

TATA-GE Special Drinking Water Supply and Sanitation Project
Supported by Sir Ratan Tata Trust under “Kharash Vistrothan Yojana”

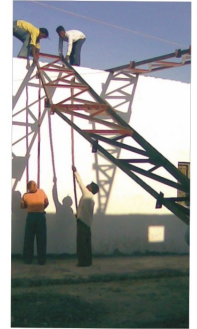
“Handing over of Reverse Osmosis Plant to village community”

July 22, 2010

Village: Loyaj, Mangrol block, Junagadh district
Village: Miyani, Porbandar block, Porbandar district

ખારાશ વિસ્તારોત્થાન યોજના

સહિયારી મહેનતથી ગામમાં આવ્યું મીઠું પાણી!



ટાટા-જીઈનો જૂનાગઢ અને પોરબંદર જિલ્લામાં ૧૦ ગામોના ૨૫,૦૦૦ પરિવારોને આયરી લેતો પીવાના પાણી અને સ્વચ્છતા માટેનો ખાસ કાર્યક્રમ

કાર્યક્રમના મુખ્ય હેતુઓ

- લોકો દ્વારા સંચાલિત આરમ્બો આધારિત પાણી પુરવઠો વિકસાવીને પાણીની ગુણવત્તા સુધારવી તથા તેની ઉપયોગિતમુ મર્યાદા વધારવું.
- લોકો પાણી અને સ્વચ્છતાના મૂકે આનવનિર્ભર બને તે માટે તેમને પ્રોત્સાહન આપવું.
- ગામમાં છત્તનધોરણ લીધું આવે તે માટે સ્વચ્છતાના કાર્યક્રમોને વેન આપવો.
- પાણી વિતો અપોચન, અપલ અને સંચાલન તથા જાળવણીમાં લોકોની બબ્બીદારીને વેન આપવો અને મહિલાઓને આગળ આપવા માટે પ્રોત્સાહન કરવો.



About the Project

Coastal Salinity is a complex issue and a creeping phenomenon affecting life and livelihood of local communities near coastal areas of Gujarat. In recognition of the complexity and the multi-faceted nature of the problem, it was felt that an effective solution is required through joint efforts of both, government and civil society organizations, which would be possible through an umbrella organization. Consequently, in February 2005, the Sir Ratan Tata Trust (SRTT) operationalized a three year project to set up the Coastal Salinity Prevention Cell (CSPC), Ahmedabad to develop knowledge bank related to salinity issues in Gujarat, network and develop linkages with the government and other agencies; pilot area specific innovations and community approaches for addressing salinity related issues; and function as the nodal agency for *kharash Vistrothan Yojana* (KVY). CSPC has put in efforts to network and collaborate with different institutions in salinity affected villages and providing inputs for programme enhancement. CSPC has also put in efforts for idea incubation, by implementing small pilot programmes to assess viability of various technological options, viz. Farm Pond Model, Aquaculture in Saline Areas, Salinity Tolerant Horticulture Crops, Dew Harvesting Systems, etc. State level linkages have also been established by synergizing efforts for providing drinking water in the coastal villages.

As a part of salinity prevention initiative, TATA – GE (General Electric) collaborative project initiated a special drinking water and sanitation project for addressing drinking water and sanitation issues in coastal blocks of in Porbandar and Junagadh district. The project currently covers 8 villages of Ghed region which has extensive water quality problem due to high levels of ground water salinity as well as low hygiene and sanitation conditions. The drinking water issues will be addressed through the adoption of appropriate technological solutions, namely Reverse Osmosis (RO) processes. The sanitation issues would be addressed through sensitization of community for safe sanitation and hygiene practices and construction of household level toilets and demonstration of other facilities like smokeless chullahs, biogas plant etc.

The project will promote a public-private partnership for management of drinking water services in rural areas.

The Collaboration

The project is a collaborative of SRTT with General Electric (GE). GE will provide the technical backbone for the establishment of water supply systems in the identified problem villages. Socio engineering and implementation of the programme activities are carried out through locally based support organizations – namely AKRSP(I) in Junagadh District and Saurashtra Voluntary Actions (SAVA) in Porbandar district. The overall project management, facilitation and monitoring of the programme activities will be carried out by CSPC, with the technical backstopping support from Eureka Forbes Limited and ENV-DAS, Lucknow.

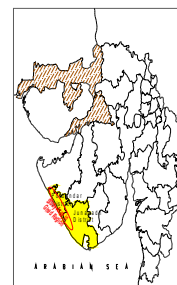
Major scope of the Project:

The project will currently cover 10 villages across Mangrol block of Junagadh district and Porbandar block of Porbandar district. A total of about 5000 households (app. 25,000 beneficiaries) would be covered across 10 villages. The major activities planned in each village are:

- Community level capacity building initiatives for construction, operation and maintenance of the RO based drinking water supply units;
- Training and capacity building inputs for enhancing the Knowledge, Attitude and Practices related to safe sanitation and making all the villages Open Defecation Free villages;
- Comprehensive village level drinking water storage and supply network;
- Construction of individual HH level sanitation units, compost pits, soak pits, biogas / NADEP units / smokeless chullahs

Major expected outcome of the project are:

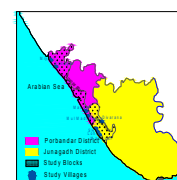
- Improved access to drinking and domestic water needs through provision of treated potable water. Currently it is planned to provide the village with at least 20 lpcd to about 60 lpcd, and extended as per demand and success of the model.
- Substantial reduction in drudgery and time of women for fetching domestic water.
- 100% individual household toilet coverage as against merely average 15% coverage
- Promotion of improved hygiene and sanitation practices like appropriate hand washing practices, daily bathing practices, appropriate domestic waste disposal system and improvement in health and environmental conditions



Ghed region is a coastal area bordering the districts of Porbandar and Junagadh in Gujarat. The region is a natural depression with extensive salinity ingress and prone to floods. The 8 project villages (as listed in table 1) fall under Mangrol block of Junagadh District and Porbandar block of Porbandar districts.



The study villages in Porbandar block comprise of loamy and sandy soil with good percolation capacity and inherent salinity in ground water. The ground water table in the region is high, about 30 feet average. Issues of



high fluoride and nitrates are seen in some pockets of the region. The soil in the study villages in Mangrol block comprise of limestone and clay with high water table at about 30 feet average. These villages have extensive ground water salinity along with issues of high

nitrate and fluoride in the ground water. Most of the drinking water in Ghed region is currently managed through external piped supply or tanker supply from far away distances.

The Overall budget for the various components of the programme is estimated at Rs. 114.13 Million. GE Foundation has indicated a commitment of Rs. 22.56 million as equipment support for the RO based drinking water supply system, the community contribution has been estimated at Rs. 29.75 million while the Trust component will be Rs. 61.65 million

Availability of fresh and potable drinking and domestic water is a major concern in the Ghed region, which is in turn affecting the socio-economic conditions for the community.

Table 1. List of Project Villages	
Mangrol Block, Junagadh	
1	Divrana
2	Maktupur
3	Shil
4	Lohej
Porbandar Block, Porbandar	
1	Miyani
2	Shreenagar
3	Mul Madhavpur
4	Mander
Kodinar Block, Junagadh	
1	Dhamnej
2	Mul Dwarka

Village wise Drinking Water Source (% of Households)

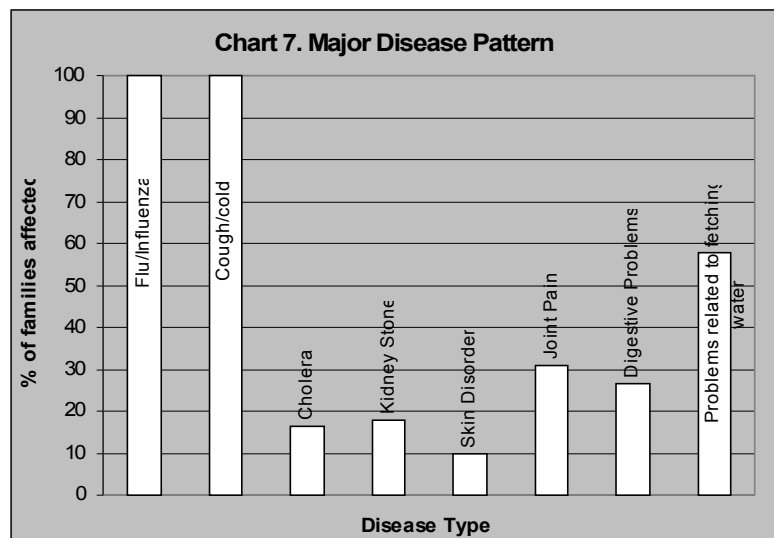
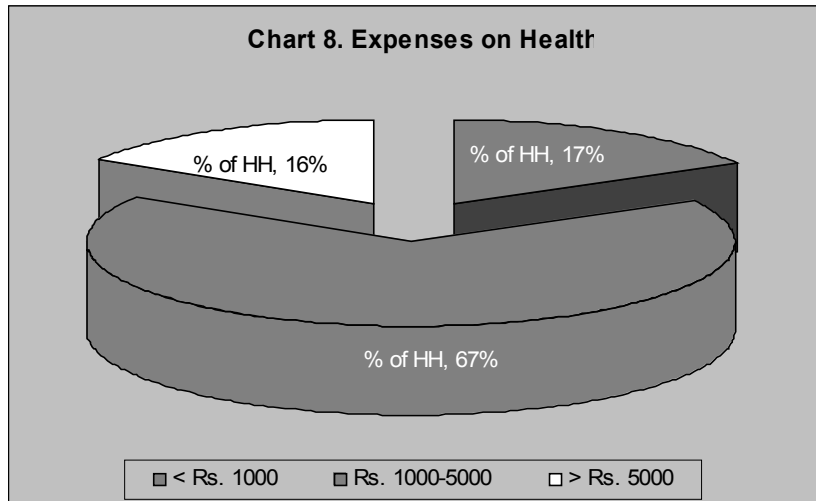
Source of water	Miyani	Loyaj
HH tap	3	0
Tanker	49	51
Bore well	7	0
Open well	10	17
Hand pump	2	2
Other Source or combination of sources	30	30
Type of other source	Other village	Stand post
RRWH as supplementary source	56	66

Table 6. Village wise Daily time spent for fetching water (% of household)

Village	In Summer			In Winter			In Monsoon			No time spent throughout the year
	0	0.5-1	>1	0	0.5-1	>1	0	0.5-1	>1	
Porbandar Block										
Hours	0	0.5-1	>1	0	0.5-1	>1	0	0.5-1	>1	
Miyani	30	21	49	30	30	41	30	51	20	30
Mangrol Block										
Loyaj	0	72	28	0	96	4	0	98	2	0

Village wise Yearly Expense for Fetching Drinking Water (% of HH) - (Mainly On tankers)

Yearly Exp. (Rs.)	Miyani	Loyaj
0	28	32
Upto Rs. 1000	20	47
> Rs. 1000	52	21



Village: Loyaj

Block: Mangrol
District: Junagadh

General Details:

Loyaj is a coastal village adjacent to coastal line on Arabian Sea and is spread across 728.9 hectares. Currently it comprises of 3500 population with about 500 houses. Old aged people form about 25% of total population in village.

Major Economy

The economy of village is dependent mainly on agriculture and general labour work. About 15% of working population is currently employed in job/service. Water crisis had led to decline in animal husbandry activities in last decade.

Administration:

Panchayat comprises of 11 members, of which 3 are women members.

Panchayat charges sanitation tax, light tax and cycle tax for providing basic services like road, cleaning of streets, etc

Pani Samiti

Pani Samiti is formed in village and there are 5 women members.

Water condition

Major water resources:

- 8 community open well, 200 private wells, hand pump at household level
- The water table is about 40 feet from ground. The quality of water is poor. The water test reports reveal high amount of TDS, hardness, magnesium, nitrate and chlorine content.

Drinking Water

- Drinking water is managed mainly through external tanker supply, mainly by Government. Every house gets water alternate day. Women play major role in fetching water and spend about 0.5-1 hour every alternate day for filling water. Frequency of tankers decrease in summer and community face constraint of drinking water. In summers, people purchase water from other sources like tanker supply from private suppliers, bottled water etc.
- Water tax is currently not levied on community.
- Water from other domestic works is managed through hand pump at household level or from open well. Water for domestic purpose is adequate round the year.
- About 200 houses have Roof Top Rain Water Harvesting which suffices their drinking water needs for 8-10 months.
- All the households filter drinking water with cloth sieve, but do not boil it. They use chlorine tablets for disinfecting water in monsoon
- No water charges are levied by Panchayat currently

Sanitation condition

- 50% houses have toilet and bathing units at household level. All the houses with toilets have properly constructed soak pits for waste disposal. Households of remaining houses go for open defecation in farms outside village or near forest/woods.
- Community sanitation unit is not available in village.
- Most of the houses have some facility (temporary shed/pucca unit) for bathing at household level.
- Domestic waste water is disposed either on roads or diverted to small soak pits near the house.
- There is no specific system for solid waste disposal in village. The waste is disposed in open at specified corners or in streets, which is left open and create nuisance specifically

during monsoon. Some of the waste is taken away by local farmers for converting into manure, remaining is left open.

- Sanitation Tax of about Rs. 30/month is levied on every households.

Personal Hygiene Practices:

- Personal hygiene training under the project has raised awareness amongst community. Appropriate hand washing practices are seen in some households.
- Though domestic water is available adequately, community has not cultivated practices of daily bathing.
- Drinking water is only filtered and not disinfected or boiled before use in almost all the houses.
- Many families still do not use water utensils for fetching water from water pot at household level.

Health Condition

The major health issues in the village are water. Most of the population suffers from Flu/Influenza at least once in a year. Kidney stone is more prevalent in the village specifically in women due to high TDS in water. Many men suffer from prostate. Joint pain is major health issue affecting men, women and elderly.

Role of Women in development

The role of women in village seems active in some of the developmental activities. There are about 8 SHGs comprises of more than 100 women, but they are limited to savings. The groups are not attached to any economic activities. However, it is planned to allot all the operation and maintenance of the RO plant to these SHGs to avail their active participation in developmental works.

About TATA-GE Project:

The Tata –GE project involves following activities:

- RO plant construction of 8000 litres capacity per hour, aiming at providing 5 lpcd for drinking.
- The other interventions planned are construction of 200 toilet units with soak pit, 220 compost pit, 20 household level bio gas plants, 220 smokeless Chullahs, 40 household level fruit tree plantations and 330 soak pits for household waste water disposal.
- Operation and maintenance of the RO plant is to be handled by the SHGs formed in the village.

Village: Miyani

Block: Porbandar
District: Porbandar

General Details:

Miyani is located 50 Km from Porbandar city. Total population of village is approximately 3300 with about 650 families. Overall Sex Ratio is 943, the same for age group 0-6 years is 862 (2001 Census). Schedule Caste (SC) population is 7.4% and Schedule Tribe (ST) is 0.2%.



Major Economy

Major occupation in the village is agriculture, fishing and labour work in mines.

Water condition

Major water resources:

- Villagers fetch water from Medha Dam for drinking and domestic purpose. This source is available for 8-9 months a year. In summers, when the water is scarce, the surface water turns saline and has to be removed to sea via canal.
- All ground water resources in the villages like well and hand pumps have non potable water.

Drinking Water

- Most of the villagers purchase water from the vendor at Rs. 80-100 per 700 litre.
- Wells are used for domestic purpose and for cattle.
- Women from poor household, who cannot afford to purchase water, spend about 4-5 hours for fetching water from a distance of 4-5 Km.
- Panchayat levies water charges of Rs. 2-5 per year per family. However, average yearly spending for water by each family is about Rs. 2400

Sanitation condition

- About 80% families have toilet and soak pits, which were constructed under Total Sanitation Campaign and NREGS. People are willing to pay for toilets but due to rocky soil, its difficult to construct soak pits, involves high cost, and scarce water makes it difficult.
- There is no system of waste water disposal. Domestic waste water is disposed on streets.
- There is no specific system for solid waste disposal in village. The waste is disposed in open at specified corners or in streets, which is left open and create nuisance specifically during monsoon. Some of the waste is taken away by local farmers for converting into manure, remaining is left open.
- Hygiene awareness programmes are conducted every three months.

Health Condition

10-15% of people of Kharvawad suffer from skin diseases. Kidney stone, diahorrea, joint pain, Malaria and Pneumonia are some of the prevailing diseases in the village.

Role of Women in development

There are two women SHGs in the village, one in Kharva community and other in Koli community. Total number of women in SHGs is 36. Monthly saving in by this group is Rs. 50

per member. Moreover, there are 3 women members in 12 members Pani Samiti. There is a woman as Deputy Sarpanch and one more women member in Panchayt Samiti. Thus the participation of women in administration and development of village is commendable.

About TATA-GE Project:

The Tata –GE project involves following activities:

- RO plant construction of 5000 litres capacity per hour is in progress.
- The other interventions planned are construction of 295 toilet units with 265 soak pit, 165 compost pit, 18 household level bio gas plants, 109 smokeless Chullahs and 1400 plantations.
- The Pani Samiti is solely responsible for implementation of TATA_GE project.