon the work. This was in April end.

However, SEWA and the Water Team of FPI, can never do that. This was the first ever attempt in the entire district, of reviving the existing traditional source using modern technology. The local Communities were highly motivated, and also local contribution was made. Failure meant total disapproval of Water Harvesting and Water Conservation by the communities, which will be disastrous to this area. Hence, FPI and SEWA, had to overcome the challenging task at any cost.

SEWA, made a frantic request to FPI, to look for other sources for expertise. FPI, consulted the Research and Development Cell of the Gujarat Jalseva Training Institute (GJTI). Fortunately immediate response was available, and the experts from GJTI, along with FPI Water Team visited the site in first week of May., The team conducted detailed soil and water analysis and studied the geo-hydrological condition. The team recommended, that due to high water table and salinity ingress, it would be advisable to abandon the interior of the pond, but construct a new water harvesting structure near the catchment of the pond.

To upgrade the existing pond, the only solution available, is to fill up the pond, upto 2 to 3 ft. with black cotton soil, and create an impervious layer. This soil will have to be transported from a distance of 45 kms, and the entire pond filling would take more than a month. So, to construct the lined pond before monsoon, the alternative site was selected and work started.

Operationalising the Pani Panchayats (PP) :

Based on the recommendations of the action-research on PPs, through the village Water Committees, SEWA under the active guidance of FPI, started mobilising the PPs. Working with the members of the PP, it was soon realised that, some of the members, were not aware of their nomination as member of PP, and were unwilling,. In few cases, the village as a whole, was not convinced, with the nomination of few members.

Hence, SEWA recommended to the GWSSB for the reconstitution of PPs, to which the GWSSB agreed. The PPs were reconstituted with full consent of the women and the village communities.

Guidelines for O & M :

A tripartite workshops was organised by FPI on 29th November, 1993, where in members of reconstituted PPs from 4 villages, discussed at length the roles and responsibilities of the PPs, and guidelines for handing over the local Operation and Maintenance (O&M), to the PPs, on a pilot basis in 5 villages. The chairman of GWSSB also presided over the discussions and the guidelines were finalised, and are submitted to the GWSSB for final approval since December 1993. The guidelines are as follows :

1. The present members of the Pani Panchayats will call the village meetings, and inform all the villagers about the take over of O&M. They will consider the suggestions of the water users. They will ensure that each of the wards or communities are heard and represented.

2. Pani Panchayat will bring concensus among the villagers about the water rate of Rs. 14/ head.

3. From the Rs. 14/ head, Rs. 5/- head will go towards the Pani Panchayat's operational fund, which will be deposited in the Pani Panchayat's bank account, and managed by any two of the members of the Pani Panchayat and the representative of the GWSSB.

4. Pani Panchayat will be encouraged to add or raise additional resources and create an ongoing operation fund from the sources other than GWSSB or the water rates.

5. The GWSSB will add or mobilise additional funds for those Pani Panchayats where the amount comes to be very meager to manage. Such villages will be identified by the NGOs and GWSSB in joint meetings of the villagers.

6. The fund will be used to do the following O and M work :

(a) Cleaning of the overhead tank every 15 days.

(b) Add chlorine in the water in the overhead tanks.

(c) Clean the standpost.

(d) Clean the trough

(e) Clean the area around the stand post and trough and lead waste water to some recycled use.

(f) Repair and replace the taps and valves.

(g) Maintain and replace the pipeline inside the village

(h) Timely operation of the valve and noting water meters.

(i) Additional work found to be fit for integrating or augmenting the water resources of the villages.

(j) Immediately inform the lineman and/or the nearest GWSSB office about any eventuality or discontinuation of supply of water.

(k) Keep and maintain reports and monitoring data, maintain register, maintain files, and keep accounts update.

7. The tools and materials for the O&M will be bought by the Pani Panchayat from the GWSSB stores and pre-determined price on cost basis.

8. Jalsewa with SEWA, Foundation for Public Interest, and other experts will train the teams in the above as and when needed.

9. The fund held by the Pani Panchayats will be audited by the GWSSB through Talati (Secretary) and there will not be any additional audit for the same for the local GWSSB store/office.

10. Pani Panchayats will be free to do one or a combination of the following :

(a) Pani Panchayat members will take over the duty on rotation or any other arrangements which will be in writing available to all the members, GWSSB, NGO involved, and the villagers.

(b) Pani Panchayat may select and appoint one of the selected villagers for the same at an agreed amount.

(c) Pani Panchayat may invite or hire technical help of outsiders for the same.

11. Pani Panchayat will be allowed to spend the said fund on purchase of the tools and materials from the GWSSB stores and pay the remuneration to the paid staff.

12. The savings, if any, after the audit, may be retained for the bad-years or local disasters or for augmenting the source.

13. Any mis-use or wastage of water will attract actions from the GWSSB including disconnecting the village from the RWSS.

14. Fortnightly meetings will be held by Pani Panchayats. Monthly village meetings and monthly coordination meetings with the GWSSB officials will be held.

Training of PP Members

Meanwhile a training of PP members was jointly organised by the Gujarat Jalsewa Training Institute (GJTI) of the GWSSB and FPI, where in the PP members of all the 5 villages for pilot phase, totalling to 35 trainees were, trained for taking over the O&M, of the local level facilities for water supply along with others.

Conclusion

SEWA took the initiative and proposed to the Gujarat Water Supply and Sewerage Board, to take up a pilot project of handing over the Operational and Maintenance of village water facilities to the Pani Samitis. Based on the proposal, the GWSSB, formalised the constitution of Village Water Committees, by passing a Government Resolution, giving Pani Samitis a legal status. However, certain practical aspects need to be cleared out, before fully involving the Pani Samitis, such as

(i) issuing of receipts to the village families towards cost recovery

(ii) Operating of Bank Account

(iii) Transfer of funds.