

The Ghogha Experience. . .



નહીયુંમાં નીર નઈ, વાવલડી ઉડી ગઈ
પેલી કોર તલાવડી પણ આમનેમ સુકાઈ ગઈ.
હવે તો આંખ્યુમાં પણ નીર નઈ રે
પાણી તું કેમ રે મારે ગામે ના'વે રે....

Volume I: Main Text

Water and Sanitation Management Organisation (WASMO)

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The Ghogha Experience...

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The Folk Song

નદીયુંમાં નીર નઈ, વાવલડી ઉંડી ગઈ
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હવે તો આંખ્યુમાં પણ નીર નઈ રે
પાણી તું કેમ રે મારે ગામે ના'વે રે....

પાણીતું

માટીમાં હળ ચલાવ્યાં, ખેતરું ને અમે સજાવ્યાં
તોયે કંઈ નીર ન આવ્યાં, બીજને વાવ્યાં ન વાવ્યાં
મહેનત સારી યે મારી ધૂળ થઈ રે.....

પાણીતું

જ્યારે ના પાણી આવે, વ્યાજ બસ ચઢતું જાવે
ગાયને બળદ મારાં, વિષા પાણી મર જાવે
માંડવો કોઈનો રોપાશે, બધે બરબાદી થારે,
કેમ રે કરવી રે મહેમાન ગતી રે.....

પાણીતું

હાથે મુસીબત બડી, બહેનો ને માથે પડી,
કલાકો ચાલ્યા કરે તોયેના પાણી મળે,
ચૂલો હું કેમ જલાવું, ખીચડી કેમ પકાવું,
બાળકો ભૂરો મારાં, ઢળવળે રે લોલ,
તોયે ના પાણી મારે ગામ આવે વોલ.....

પાણીતું

સુણ્યું આઝાદી આવે, ખુશિયાં સાથે લાવે,
ચાંદા પર પહોંચી ગયા, એકવીસમી સદી આવે,
કમ્પ્યુટર આવ્યું જુઓ, માફતિ ગાડી લાવે,
તોયે મારે ગામડે હજુ એવું ને એવું રે.....

પાણીતું

બનાસ મહિ તાપી, નરમદા સાબરમતી
કડાણાં ઉંકાઈ, ધરોઈ, આજી-મચ્છુને શેતુરૂંજી
કેટલાયે મોટા મોટા બંધ બાંધ્યા રે....
તોયેના પાણી મારે ગામ આવે રે.....

પાણીતું

હે.....જરા સાંભળો સાથી

સુખ ભાઈ સોરઠવાળાં અને ગુજરાતવાળાં
સુખ મારી કચ્છની બેના, રહીશું હવે તરસ્યાં શેનાં,
મળીને પાણી માટે લડી લઈએ રે,
ત્યારે જ પાણી ગામે આવે રે.....

પાણીતું

This song signifies the acute problems of drinking water in the state. While great progress has been made by the country in many areas, disparities still remain. Drinking water has still not reached many villages, livelihood systems are getting weaker and people are becoming poorer and poorer. The basic question then is... What is real development...?

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List of Abbreviations

AFPRO	Action for Food Production
CBO	Community Based Organization
CEE	Centre for Environment Education
CHC	Community Health Centre
CMSU	Community Management Support Unit
CP	Community Participation
CR	Cost Recovery
DAS	Demand Assessment Study
DPEP	District Primary Education Programme
DTH	Down- the-Hole
ESR	Elevated Storage Reservoir
GJTI	Gujarat Jal Sewa Training Institute
GOG	Government of Gujarat
GOI	Government of India
GON	Government of Netherlands
GR	Government Resolution
GRWSSP	Ghogha Regional Water Supply and Sanitation Programme
GWSSB	Gujarat Water Supply and Sewerage Board
HP	Hygiene Promotion
IEC	Information, Education and Communication
IRA	Immediate Relief Assistance
ISA	Implementing Support Agency
IVS	Individual Village Scheme
Lpcd	Litres per capita per day
MIS	Management Information System
NAPU	Netherlands Aided Project Unit
NEGS	North East Ghogha Scheme
NEI	Netherlands Economic Institute
NGO	Non Government Organization
O&M	Operation and Maintenance
PHC	Primary Health Centre
PRA	Participatory Rural Appraisal
PS	Pani Samiti
PSIU	Project Support and Implementation Unit
RGWSSM	Rajiv Gandhi Water Supply and Sanitation Mission
RNE	Royal Netherlands Embassy
RSM	Review and Support Mission
SP	Stand Post
TOR	Terms of Reference
UN	United Nations
VAP	Village Action Plan
WASMO	Water and Sanitation Management Organization
WRM	Water Resource Management
WS	Water Supply
WSS	Water Supply and Sanitation

Foreword

Sustainable development of the water and sanitation sector is not just about completing a facility or the installation of a hand pump and a stand post, but the way these interventions are used to improve the quality of people's lives. Traditionally water and sanitation projects had a strong engineering orientation and were looked at in isolation, often resulting in poorer sections being exempted from the actual benefits or poor maintenance of these structures and low services because of lack of user involvement.

The Ghogha Regional Water Supply and Sanitation Project (GRWSSP) is not only an implementation project to provide some 200,000 people water supply and sanitation facilities, but more important is a pilot project, which attempts to test approaches and methodologies. These are aimed at integrating the concepts of community participation into the engineering aspects of a water supply program to ensure that the technical interventions are sustainable through. It is a third generation project, in the context of the Indo-Dutch Rural Water Supply and Sanitation Programme, in Gujarat. It relies on the experience gained in the earlier first and second-generation projects.

Concepts of community participation, sanitation, cost recovery and hygiene education have been integrated into the project to achieve maximum results. Users have been involved in various stages including planning, location of facilities, construction, operation and maintenance. This will improve the chances that the services match what the people want, are able to pay and are willing to maintain. Communities require various skills to maintain their water supply systems. These skills are developed and acquired as the community participates in various stages of the project, leading to an effective community management. The project has all along emphasized on instilling a sense of responsibility and ownership within the community. Besides, by ensuring that the engineering team from the Gujarat Water Supply & Sewerage Board is a part of every process that takes place in the project, attempts were made to shift their traditional role from being a mere 'provider' to that of a 'facilitator' of community based rural water supply.

This documentation of the project is done halfway during the project duration and at a moment these important changes are made in the project organisation. The decision for these changes follows the understanding that the embedding of the project with its new approach in the existing institutional framework has not been successful. The relatively slow progress made by the project is a reflection of the fact that the project was grappling with a lot of uncertainties at various stages, new ideas that were generated from time to time were fine tuned and the project relied a lot on actual testing of methodologies on the field before uniformly accepting them. However the experiences gained in this project underlines the fact that such differentially designed projects which rely strongly on people's participation and aims to put people at the center of all activities to achieve the larger goals of sustainability, has to be accompanied by a strong institutional orientation.

This document is first of all an attempt to document the approach and methodologies, which have been developed and applied so far. Secondly it is an attempt to trace the events in the project as they happened, how the project evolved, the successes and failures, the constraints, what has been the role of every partner and also share learnings from the field. This document draws from the field experiences and is envisaged to provide a good reference to those who would take this project further and to those who will work in the future for similar projects. It is divided into two volumes, the first forming the main text where the processes are described and analysed when possible. The second volume contains explanations, charts, tables and tools used in the processes. None of the material is meant to be a blueprint for future projects. The team of GRWSSP, however, would like to present this to the reader as a reflexion of the rich experiences we had during the past three years, which we wish to share and of which we hope will support others in their efforts to reach more sustainable development in the sector.

René van Lieshout
Team Leader
GRWSSP

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Executive Summary

Introduction

The Ghogha Regional Water Supply and Sanitation Project is part of the third generation of water supply and sanitation projects carried out in the context of Indo-Dutch Rural Water Supply and Sanitation Programme. The lessons learnt during the first and second-generation projects have provided a basis for this project. The project wishes to set an example of sustainability in the water supply sector, through increased decentralization and user involvement. The project aims principally at creating facilities by development and application of a concept and methodologies for community owned, operated and maintained water supply and sanitation systems, along with personal and environmental hygiene to maximize impact. The project also aims to help internalize the concepts and methodologies through capacity development of the government and local bodies. The main intervention area is water supply, by using the potential available ground water resource. Secondly all the villages would eventually be connected to a piped water supply scheme – the Mahi pipeline scheme, once it reaches the project area.

The project envisages providing safe drinking water and sanitation systems through creation of facilities in about 80 villages of three talukas of Bhavnagar district. The area is characterized by hot summers, with an annual rainfall of 500mm, which falls during a period of 4 months only and is highly erratic. Community management in the project mainly deals with community participation in planning, location of facilities, village institution development, cost recovery for operation and maintenance, and a demand sensitive approach. It recognizes that men and women have different roles to play, benefit differently from development projects and more specifically, have different stakes in domestic use of water and household sanitation. Therefore the project has adopted a gendered approach while seeking solutions and in all activities.

Feasibility

The Shetrunji reservoir, located 25 km. to the West of the project area, was initially proposed as the source of drinking water for the 80 villages of the Ghogha Project and it was initially conceived as a regional piped water scheme. The possibility of sustained water supply from the Shetrunji reservoir was assessed and it was revealed that this source carried a risk of potential water shortage at intervals. The potential of ground water to be used as source of drinking water was therefore also assessed. The main conclusion from this assessment phase was that a large number of the villages could be provided with sustainable water supply from a local source, during a period of 8 - 10 months. However aspects like well siting, water resource management to complement the existing source and optimum utilization play a crucial role. The well development programme conducted later revealed that only one third project villages could be supported all year round by a local source on a sustainable basis.

The final outcome of the feasibility study, which compared various technical options, combined with the results of the well development programme was multiple sourcing, which means a combination of individual village based schemes based on local sources, to be complemented with a connection to the Mahi-pipeline project, which provides water from external sources. It was also decided to include an additional Water Resource Management (WRM) programme to make the local sources more sustainable.

A demand assessment study done in the inception phase helped to establish the willingness to pay for improved water supply systems. The maximum willingness to pay for improved service levels was Rs. 6/- per person per month.

Implementation

Once the source was established the pre-implementation phase began, which helped develop the ground for the actual implementation, by way of generating data, rapport building with the communities, decision on strategies, selection of pilot villages, selection of implementing partners and finalizing the operational plan. The primary information about the villages, regarding the water supply facilities, population, hygiene and sanitation status, existence of

village level institutions etc. was a result of a rapid village survey done in all the villages of the project area. Operational strategies like the Immediate Relief Assistance were conceived to address the immediate drinking water requirements of the population.

Community participation

The project believes that community participation and management holds the key to sustainability of water supply projects. Communities have been closely involved in every stage of implementation of the activities. The focus of the approach has been to ensure that the community is capable of carrying out management functions like mobilizing local resources, negotiating with external agencies, monitoring constructions, conflict resolution, operation and maintenance and monitoring the performance of the WS system, financial administration etc. without or with limited external assistance. Community participation will lead to not only enhancing a sense of ownership but increased responsibility on the part of the community. *Pani Samitis* are formed to provide a vehicle for the community to participate fully in the project activities. These *pani samitis* have indicated their readiness to even participate in construction activities as well. Women's priorities and needs are given special consideration to ensure that the benefits reach the most affected target group. People's involvement has ensured that the project is well understood, accepted, and increased the chances of efficient utilization of the system.

Hygiene promotion

The hygiene promotion programme aims at changing some key hygiene behaviours in the community and to promote safe hygiene practices. The strategy of the hygiene promotion programme focuses on increased awareness amongst the target groups, capacity building of the implementing partners and the community organization and networking. Training given to ISAs (Implementing Support Agencies) on hygiene promotion succeeded in developing their capacity in planning, implementing and monitoring the programme and integrating hygiene promotion activities with other components of the project. At present the programme is being implemented in 40 project villages. Schoolteachers, anganwadi workers, and local CBOs are closely involved in the programme. In general there is an improved understanding of the relationship between water and health.

Sanitation

The sanitation programme focuses on promoting safe excreta disposal mechanisms and improvement of communal sanitary conditions. The strategy for sanitation has been awareness building on the sanitation aspects and technology options available, capacity building of community members and ISAs, and demonstration. Demonstrations have been carried out on improved drainage around water points, soak pits, composting technique and wastewater treatment through root zone technology. ISA's have gained field experience through these pilots and the demonstration. The options on environmental sanitation improvement that were piloted were mainly in the field of improved wastewater and solid waste disposal, as demanded by villagers. In parts of the project area demand for appropriate wastewater disposal was even higher than for improved water supply.

Water supply

The strategy for the pilot intervention in the project area includes the improvement of water supply systems based on a sustainable and suitable local water source and supplying water from the Narmada based Mahi pipeline as a complementary source. The project has so far concentrated on the 'in village water supply and sanitation facilities'.

The piped supply of water through stand posts, wash facilities and cattle troughs is taken up as a suitable technology for most of the villages for the distribution of water. Siting of village-based facilities are done by the local people. Thereafter these are verified by the project engineering team of the Gujarat Water Supply & Sewerage Board (GWSSB). After the designing of the scheme, they are shared with the community, along with the estimates of the Operation and Maintenance. After the community collects the first six months' O&M cost, tenders are floated, for the construction. Mostly these are contracted to an external

contractor for construction. Meanwhile a number of software activities are undertaken in the village, including institution building. These interrelated activities under the village based programme lead to the final handing over of the water supply system to the communities, for their management. Communities are trained on construction aspects to ensure that they take initiative in monitoring the construction activities.

Learnings

The project has definitely been a good learning ground for all partners. The attempt to incorporate different ideas, test methodologies and techniques, have led to developing better understanding of the linkages of the ground realities, with the theories and assumptions on which such projects may be based. The project has developed a number of implementing strategies and methodologies to realize its objectives. One major learning that we derived was that if the project is to be really demand responsive, then the project should be designed to be flexible enough to meet the developments in the field. Once the demand for certain interventions has been created, the mechanisms to meet this demand should be in place. This is where the major difficulties have occurred.

The uncertainties the project had to deal with at the initial stages regarding the source of supply, the delay in joining of the engineering staff, lack of office space, less than desired result of the drilling programme, all had a cascading effect on the programme. But many of these setbacks were mere symptoms of a more fundamental problem. The main implementing agency and owner of the Ghogha Project, the GWSSB, only reluctantly accepted the guiding principles of the project and never developed the level of ownership and vigor required for implementing this innovative project successfully. The GWSSB is still predominantly a supply oriented engineering institute, which provides technology instead of services, relies on centralised planning and is strongly bound by inflexible hierarchies and procedures. It has therefore been recognized that such an institute is not the most suitable for carrying out projects like the Ghogha Project. Such projects need a facilitator, which supports the decentralised approach, finds ways in administrative procedures that encourage innovations and is primarily interested in the realized services that have reached the communities. The Department of Water Supply has therefore decided to transfer the project to a newly created organization, the Water And Sanitation Management Organization (WASMO), whose main role will be to facilitate the villages in improving the water and sanitation situation by the villages themselves. WASMO will coexist with GWSSB and the Gujarat State Drinking Water Infrastructure Company (GSDWICL) as one of the three actors in the drinking water sector of Gujarat. The latter two will focus more on the efficient implementation of transport infrastructure for water supply in Gujarat.

Under WASMO, the Ghogha Project will enter a new phase. The phase during which most of the interventions will have to be realized and the value of the developed approach, strategy and methodologies will be tested. In the same way will it be a test case for WASMO, to see if it can create the enabling environment in which initiatives as the Ghogha Project can flourish.

Section: 1

1.1 Introduction

This section gives an overview of the project and its aims and objectives. The section further briefs about the various partners involved in the project, while highlighting their role in the project. While establishing the context and setting of Ghogha Regional Water Supply and Sanitation Project (GRWSSP), this section also introduces the approach and *strategies adopted by the project*. This is an introductory section where an attempt has been made to briefly introduce the project to the reader, while more elaborate references follow in the following sections.

GON sector policies promote:

integration (resource management, water supply, sanitation and solid waste) demand driven, sustainable and effective, community owned, operated and managed sector development.

1.2 The Project

In 1994, the Ghogha area in Bhavnagar District was proposed by the Gujarat Water Supply and Sewerage Board (GWSSB) as a new water supply project for funding by the Government of the Netherlands (GON) with the prime aim of increasing the water quantity and resolve the water quality problems in 79 villages located in the Bhavnagar, Ghogha and Talaja talukas through the construction of a comprehensive regional piped water supply system to be fed from the Shetrunji reservoir.

Over the years the project aims gradually evolved from the Shetrunji comprehensive regional piped water supply construction project to a community owned, operated and maintained water supply and sanitation project with an emphasis on sustainability aspects.

The Ghogha Regional Water Supply and Sanitation Project now aims principally, apart from creating the facilities, at the development and application of a concept and methodologies for community owned, operated and maintained (cost sharing) water supply and environmental sanitation systems accompanied by personal and environmental hygiene to achieve maximum impact.

A secondary aim of the project is to internalise the concepts and methodologies through capacity development in social and engineering skills, administrative and financial procedures and also legal provisions in the Bhavnagar District (GWSSB and Gram Panchayats) and indeed in Gujarat (GWSSB through a/o the Jal Seva Training Institute (GJI).

Lastly, the project is to provide the GOI (RGWSSM) with a valuable experience in the setting up of sustainable and cost sharing community owned, operated and maintained water supply and environmental sanitation systems.

In the beginning of the year 2000 the Community Management Support Unit (CMSU) at Gandhinagar was created within the framework of GRWSSP. Therefore the GRWSSP consists at present of two sub-projects. One is the Ghogha Project, a pilot project in the field (Bhavnagar district), where implementing methodologies for a new demand-responsive approach for Rural Water Supply & Sanitation (RWSS) are developed and implemented. The second is the Community Management Support Unit (CMSU), which has the objective to disseminate the lessons learnt and methodologies developed in the pilot Ghogha Project to other areas in the State of Gujarat. CMSU therefore develops necessary tools for the implementation of the new approach: policies, trainings, communication and monitoring. The two sub-projects are strongly interlinked: CMSU without the pilot project in Bhavnagar, would be not much more than another advisory body within the GWSSB and would lack a ground to develop necessary tools; the Ghogha Project without CMSU would be an isolated effort and would have little chance to spread its findings and have a lasting impact on the Water Supply and Sanitation (WSS) sector in Gujarat.

1.3 Context

The GRWSSP is part of the third generation of Water Supply and Sanitation projects carried out in the context of Indo-Dutch Rural Water Supply and Sanitation programme. The lessons learnt during the execution of the first and second generation projects have provided a basis for this project.

Since 1995 the Government of India (GOI), and more specifically the Rajiv Gandhi Water Supply and Sanitation Mission (RGWSSM), and the GON have been increasingly emphasising the importance of sustainability in rural water supply and sanitation through decentralisation and user involvement as well as cost sharing on the one hand and on the other hand, increasing the effectiveness of the sector by paying more attention to sanitation and hygiene.

The Ghogha RWSS Project was selected on the basis of a priority ranking; following certain criteria that helped the formulation missions to arrive at priority rankings of various schemes under consideration. Following are the criteria applied during the selection of Ghogha RWSS Project:

- ◆ acuteness of drinking water shortage and frequency of water-borne diseases related to water quality;

The GWSSB and GOG are generally target and coverage oriented. There is also a heavy expenditure on the large-scale relief water supply during the summer months, mostly through costly tankers supply.

The GON supports methodology and capacity development activities for community managed water supply and sanitation activities, combined with hygiene promotion through pilot and demonstration activities.

- ❖ relatively high percentage of the population in the project area living below the poverty line;
- ❖ assessed high community interest in improving water supply and sanitation and willingness, at the household and panchayat-levels, to contribute to the operation and maintenance costs;
- ❖ low present value of the investment, operation and maintenance costs per capita.

The priority ranking was carried out on the basis of a multi-criteria analysis which also had been applied earlier in 1985 for selection of the second generation projects.

Significant developments in the Water Supply and Sanitation (WSS) sector took place since the start of GRWSSP in November 1997. The activities and evolution of the project should be placed in the wider perspective of the sector to assess the importance and potential for contribution of GRWSSP to these sector developments.

The first is that the Government of Gujarat (GOG) has recognised that management of the scarce resource water will be the main issue for the future in the sector. The failure of the monsoon in 1999, the continuing battle over the height of the Narmada dam and the related uncertainty when Narmada waters may be available for drought prone areas of Gujarat and the increasing pressure from civil society to shift the attention towards water conservation have put water management on top of the agenda of the GOG.

A second important development is the fact that GOG recognises that water no longer can be regarded as a free social service to be provided by the government. At the 'Lessons learnt in water sector' workshop (April 2000) both ministers of Water Supply underlined the principle of water to be regarded as economic good and therefore users will have to pay for it.

A third, not less important, development is the recognition of the GOG that Gujarat has not been doing well in development of the poorer sections of the society in spite of its relatively strong economic development. Therefore GOG has decided that it will develop a Vision and Strategy for the water sector, which will put the demands and needs of the population at the center. Almost parallel to this initiative it was decided during the drought mission, fielded by the United Nations (UN) in the last week of May 2000, that a White Paper for the water sector will be developed. This paper was to be ready by January 2001.

The GRWSSP reflects an integrated approach developed during the first and second generation projects; however, it has been envisaged that the present project needs to combine water supply with sanitary facilities at the village level. The approach will facilitate a transformation from a technically oriented water supply project into a comprehensive programme; in which the supply of potable water is integrated with socio-economic, institutional and health-related aspects. The overall approach of the project, as designed, is in the context of the overall policies of the Government of Gujarat in rural and urban water supply and sanitation.

1.4 The Project Area

The Ghogha project area measures 614 km² for the 80¹ project panchayats which lie along the coast of the Gulf of Cambay, between Bhavnagar and Ghogha and hills in the North West. The Project area is just above sea level, and lies between the coast (0 m) and the hills just west of the project area which go up to 300 m.

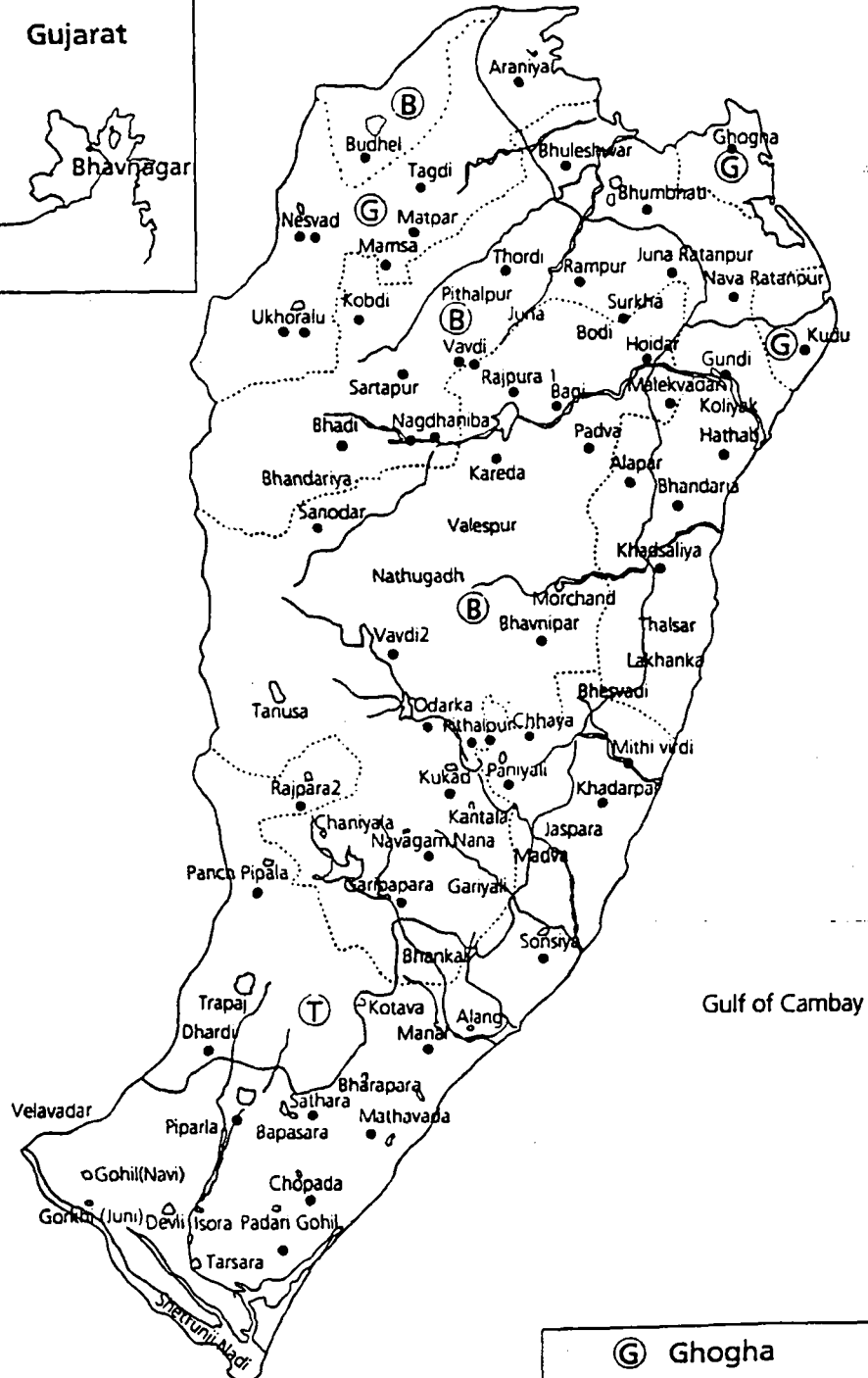
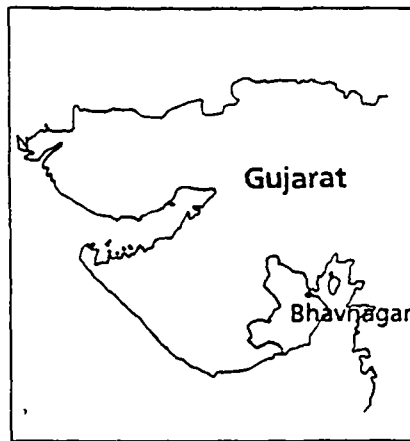
The project area has a tropical climate with four seasons in the year. The hot season with temperatures well above 40° Celsius is from March to May, the monsoon is from June to September, the post monsoon is during October and November and the cold

season is from December to February. Average rainfall in the project area is approximately 500 mm/year, which falls during the monsoon season, from June to September. The dry season stretches from October till May (8 months).

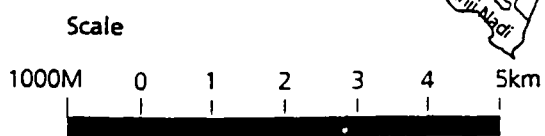
The population in the project area was 167,747 per 1991 census and is projected to grow to 214,730 by 2002 AD. The project area includes the Talukas Bhavnagar, Ghogha and Talaja. Some 30 of the villages have a population between 1000-2000 people, 16 a population

¹ Manar panchayat was accidentally omitted in the listing of Panchayats in the 1995 PRODOC, though it is in the middle of the project area. Including Manar raises the total from 79 to 80 panchayats.

Project area of Ghogha Regional Water Supply and Sanitation Project



Gulf of Cambay



- Ⓒ Ghogha
- Ⓓ Talaja
- Ⓑ Bhavnagar

Taluka wise distribution of villages in project area _____

Ghogha	Bhavnagar	Talaja
1. Avania	1. Alapar	1. Alang
2. Badi	2. Bhadbhadiya	2. Bapada
3. Bhankal	3. Bhadi	3. Bharapara
4. Bhavanipara	4. Bhandariya	4. Chopda
5. Chaniyala	5. Bhumbhali	5. Devli
6. Chhaya	6. Bhuteshwar	6. Dhardi
7. Garibpara	7. Budhel	7. Gorkhi
8. Ghogha	8. Gundi	8. Ishora
9. Goriali	9. Hathab	9. Jaspara
10. Hoidad	10. Juna Ratanpar	10. Kathava
11. Kantala	11. Khadsaliya	11. Khadadpar
12. Kareda	12. Kobdi	12. Mandva
13. Kuda	13. Koliyak	13. Mathavada
14. Kukad	14. Lakhanka	14. Mithi Viridi
15. Malekvadar	15. Nagdhaniba	15. Padri-Gohil
16. Malpara	16. Nava Ratanpar	16. Panchpipala
17. Mamsa	17. Pithalpur	17. Paniyali
18. Morchand	18. Rampar	18. Piparla
19. Nathugadh	19. Sartanpar	19. Rajpara-2
20. Navagamnana	20. Surka	20. Sathara
21. Nesvad	21. Thalsar	21. Soshiya
22. Odarka	22. Thordi	22. Tarasara
23. Padva	23. Vavdi	23. Trapaj
24. Pithalpur		24. Velavadar
25. Rajpara		
26. Sanodar		
27. Sarvadar		
28. Tagdi		
29. Tansa		
30. Ukharla		
31. Valespur (Kareda)		
32. Vavdi		

between 500-1000, another 16 between 2000 and 3000. 4 villages below 500 people and 15 above 3000 people.

People, predominantly Hindus, live in caste groups; less than 5% belongs to scheduled castes (SC). The literacy rate varies between the Talukas and averages at 20 % for women and 45% for men.

The dominant political party is since the last years the BJP; for many years it was Congress. Political affiliations are often divided along caste lines. Recent elections in September 2000 showed a major shift back to Congress.

Women have a domestic role, and are not expected to perform public functions. Purdah, the practise that women are not allowed outside the house, is practised in the region. GOG now actively promotes more gender balance e.g. in education, public positions, etc.

About 40 % of the households are engaged in agriculture (average holdings around 3 acres), 20 % as agricultural labour, 17 % in diamond cutting and some 16 % caste based jobs mainly, artisan works. Many households keep animals such as buffaloes and sheep for which women are responsible.

Villages have a built-up nucleus. The built up area is divided in caste based sections. Water supply is typically better in the better off sections of the village. Some 40-60% of the households live in thatched mud houses, up to 30 % in semi permanent houses and only up to 15 % in brick houses.

The average income is Rs 2,500 per month, though 75 % of the population earn less than that, and about 25 % earn even less than Rs 1,000/month. Abject poverty is not found in the project area.

Almost all villages are accessible by all weather roads. The public transport system is relatively well developed. All villages have a primary school and access to secondary education. And all villages have electricity, though only 6-8 hours per day.

There are three Primary Health Centres (PHCs) and 35 sub-Centres. There are regular vaccination campaigns e.g. polio etc. Hospitals and doctors are frequently visited. There is paucity in data and statistics about morbidity also in relation to water supply. A rapid survey in 9 villages revealed numerous incidences of malaria and skin diseases, 3 villages reported diarrhoea and one village mentioned cholera (this is not confirmed by Ministry of Health (MOH) statistics). Disinfection of water in the wells or water stored at home (chlorination) is not common in the project area.

Personal hygiene is low; in many villages people (particularly men) do not bath regularly, and handwashing after defecation is not common. Only 3 % of the households avail of a latrine, but latrine use may be even lower to negligible.

1.5 Water Resources

The project area records an average rainfall of some 500 mm/year, 90 % of it falling during the monsoon. Rainfall data are found in Annex 1.

The Shetrunji river is the major, though seasonal, river in the area. From the Shetrunji reservoir which releases water to a command area of 220 km² water releases have been highly erratic during recent years.

Some 12 % of the run off infiltrates underground and joins the water body. Groundwater of generally good quality is mainly found in the hardrock Deccan Trap formations with water tables 10 to 25 m. below ground level (bgl). The shallow groundwater in the sedimentary/alluvial formations (2 -10 m. bgl) is often limited and seasonal.

Despite heavy withdrawal of groundwater for irrigation and domestic purposes, which leads to considerable decline in the groundwater level, a water balance study concluded that most of the villages in the project area can be provided with a sustainable water supply from a local source, provided measures to augment the groundwater recharge and optimum utilisation are achieved.

1.6 Water Supply

The pre-project situation can be described as follows.

The project area avails of numerous water supply systems (see Annex 2a). Virtually all villages have open dug wells, over 60 % have a pond, 60 % have access to an irrigation canal or river, 78 % of the villages have handpumps (private, panchayat or GWSSB). Of the total 2250 handpumps some 60-75 % are working. And 52 (out of 80) villages have a piped water supply system of which there are 45 Individual Village Schemes (IVS) and 7 villages (Ghogha town and neighbouring villages) are served by a regional scheme. 22 of the IVS systems are defunct or partially functional, and the Regional Ghogha scheme is functioning poorly. Many taps of the Public Water Systems have been broken off deliberately to get a higher flow of water.

Many of the above mentioned water supplies are seasonal, necessitating the GWSSB to provide water to 40 % of the villages by tankers during part of the dry season, which is estimated to cost GOG Rs. 10 million annually¹.

The hydrogeological condition of the project area is described in an annexe 2b.

GROUNDWATER POTENTIAL PER VILLAGE

After extensive hydrogeological investigations and an intensive drilling programme in which more than 220 boreholes were drilled, the following potential for groundwater use was estimated. Both quality and quantity are taken into account:

- ◆ 23 villages can be supplied with 55 lpcd in 2017 from a local groundwater source (28%).
- ◆ 30 villages can be supplied with 15 lpcd in 2010 from a local groundwater source (37%).
- ◆ 16 villages have potential to be supplied from a local groundwater source on the condition that water resource management prevents overexploitation of the aquifer (19%).
- ◆ 13 villages can not be supplied from a local groundwater source (16%).

These figures represent the situation during most of the year; some villages have less or no water during the pre-monsoon period due to seasonal fluctuations. If these villages are left out the figures become approximately 20% (55lpcd in 2017) and 24% (15lpcd in 2010).



A common scene in most villages of the project area

¹ Keddeman (1999) *Financial and Economic Feasibility Study*, Ghogha Regional Water Supply and Sanitation Project, Gujarat. The pre-project situation can be described as follows.

1.7 Sanitation and solid waste

Unsanitary conditions prevail in the villages and the houses in the project area. The unsanitary conditions are a result of the coexistence of people and animals, the general practice of open defecation, depositing of grey waste water in pits outside the houses, manuring of solid waste often near the water supplies, lack of proper ventilation and hygiene inside the houses etc.

1.8 Institutions - Project

Water supply development is primarily the responsibility of the GWSSB, which was established in 1978 by an Act. The GWSSB is also responsible for the maintenance of handpumps (HPs) and comprehensive regional water supply systems (more than one village), but not for the upkeep of the Individual Village Schemes (IVSs) of which there are 45 in the Project area. The IVSs are to be maintained by the Panchayats.

Panchayats came into existence in the 1920, and in 1943 the Bhavnagar State Village Panchayat Act was enacted, allowing villages to voluntarily form panchayats. Since that time several additional Acts have been passed strengthening the competencies of the panchayats. The 73rd amendment of the Indian Constitution of 1993 provides for the formation of functional committees for various sectors (including water supply, sanitation and health) as well as levying special taxes e.g. for water supply.

The Gram Panchayats are responsible for public sanitation aspects such as latrines, waste dumps and hygiene campaigns. GWSSB is not involved in these activities. The GPs face limitations in their manpower and their budgets, and are not able to recruit support for these issues.

1.8.1 GWSSB

The GWSSB, headed by the Member Secretary, is the Implementing Authority of the project and the nodal agency. GWSSB is responsible for the implementation and administration of the project, and for the proper reporting. The GWSSB delegated the responsibility for daily implementation of the Bhavnagar activities to the EE of the Netherlands Assisted Project Unit (NAPU), which shares its office with the Consultants. Together they form the PSIU (Project Support and Implementation Unit).

There is a Project Co-ordinator for GWSSB at Gandhinagar primarily responsible for liaison between the PSIU and the Member Secretary of GWSSB, the Secretary W&S and the RNE.

The Mechanical Division of the GWSSB is responsible for the drilling of wells, and has a hydro - geologist. Yield testing equipment is hardly available to the GWSSB; yield tests are carried out by drillers who carry out a pump test measuring the flow using a V-notch. This method provides an indication of the yield, but does not allow for the measurement of 'safe yields'.

The GWSSB/Bhavnagar laboratory can conduct chemical analyses of the drilled boreholes. The accuracy of the analyses is not known.

Although GOG has set a rate of 14 Rs/pp per year for O&M of regional piped water supplies, these rates are not actually collected. Instead, GOG annually provides a subsidy of Rs 15,000 to each Gram Panchayat as a contribution towards minor repairs of the water supply systems.

1.8.2 GON/RNE

The Royal Netherlands Embassy (RNE) in India is the Executive Authority on behalf of the Government of the Netherlands and represents the donor agency.

RNE releases funds upon the submission of claims, after satisfactory verification.

1.8.3 PSIU

The project implementation organisation (PSIU) consists of NAPU and Consultants.

NAPU reports to the SE Bhavnagar, Consultants report to the Team Leader who is based at CMSU in Gandhinagar.

The PSIU is responsible for the development and pilot implementation of the village based concept and its methodologies. The PSIU also keeps the CMSU in Gandhinagar informed about progress and bottlenecks.

1.8.4 CMSU

The CMSU was set up in Gandhinagar on 1st January 2000 with the following objectives:

- ❖ Plan, prepare and promote the further dissemination and replication of the developed concepts throughout the state
- ❖ Contribute to the institutional and capacity development of the GWSSB and NGOs for application of the developed methodologies.
- ❖ Support the GRWSSP and other pilot activities such as the Sector Reform Programme.

The involvement of the communities in drinking water supply and sanitation programmes is critical to long term sustain ability of these systems.

1.8.5 Pani Samiti

Pani Samitis are established at Panchayat level as functional committees under the Gram Panchayat which will have the responsibility for planning and implementing the project activities at village level, supported by the ISAs and PSIU.

1.8.6 Implementing Support Agencies

The ISAs (NGOs) will be responsible above all for initiating, co-ordinating and organising the activities at village level. They will be formally responsible to the PSIU. Each ISA will have a liaison officer with the PSIU. The ISAs are initially contracted by the Consultants (till January 2001).

1.8.7 The Contractor

The water supply systems are constructed by a contractor who is selected through a tendering process. Contracting, monitoring and supervision of the Contractor is carried out by the NAPU.

1.8.8 Coordinating committees

Two coordination committees, were planned, one at Bhavnagar for the pilot intervention, and a State level committee at Gandhinagar. Until date the committees have not been operationalised.

For the Organisational chart of the project, please refer to annexe 3.

1.9 Institutions - Non Project

1.9.1 GWRDC

The Groundwater Resources Development Corporation (GWRDC) is responsible for groundwater development and maintains a groundwater data system. The GWRDC did not make data available to the project.

1.9.2 MOH

The Ministry of Health is responsible for checking water quality, though GWSSB has a laboratory in Gandhinagar and in Bhavnagar to conduct water quality analyses. The accuracy of the analyses nor the testing frequency are known. The UNICEF biles to test rural water supplies on faecal contamination are not known nor used in Bhavnagar (except for the project area).

1.9.3 Gram Panchayats

The Gram Panchayats are responsible for public sanitation aspects such as latrines, waste dumps and hygiene campaigns. GWSSB is not involved in these activities. The GPs face limitations in their manpower and their budgets, and are not able to recruit support for these issues. Some panchayat funds are made available for latrine construction programmes. Also some NGOs are involved in latrine promotion, training and construction programmes

OBJECTIVES AND OUTPUTS

The general development objectives for the project are:

- ❖ Improved living conditions of the population through the development and implementation of village based methodologies for demand driven water supply and sanitation improvement in the project area, thus contributing to reduction in water and excreta-related diseases;
- ❖ Effective use and replication of the project approaches and methodologies in other projects in Gujarat through capacity development in the implementing agencies.

Specific objectives:

More specifically the project:

- ❖ Aims at the development of Panchayat owned and managed water supply and environmental sanitation systems through the set up of proper and sustainable (including cost sharing) systems and care for O&M of the systems.
- ❖ Can be considered experimental and will be carried out through PSIU, which is staffed with GWSSB employees assisted by external and the community based local consultants. The implementation of the technical construction and social activities will be largely carried out by respectively contractors and NGOs.
- ❖ Will develop and apply methodologies for village based development and upkeep, the methodologies which will be internalised into GWSSB/Bhavnagar and local Gram Panchayat organisations/institutions.
- ❖ Assist GWSSB with preparations to train field staff and plan for further dissemination of the concept and methodologies to other districts.

General outputs of the project are:

The activities which have to generate the anticipated outputs are derived from the specific objectives of the project. It should be noted that in a process approach new concept activities may have to be added and others skipped as experiences develop and lessons are learnt

- ❖ Safe and reliable water supply for all at convenient distances.
- ❖ Operational community-based O&M including adequate cost recovery for O&M and effective community institutions.
- ❖ Improvements of safe disposal of human excreta including, where there is a demand, increase in household latrine coverage.
- ❖ Improved communal sanitary conditions, particularly with respect to waste water and solid waste disposal.
- ❖ Improved key personal and household hygiene practices specifically related to the use of water.
- ❖ Community involvement and management through the strengthening or development of local institutions such as Pani Samitis and working through existing institutions such as Panchayat, education, health services, CBOs and NGOs.
- ❖ Improved management of all water resources in the project area at village level
- ❖ Capacity in GWSSB (technical, social, management) to facilitate and support the preparations, implementation and monitoring/O&M support of the community based water supply systems.
- ❖ Internalisation of methodologies and dissemination (district wise) plan for community based village water supply development in Gujarat.

1.10 Key Project Strategies

1.10.1 Institutional

The Pani Samiti is seen as the key organisation to guarantee the sustainability of the project efforts. After the project has withdrawn, the Pani Samiti is the sole institute that will continue to manage the facilities and sustain the environmental awareness. The main implementing project organisation is NAPU (GWSSB) assisted by the consultants. PSIU contracts NGOs to mobilise the villages and facilitate their participation in the project. The project works on the assumption that on the way of project implementation the GWSSB will be oriented towards the new approach and will grow into its new role. This new role will be more of a facilitator than implementor. The project is a pilot for testing these changes and the ability of GWSSB to incorporate new approaches and methodologies in its existing systems and procedures.

1.10.2 Technological

The prime area of intervention of the project is Water Supply. The main concern of the project is the source for the supply of water for domestic use. This has led to the choice of applying parallel strategies. First, optimal use will be made of existing facilities and available local (ground)water sources. Second, all villages will have a piped water supply scheme and will be connected to the Mahi-pipeline when this scheme will reach the project area. The project will also integrate the concept of Water Resource Management in the project cycle, where the micro-watershed is the entity and issues as landuse and water allocation are taken up.

For Environmental Sanitation, the following principles are applied:

- ◆ technology must be understandable and physically within the capability of the people responsible for operation and maintenance;
- ◆ affordability in operation and maintenance;
- ◆ the technology or service level has to be attractive and culturally acceptable to the users.

1.10.3 Communication

The communication strategy adopted in the project includes training, advocacy, networking, documentation and mutual transfer of information. It is felt that because of the innovative approach of the project, there is a great scope of experiential learning, which has to be developed upon and shared. Communication materials are prepared as a part of all components for different target groups of the project to strengthen learning.

1.11 The Approach: Some Basic Elements

1.11.1 Integrated approach

From the onset of the GRWSSP the integration of water supply and sanitation with attention to hygiene promotion was foreseen. After the inception phase it was decided to built in water resource management in the project cycle as well.

1.11.2 Community management

Community management in the Ghogha Project means at present:

- ❖ Demand-driven approach
- ❖ Community participation in planning and implementation
- ❖ Village- based O&M
- ❖ Cost recovery for O&M

The development of community ownership and management was expected to require more time than otherwise usually taken for constructions of systems

The level of involvement in management by the community is dependent on the capacity at the local level and on the organisational framework of the project. The Ghogha Project is centrally planned and has started within the traditional framework of an average GWSSB project. Up till date the village has no financial power, is not responsible (or a partner) in tendering procedures and the technology for the WS (piped scheme with standposts) is prescribed. On the other hand, the villages does appraise their own situation, do make a planning for the project and put priorities, do monitoring of construction, have collected fees for O&M and organise themselves in Pani Samitis.

1.11.3 Diversification of technology

The project gives a lot of attention to applying the most appropriate technology for a certain situation. For the water supply systems an important compromise was agreed upon: each project village should have a piped water supply system with standposts in order that it can be connected to a Regional Scheme whenever desired. The main reason is the unreliability of the local sources. For the water supply schemes the project follows the standard designs of GWSSB and makes changes to these designs whenever desirable and possible.

The project has started the implementation of simple drainage systems as soakpits, but at the same time prepares designs for underground drainage and biological waste water treatment at request of some villages. Different types of faeces disposal mechanisms are evaluated for their suitability in the local conditions: pollution of aquifer, water availability and costs.

With regard to environmental sanitation the project looks into the potential of composting of cow dung and other organic material.

The activities under water resource management do include physical works like check dams, but also water quality monitoring, aquifer protection measures, etc.

What is emerging from the Ghogha Project is a range of different techniques, which all can contribute to a more sustainable environment. The principal that is followed is that each activity should be in harmony with the (human) environment. This means that at this stage of the project less attention is paid to standardisation, which should be taken up at the next stage after the technologies have proven their validity.

1.11.4 Gender mainstreaming

A gendered approach is essential because men and women have different stakes in domestic uses of water and household sanitation. Women have the main responsibility for water and sanitation in and around the house. In looking for solutions, a gendered approach means keeping in mind the different roles played by men and women. Men and women have been treated as a differentiated target group to make the programme successful. The project has the strategy to mainstream gender in all project activities. The focus has been on increasing the active participation of women in village institutions, meetings and training programmes and increasing the awareness among men about gender aspects. The project so far has no explicit gender policy or separate gender budgetline.

1.11 5 Financial viability

The project follows the principal that O&M of water supply systems should be covered for 100% by the community where the capital costs are covered by the project. The levels of village contribution for water resource management and environmental sanitation activities do vary, but in general try to follow existing guidelines of the government.

At present the first Pani Samitis (PS) have opened separate bank accounts and the process of collection of O&M moneys has started. The PS are trained in keeping accounts and maintaining an administrative system for the revenue collection and expenditures.

1.12 Methodology: Village Project Cycle _____

A village project cycle consists of four phases.

1.12.1 Feasibility phase

- ◆ Hydro-geological surveys and siting (hydro-geological, geo-electrical, geo-sounding/radar, satellite images)
- ◆ Drilling, logging and yield testing, water quality analysis and data system
- ◆ Baseline survey a/o village plan, demography, hygiene, household and environmental sanitation
- ◆ Focus Group Discussion a/o. health aspects (as part of Baseline Survey)
- ◆ Participatory Rural Appraisal (PRA)
- ◆ Village Action Plan (VAP) preparation
- ◆ Memorandum of Understanding (MoU) between village, NAPU and ISA

1.12.2 Surveying, design phase and tendering phase

- ◆ Survey and design of water supply, drainage and solid waste facilities with optimal participation
- ◆ Hygiene promotion and household and environmental sanitation activities
- ◆ Participatory community Public Stand Post (PSP) siting and designs according to population per tap
- ◆ Detailed designs, plan preparation
- ◆ Pani Samiti bylaws and empowerment/training programmes

1.12.3 Construction and commissioning phase

- ◆ Village participation in (supervision of) construction
- ◆ Participation with commissioning
- ◆ Preparation and agreement on detailed O&M plan and training programme for Pani samiti
- ◆ Implementation and monitoring of hygiene promotion and household and environmental sanitation programmes

1.12.4 O&M Phase

Out phasing of PSIU and ISAs and transfer of responsibilities to Pani Samiti:

- ◆ Sustainability orientation
- ◆ Monitoring of source performance (yields and quality) and technical performance of facilities
- ◆ O&M and management of facilities
- ◆ Training in resource mobilisation

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Section: 2

2.1 Introduction

This section acquaints the reader with the technical and financial feasibility studies that helped take decisions regarding few of the key strategies of the project like source selection, cost recovery, selection of NGOs etc. The various processes followed have been described in detail here. Many of the activities undertaken before implementation commenced, have also been highlighted. The reader here will develop an understanding of the methodologies followed in the project.

Various components like community participation, water supply, hygiene promotion, sanitation, institution building and water resource management, which form the mainstay of the project, have been described extensively. The methodologies adopted as a part of these, have been described to the extent possible, along with the activities and few experiences. Most of the arguments in the text and all other additional information have been supported with annexes. Isolated case studies would help reinforce the arguments made and experiences gained. This section also spells out the policies developed. These policies are mostly used as guidelines to undertake different activities in the field. The village cycle that gives an account of the processes followed in any village is an indication of carefully drawn out strategies based on varied field experience.

Many support missions have supported the project from time to time, to help develop implementation strategies and also strengthen the programme, periodically. These have been mostly reflected through annexes.

Other activities such as video documentation, development of IEC materials, monitoring and reporting systems and capacity building are also described.

2.2 Preparatory Studies

2.2.1 Introduction

A number of studies formed the basis of many decisions like the choice of water source; strategies for cost recovery, choice of technology etc.

During the Inception Phase of the Ghogha Project a number of studies and assessments were carried out to give a firm basis to the decision-making process of key aspects of the project as source selection, applied technology and cost recovery. During the appraisal of the project it was decided that the proposed option of the Shetrunji-reservoir as main source of water supply would be reviewed and compared with available alternatives. The project document also emphasizes the importance of community participation in order to achieve sustainability of the efforts. A Demand Assessment Study was carried out in the project area to enable the project to match the supply with the demand. The findings of the above mentioned studies are used by the Netherlands Economic Institute (NEI), which carried out an independent feasibility study on the different options suggested by the project.

2.2.2 Reliability study of the Shetrunji-reservoir

The project document of January 1995 for the Ghogha Scheme was formulated to supply water to villages through a piped system from the Shetrunji reservoir. To assess the possibility of sustained water supply from this source a study was carried out, the main findings of this study are:

- ❖ The Shetrunji dam was constructed in the year 1960-64 to retain surface water in a reservoir of capacity up to 81.5km³ that receives water from a catchment area of 4700km². The reservoir water was used for irrigation, industries and domestic supply. After closing of the industrial unit in 1990, the reservoir water is only used for irrigation and domestic uses. Over a period of more than 35 years, the capacity of reservoir has been reduced due to excess silt deposit. Moreover, insufficient and unreliable rainfall has limited its effective capacity to supply water.
- ❖ Presently the reservoir supplies about 12 Mm³ of water for irrigation against average approved demand of 119 Mm³. About 15Mm³ water is supplied for domestic uses to the cities/towns

Figure 1 Schematized cross-section over the Shetrunji dam

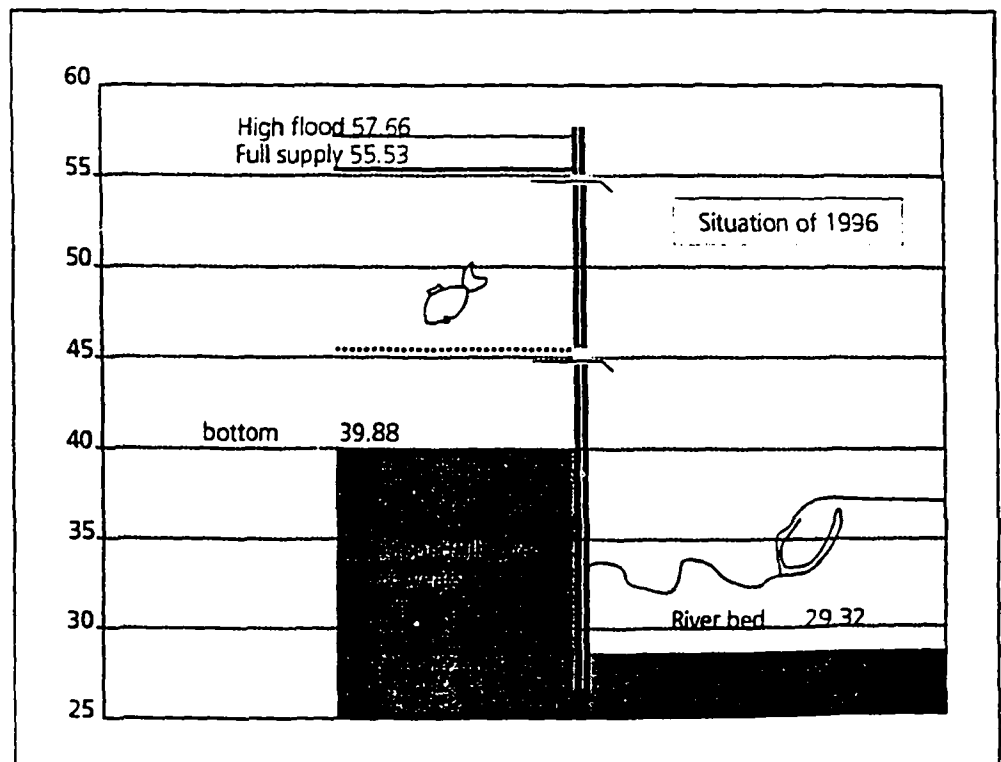
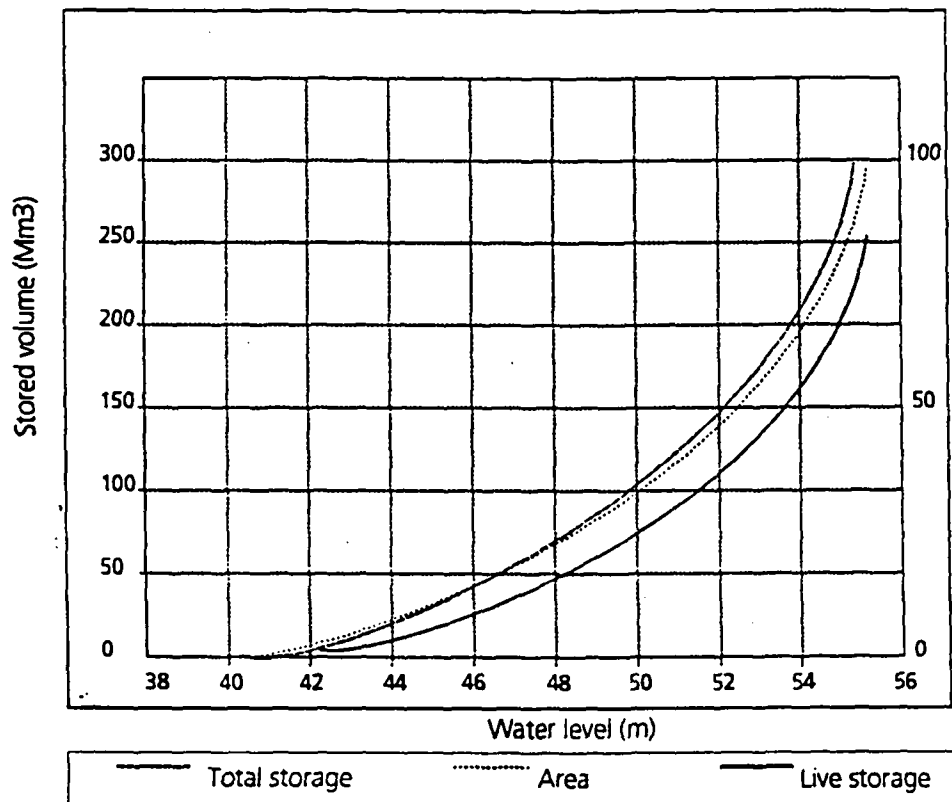


Figure 2 Level-area capacity curve for the Shetrunji reservoir



viz., Bhavnagar, Palitana and Talaja and villages of Palitana taluka. Moreover, there exists an additional demand of 30m^3 per day for Bhavnagar City. If the GRWSS project is to come in place without drawing from the dead storage, an additional live capacity of 15.4Mm^3 should be available.

- ❖ The study reveals water shortage will occur with an average 1 in 5 years recurrent interval, and in drier years, especially the 1 in 10 hydrological year and drier, shortage and even hampering of supply is inevitable. A similar conclusion by Dave and Dhami equally based on historical record states that the reservoir does not even have the required reliability for drinking water purpose due to poor carry over record. It is estimated that the risk of reservoir being unable to supply sufficient drinking water is about 5%.

A complete summary of the findings of this study can be found in Annex 43.

2.2.3 Groundwater potential assessment and development

The search for groundwater in the project area was undertaken in two phases. A first assessment phase to determine the availability of groundwater was carried out during three consecutive missions.

A comprehensive hydro geological survey was undertaken in the area, using satellite remote sensing techniques, well inventory and surface geophysical surveys. The well inventory covered all the 84 villages and water samples were tested from representative wells during February-March 1998. In all, 125 wells were inventoried in the project-area.

A water balance of the project-area was also worked out. Although this balance was only indicative because not all data were available, it was clearly brought out that the main inputs to the project-area are rainfall and canal water from the Shetrunji Reservoir. Rainfall below 500 mm per year and inadequate canal supplies lead to net overdraft from groundwater storage in the project-area. This situation occurs in most years, leading to a decline of the water table.

The main conclusion from this assessment phase was that most of the villages in the area can be provided with sustainable water supply from a local source. However, aspects like well siting, construction of water harvesting measures in order to augment the groundwater recharge and optimum utilization play a very important role. Furthermore, it is essential to ensure that the canal command area gets the required supplies from Shetrunji Left Bank Canal.

Well development

A second phase, the well development phase, was carried out after recommendations of the NEI mission and the submission of the Inception Report. Only by this second phase, which was mainly an intensive drilling and well-testing campaign a final assessment of the groundwater potential of the area could be made.

The objective of both fourth and fifth missions was to establish a clear view on the possibilities of groundwater for local drinking water supply. Therefore, most effort was put in finding local water sources through drilling campaign. The campaign primarily followed preliminary groundwater assessment that has taken place in earlier missions.

The drilling exercise has been supported with both pumping test and water quality test to ensure that the source(s) is/are suitable in long run to supply water to the growing population of the village. Since the groundwater was seen to be a scarce resource while carrying out both drilling campaign and pumping test, a second criterion has been used to see if the 'scarcity demand' of a village could be met. The scarcity demand is estimated taking a minimum consumption of 15 lpcd of water for the population in the year 2010. It has been concluded that for 53 of the 82 villages in the project area there are local possibilities for drinking water supply from groundwater. However, sufficient amount and sustainability of groundwater will not be available in all these 53 villages. The details of groundwater availability are summarized as follows:

- ❖ Sufficient good quality water (55 lpcd in 2017) for domestic uses can be made available to 22 villages.
- ❖ Less amount of water (15 lpcd in 2010) for drinking and other hygienic uses can be made available to 31 villages.
- ❖ In 13 villages in the project area there are no local possibilities for drinking water supply from groundwater.
- ❖ Another 16 villages have low local possibilities in the current situation but have potential from a local groundwater source on the condition that water resource management is taken up to prevent overexploitation of the aquifer.

The result of the well development phase was that the earlier findings were confirmed, mainly that not all villages could be supplied from local sources. However, this phase also revealed that estimates on water availability had to be less optimistic. This was due to the low rainfall preceding the well development programme. It was clearly revealed that local sources still could provide sustainable water supply in many cases, on the condition that proper water resource management would take place. Secondly there could no longer be any doubt that additional supply from a distance source like Narmada based pipeline was an absolute requirement.

Classification of villages according to water availability and quality

Classification	Groundwater quality	Taluka Villages
Good	Good	Bhavnagar: Gundi, Juna Ratanpar, Rampur, Koliyak, Lakhanka, Thalsar, Merkadi, Nagdhaniba
		Ghogha: Hoidad, Malekvadar, Badi, Chaniyala, Chhaya, Garibpura, Kareda, Kukad, Malpara, Odarka, Sanodar, Sarvadar, Valespur (Kareda), Bhankal
		Talaja: Bhainswari, Rajpara-2, Jaspara, Khadarpar,

Classification	Groundwater quality	Taluka Villages
Intermediate	Good	Manar, Mandva, Sosiya, Chopda, Padri-Gohil, Piparla, Sathara, Velavadar, Dhardi
		Bhavnagar: Bhumbali, Nava Ratanpar, Alapar, Hathab, Bhadi, Bhandariya, Budhel, Kobdi, Pithalpur (B), Sartanpur, Thordi, Vavdi (B)
		Ghogha: Goriali, Kantala, Mamsa, Morchand, Nathugadh, Navagam, Padva, Pithalpur (G), Rajpara, Tagdi, Tansa, Vavdi (G), Bhavanipara, Nesvad, Trambak, Ukharia
Poor	Saline	Talaja: Mithi Viridi, Panchpipla, Paniyali, Alang, Bharapara, Kathava, Mathavada, Bapada, Devli, Gorkhi Juni, Gorkhi Navi, Ishora, Trapaj Bhavnagar: Bhuteshwar, Surka, Bhadbhadiya, Khadsaliya
		Ghogha: Avania, Ghogha, Kuda
		Talaja: Tarasara

Final conclusion on groundwater potential in Ghogha Project area

The groundwater situation of the Ghogha area is not a healthy one. Many areas are affected by the results of overexploitation. It has a number of disadvantages:

- ❖ Increased groundwater level fluctuations making water supply from groundwater more expensive as dug wells and bore wells must be deepened.
- ❖ Seawater ingress causing the drinking water quality to decrease. In some coastal areas fresh water can no longer be found.
- ❖ Increased dependence on the rainfall of the previous monsoon only and thus reducing the sustainability of the drinking water supply from groundwater.

The disadvantage of reduced sustainability was shown during the year 1999: a drought situation occurred in the summer of 2000 although 1999 was only a 25%-dry year with average rainfall in the previous years.

These drought circumstances were mainly caused by a depletion of the available groundwater storage.

Details on all the first three missions of the groundwater potential assessment study are summarized in Annex 49 and the final results of the two well development missions are summarized in Annex 30 & 31.

2.2.4 Inventory of existing water supply

Concerning the drinking water situation in the project area, GWSSB observed that many traditional water points were out of order or the quality of water had deteriorated or groundwater had depleted. The future use of groundwater as source for domestic supply was considered, unreliable, as it is scarce, often of poor quality and not sustainable. The baseline/census survey undertaken in 1991, using strict definition for adequate water sources, classified a majority of villages in the project area as 'no source' villages¹.

To make a good assessment on the type of technical interventions needed and of the level the existing facilities still could be put in use, the project carried out a rapid survey in the area.

¹ The definition of no source village is based on the following criteria:

- ◆ absence of public well,
- ◆ public wells getting dry in summer and no alternative within 1km distance,
- ◆ distance to source in excess of 1km,
- ◆ availability less than 10 lpcd in summer, and
- ◆ depth of water in excess of 15 meters.

Increased extraction of groundwater for agriculture and low rainfall, have together contributed to a very poor ground water resource in the region, both in quantity and quality leading to a severe drought condition.

Students carried out a preliminary overview of existing supply of domestic water supply facilities in the villages in December 1997 and January 1998. The study revealed that the most important existing water supply sources in the project area are open dug wells and ponds. Tankers supply a number of villages in the dry season as local sources dry up. A summary table on the existing water supply condition in the project area is presented in Annex 2

These conclude:

- ❖ open dug wells are found in 99% of the villages;
- ❖ ponds are found in 62% of the villages;
- ❖ about 60% of the villages has access to a river or an irrigation canal (most of which are dry about half of the year);
- ❖ 57% of the villages are supplied with drinking water (15 lpcd only) during part of the dry season;
- ❖ a total of 2, 280 hand pumps are installed in 78% of the villages, 75% of the installed hand pumps are working;
- ❖ 79% of the privately owned hand pumps, 50% of the Panchayat owned hand pumps and 43% of the Water Board's hand pumps are working;
- ❖ a group village supply system operated by the GWSSB, supplying piped water to the villages of Rampur, Bhumbali, Surka, Hoidad, Ratanpur Juna, Ratanpur Nava and Ghogha town and a private piped system in Nagdhaniba; and
- ❖ roof-rain water harvesting is promoted in a few villages.

A rapid survey revealed that most of the villages were served by more than one source, which however in most cases were only partially functional.

The water levels of shallow open water supply wells are often affected by the high pumping rate of deeper irrigation wells. In the dry season a lot of drinking water wells run dry while nearby irrigation wells continue to supply water.

About 25% of the water supply facilities in the project area are not being used. The following reasons were identified:

- ◆ broken down and not repaired or not repairable,
- ◆ poor design (for example hydraulically);
- ◆ shortage of water due to drop of water table;
- ◆ poor water quality (high salinity or fluoride content or contaminated or dirty due to lack of maintenance);
- ◆ availability of new better source (better quality, quantity or shorter walking distance); and
- ◆ social problems such as water source used by higher caste groups are denied to lower caste groups.

As part of the groundwater potential assessment study water quality was tested in app. 125 wells as part of a well inventory study. It was observed that groundwater of good quality is mainly found in relatively small quantities near riverbeds and infiltration ponds. Elsewhere groundwater sometimes has fluoride contents (mainly between Ghogha and Binavnagar near the coast) and often shows high TDS values. Large quantities of groundwater with high chloride levels are pumped for irrigation purposes through out the project area. This overexploitation often causes coning up deep saline groundwater that threatens the already fragile drinking water abstraction from shallow wells.

2.2.5 Feasibility of piped water supply systems

This study was carried out to review the original design of the proposed Shetrunji-based scheme and look into the potential of a scheme based on the Mahi-irrigation scheme. At the time of the study the Saurashtra pipeline was not planned at the same scale as was done at a later stage. Therefore the costs of transporting water from the Mahi-pipeline were initially very high. When it became clear that this bulk water transport line would pass the project area the feasibility comparison of the different options changed. The main findings were:

Shetrunji based piped supply

The design was reviewed and improvements with regard to durability, security of supply, treatment efficiency and saving of energy cost were proposed. The revised design required

the same investment costs but could reduce the yearly O&M by 13%, mainly due to energy savings.

Mahi-based piped supply

The possibility of abstracting water for the Ghogha area from a 140 km long big diameter raw water transmission system from the Mahi irrigation system to the towns of Dhandhuka and Botad was investigated. Water for Ghogha would have to be abstracted under approx. 5 bar pressure from the DN 1,700 mm steel pipe at Barvala, which is situated halfway between Dhandhuka and Botad and about 70 km from the Ghogha project area. The abstracted water still needs to be treated in a treatment plant for the Ghogha scheme. This Mahi-based scheme for Ghogha could be compared to the Shetrunji based scheme by adding approximately 50 km transmission main.

The investment costs "downstream of Barvala" were estimated at Rs 695 million, which is 42% more than the Rs 490 million of the Shetrunji based scheme.

The summary of the findings is presented in Annex 44.

The North-East Ghogha piped supply system

The geohydrological investigation showed that the northeastern part of the project area has no possibilities for ground water exploration. Therefore the feasibility for a piped water supply system in the north-eastern project area, in which 19 villages are situated was assessed. The water source for the system is the Shetrunji reservoir. Water will be tapped from the second pipeline from Shetrunji to Bhavnagar, which the municipal water supply department of Bhavnagar is planning to construct in the near future.

Technically it is possible to supply the north-eastern part of the Ghogha area via the 2nd Shetrunji-Bhavnagar pipeline. However, financially this option is less attractive because of the 37% higher investment cost per m³ and 18% higher O&M cost per m³ compared to the Shetrunji based piped supply system for 79 villages.

A point of concern is the security of supply. The North-East Ghogha piped supply system depends on the water delivery by another department (municipal water supply department of Bhavnagar). Moreover North-East Ghogha is only a small consumer compared to Bhavnagar and might be considered as less important in the eyes of the Bhavnagar water supply department. If this system is going to be implemented the (security of) supply should be guaranteed via purchasing contracts.

More details of this study are presented in Annex 45.

2.2.6 Demand Assessment Study

The study focused mainly on the Willingness To Pay (WTP) for water supply services in the project area. The main conclusions were:

- ◆ It appeared that average max. WTP for improved service levels at Public Stand Post amounts to Rs 6 per person per month, varying from slightly less than 6 in the area with good (Area I) and Intermediate (Area II) water availability, to Rs 9 per person per month, in areas where water resources are poor (Area III).
- ◆ It also appeared that for the entire project area, at least 77% of the respondents are prepared to pay more than the present tariff of Rs 14 per person per year. If we also take into account the findings on ability to pay, one can only conclude that there is ample scope to increase the present tariff.
- ◆ Multivariate analysis of the max. WTP indicated that the following variables are important determinants of max. WTP:
 - ◆ Ability to pay
 - ◆ Distance to the secondary source.
 - ◆ The cost of operating a private well (for the 10% of the households who possess one).
 - ◆ Hygiene/health awareness, considered to be existing if the respondent is treating the water at present.
 - ◆ Availability of competing sources.

The maximum WTP for improved service levels for improved service levels like public stand posts was about Rs. 6/- per person per month in moderate areas and Rs. 9/- per person per month for poor water resource areas.

- ❖ Based on the frequencies of the max. WTP, demand curves were derived, which were also used to assess revenues from levying a tariff. It appeared that a tariff of Rs. 4 per person per month will maximize revenues. However, if we take into account that health education is likely to raise the consumers' WTP, it is recommended that a tariff of Rs.5/person.month is possible.

A more detailed summary of this study is presented in Annex 51.

2.2.7 NEI feasibility study

Introduction

Based on the findings of the above mentioned feasibility and assessment studies, the project worked out the following four options for sustainable water supply in the Ghogha project area:

- ❖ The Shetrunji reservoir: an alternative in which a piped water supply system from the Shetrunji reservoir will be built to serve the Ghogha area.
- ❖ Mahi project based piped supply: the alternative in which water will be abstracted from a large diameter raw water transmission main which is under construction between the Mahi irrigation system and the town of Dhanduka and Botad (in October a rerouting is proposed to Valbhipur).
- ❖ Individual water supply systems from locally available water sources (ground-, surface- and rain water).
- ❖ A combination of individual water supply schemes (for 60 -70 villages) and a piped water supply system based on a regional source for the villages without local water sources (10 -20 villages). The regional source in this alternative is a second Shetrunji -Bhavnagar pipeline, which is an option the Bhavnagar Municipal Corporation was considering as a solution for their long term drinking water need.

For all four alternatives the following assessments were worked out by the project team:

- ✦ Technical feasibility
- ✦ Investment and O&M costs
- ✦ Financial analysis

The Royal Netherlands Embassy at New Delhi, assigned the work of undertaking an independent Financial and Economic Feasibility Study of the above four alternatives to the Netherlands Economic Institute (NEI).

Purpose of the study

On the background of the availability of above-mentioned four alternatives, the main purpose of the study was to analyse the economic and financial aspects and the overall feasibility of each of the four alternatives; with emphasis on:

- ❖ Identification of the least-cost alternative;
- ❖ Determining the benefit-cost ratio; and
- ❖ Analysing the sustainability of the benefits.

Methodology

During a first part of the inception phase of the project, detailed studies were undertaken for each of these four alternatives and a first stage of the economic and financial feasibility was devoted to undertaking a rapid, overall, comparison of the four alternatives. The finding of this first stage was that alternative two, the Mahi-based pipeline, was inferior in all respects and could be discarded. Only alternatives one and three represented distinct, mutually exclusive, alternatives while alternative four represented a compromise between the two basic alternatives. The second phase of the study continued with a more detailed comparison of the two dominant alternatives, viz, the Shetrunji-sourced pipeline project covering all 80 villages in one system and the village-based programme using local sources of water supply. A cost-benefit framework was used to compare the alternatives with respect to costs, benefits and sustainability of project results.

Summary of findings of the study

- ❖ The Village-Based Programme (VBP) with a total investment of Rs.217 million is far more cost effective than the Shetrunji based pipeline programme (total investment Rs.462 million). While coverage in case of Shetrunji based pipeline would be all 80 villages in the project area; in the case of VBP only 75 villages would be covered because it would not be able to include the area around Ghogha town in the North Eastern corner of the project area where local sources are inadequate. The uncovered area includes Ghogha town and surrounding 4 villages with a total population of 21,500 persons, which is equivalent to almost 9% of the total population.
- ❖ In the design of the proposed project, access to the source of water is limited to the distance of maximum 500 feet. As a result, expected benefits would be saving in time needed to fetch water, an activity largely assigned to women and children. It is expected that this would result in a reduction of time needed by at least one hour per household per day. The economic value of these time savings is estimated to amount to about Rs.50 million per annum; large differences between and within individual villages are likely however.
- ❖ The expected benefits of discontinuing the emergency water supply programme (water supply by tankers etc.), could amount up to Rs.10 million/year.
- ❖ The estimated rates of return are 12% for the Shetrunji alternative and 30% for the VBP.
- ❖ These calculations are based on the assumption of full sustainability of the project results throughout the project period. However, closer analysis of various aspects of sustainability shows that this is not a realistic assumption. The principal concern of the GWSSB and of the authorities concerned is in respect of the sustainability of water sources. Available evidence indicates declining groundwater levels in the wells installed in the area and an increase in the area affected by salinity ingress. This has led the authorities to declare that ground water is not a sustainable source.
- ❖ The mission estimated that non-functioning will occur for both Regional and Individual Schemes, due to failure of source and operational problems. The internal rate of return drops to between 7.0 and 9.6 % for the Shetrunji scheme and to between 13 to 18% for the VBP when allowance is made for non-functioning for 10-25% and 20-30% of days respectively. Assumed benefits are based on a supply of 30 lpcd and expected losses are such that this level of supply remains feasible.
- ❖ The issues of financial autonomy and cost recovery are closely linked with low operational efficiency. The tariff needed to break even, assuming design losses would be Rs.2.90 for the VBP and Rs.6.20/m³ for Shetrunji based project. Converted to stand post and household connection use norms, the required tariffs would amount to Rs.3.90 and Rs. 8.50 per person per month for stand posts and to Rs. 7.20 and Rs.15.50 for household connection for VBP and Shetrunji based schemes respectively. Results of WTP surveys have indicated that people may be prepared to spend, on average Rs.6.40 per person per month for a stand post, which would put the Shetrunji based scheme outside the indicated WTP for a majority of the people. A considerable proportion of people would also not be prepared to pay for O&M charges of village-based schemes however. On average, amount is within the limit of 3% of household incomes and can thus be considered 'affordable'.
- ❖ Continued subsidization of at least the capital cost component will be needed. The Government should however withdraw from all aspects of operations and maintenance.

2.2.8 Concluding remarks

The final outcome of this extensive review of the different possibilities for sustainable water supply in the project area has been a strategy of multiple sourcing. Local sources strengthened by a water resources management plan with additional water from the Mahi-based pipeline should safeguard the domestic water needs of the communities. This option became much more viable when Government of Gujarat had decided to extend the Mahi-based pipeline and therefore passing through the project area. To enforce the local sources the project has included a comprehensive water resource management component in its strategy. This

decision clearly brings out the priority given by the project authorities to ensure sustainable water supply to the villages above e.g. financial considerations. Because the multiple source strategy will unavoidably increase the investments.

The fact that the process has been so extensive reflects the ongoing discussion between different parties involved in the project at various levels about the most suitable long-term strategy for rural water supply in Gujarat. Simplified it is the discussion between supply-driven and demand-responsive strategies, between centralization and decentralization and between local versus regional water sources.

Different studies prompted the decision of multiple sourcing, with water resource management activities to strengthen the local ground water sources and Mahi piped water as a complementary source.

An important learning is that the availability of data could speed up the process of decision-making considerably. Some types of data (like the actual status of the existing facilities) need more accurate data collection and processing. Other types of data (like groundwater monitoring) need more transparency to improve the accessibility.

Another learning is that, it may not always be advisable to predefine the exact project area and villages. To meet the needs and demand of the rural population more and more, a diversity of strategies with regard to technology options and management models will be required. Tailor made solutions will be necessary, which may result in different service levels between neighbouring villages. Projects and programmes therefore should become more process and less target oriented.

2.3 Pre-implementation Activities

2.3.1. Introduction

The need to develop and test methodologies and approaches in a few pilot villages was felt, before the project was to be implemented in all the 80 village of the area. A combination of studies and village surveys helped finally decide on the pilot villages.

This section draws the methodology and processes followed in the project that led to the short-listing of pilot villages and describes in detail the efforts made to develop the ground for the implementation phase. A Rapid Village Survey was done in all the project villages, to develop a preliminary understanding of the existing water supply and sanitation situation in the villages, presence of caste groups, basic facilities and other preliminary information. This survey, coupled with the ground water potential assessment and well inventory study finally helped decide on the pilot villages.

The studies further revealed the unique characteristics of each village. People needed immediate solution to solve their drinking water problems. This led to the identification of the Immediate Relief Assistance programme.

Soon after the selection of pilot villages, work on IRA activities identified earlier during the inception phase, started in September 1998. IRA activities met with mixed results. It went through a lot of changes and modifications and finally was abandoned as an entry point activity.

This was also the phase where the selection of ISAs was conducted. The process of selecting NGOs for the project started from first quarter of 98. The selection of ISAs went through a detailed selection process and finally three ISA with adequate background in working with concepts of community participation in water related issues, were selected. They then joined the project in January 99.

This section describes in detail efforts made in the inception phase to develop the ground for the implementation phase.

2.3.2. Rapid Village Survey

A Rapid Village Level survey was carried out in all project villages of Ghogha, Talaja and Bhavnagar talukas in January 1998. The main purpose was to collect preliminary information about the project villages before starting an in-depth study in the project villages.

Objectives:

- ◆ To collect information on population size, occupation of the people and types of Government services in the project villages.
- ◆ To collect information about existing water supply and sanitation facilities in the villages.
- ◆ To study the working of existing community based organisations in the villages.
- ◆ To prepare village maps.
- ◆ To assess willingness of the people to participate in the project activities.
- ◆ To collect suggestions of the people for immediate solution of the problems of drinking water in the context of existing water supply facilities.

Methodology

The multi-disciplinary project team developed a village information questionnaire. Students of the Sociology Department of Bhavnagar University administered the form to collect the relevant data. The data was collected from Talati, Sarpanch and leaders of the villages. The Industrial Training Institute (ITI) students of Bhavnagar made village maps of all the project villages. A copy of village information questionnaire is in annex 4.

Gist of findings of survey:

◆ Village map

Village maps were developed for all the villages of the project. The village maps indicated that every village had two geographical parts: GaamTal i.e. residential area and SeemTal i.e.

agricultural fields that are 2 k.m. to 3 k.m. away from the GaamTal. The majority of the people reside in residential area. The village maps served as useful tools to conduct the well development study by geo-hydrologists.

Through a careful observation and questionnaire survey, all the project villages were covered for a preliminary assessment on population size, existing sanitation facilities, and hygiene practices, presence of local institutions etc.

❖ **Religion & caste**

The main religion of the people is Hindu. In Valespur village most people are Christians, while mainly Muslims reside in Ghogha. In the remaining villages, there are a few scattered houses of Christians and Muslims. People of the Darbar community, Koli Patel and Kanbi Patel form the major part of the total population. People belonging to Bania, Jain, Suthar, Brahmin, Harijan, Mocchi and Bharvad castes also reside in the project area villages. The Darbar community is the dominant community.

❖ **Occupation**

The main occupation of the people is agriculture. Many people also work on the rich farmers' farms on a daily wage basis. It is known as "Dahadi" (Daily wage work). Some people are associated with the diamond industry, mason work, household industries, forestry and some work at the Alang Ship Breaking Yard.

❖ **Size of the population**

Size of the population varies from village to village. Bhesvadi village has a population size of about 25, and Ghogha town has a population of 9000.

No.	Size of population	Number of villages	%
1	Below 1000	20	25
2	1001 to 2000	29	36
3	2001 to 3000	16	20
4	3001 to 4000	10	13
5	4001 to 5000	-	-
6	5000 to 6000	03	04
7	6000 to 7000	01	01
8	Above 7000	01	01

(According to 1991 census report)

❖ **Transport and communication**

All the villages are connected by State Road Transport facility. Most people commute from villages to Bhavnagar by private vehicles, as the frequency of the state transport buses is low. 34 Villages have post office facilities and 38 have telephone facilities in working condition. All villages are within 65 km from Bhavnagar city.

❖ **Education facility**

1	Primary School in number of villages	66
2	Secondary Schools and Primary schools.	14

Each village has a primary school. Bhesvadi village does not have any school facility as the village has a population of 25. Children from 66% of the villages have to commute to other villages to get education in higher secondary school.

Community based organisations (CBO)

Small community based organisations are quite active in 70% of the project villages. CBOs include Swadhaya Parivar, a religious NGO, saving groups, Mahila Mandals and religious groups. People who are associated with the Swadhaya Parivar regularly meet once in a week and sing religious songs and carry out many developmental activities such as sanitation and pond deepening in the villages.

Key outputs of the survey include analysis of :

1 Cultural beliefs particularly as they apply to water and water sources and sanitation.

2 The power structures within the community.

3 Existing water use practices and use of water sources.

Water supply facilities

Water supply facilities vary from village to village. 11 project villages namely Nava-Ratanpur, Mithi-Virdi, Khadsaylia, Avania, Bhuteshwar, Bhumbhali, Rampar, Lakhanka, Thalsar, Gundi, Bhadbhadiya, Hathab and Surka do not have handpump facility. In summer 50 % of villages have to collect water from water tankers which are supplied by the Government for that purpose. See Annex- 2(a) for a detailed picture of water supplies facilities prevailing in the villages.

Sanitation facilities

In 34 villages 1 to 5 % of people have latrine facilities at their residence. Most of the people go to the fields for defecation. People throw wastewater from their homes into the village streets and dirty water runs into the streets. Only a few people dig pits near their homes and when pits are filled with dirty water they throw it out. Open drainage is found in villages like Koliyak and Avania but it was blocked due to poor operation and maintenance.

Willingness of the people to participate in the project activities

All the people of villages showed willingness to participate in the project activities and they also showed interest in contributing in the form of cash/kind/ labour towards expenses if the project provided immediate solutions for their drinking water problems. They complained about poor quality of existing water supply facilities that are not functional. In most of the villages, submersible pumps have broken down or are not in working condition. In the prevailing conditions, people demanded regular supply of water through water tankers or new water supply facilities and also suggested renovating existing water supply facilities. In a few villages, they also demanded technical guidance on how to operate and maintain existing water supply facilities.

Government health services and facilities

The Government provides free preventive and curative services in the project- area through

- ◆ Community health Centre (CHC)
- ◆ Primary health care (PHC) or sub-Centre.
- ◆ CHC

There are three CHCs in the project-area in Ghogha, Koliyak and Talaja villages. Each CHC has a 30-bed hospital and laboratory for medical check-up. CHC provides indoor and outdoor medical treatment to the people.

- ◆ PHC

Each village of the project area is covered by a primary Health Centre or Sub-Centre that provides preventive and curative health services to the people.

The PHC team consists of the Medical Officers, Block Information, Communication and Education Officer, Supervisors for Male Health Workers and Female Health Workers, Male Health Worker and Female Health Workers and a Pharmacist. On average each village has two or three private Ayurvedic or Homeopathic private practitioners.

People's perception on diseases prevailing in the project villages:

(Sample from a few villages)

No.	Name of the villages	Diseases prevailing in the villages (Reported by the people during a rapid village level survey)
1	Chhaya	Scabies, Malaria, Cholera and Jaundice
2	Garibpara	Malaria, Diarrhoea.
3	Nesvad	Malaria and Scabies.
4	Koliyak	Diarrhoea and Malaria
5	Nava-Ratanpar	Skin disease
6	Nagdhaniba	Malaria, Typhoid, Jaundice and Diarrhoea
7	Mithivirdi	Malaria, Skin diseases, Eye sores, Typhoid and Jaundice
8	Bapada	Malaria, Skin diseases (Scabies), Diarrhoea, Typhoid.
9	Mathavada	Malaria

The villagers expressed that they suffered from diseases mainly related to water and poor sanitation. On the basis of information provided by them it was found that skin and eye diseases were quite common in villages with greater water scarcity. Malaria and diarrhoea were more prevalent in villages with greater availability of water.

2.3.3. Selection of pilot villages

Introduction:

The operational plan of GRWSSP for the period April 1998 – August 1998 included two major activities – selection of pilot (first batch) villages and selection of Implementation Support Agencies (NGOs). This note details the process of selection of pilot villages for the GRWSSP.

Methodology:

A village level rapid and general survey was carried out in the entire project area in January 1998 with the objective to collect preliminary information of project villages before starting an in-depth study. The external water resources team conducted study on ground water potential assessment in all 80 villages during the inception phase. A comprehensive hydro geological survey was undertaken using satellite remote sensing techniques, well inventory and surface geophysical surveys.

On the basis of the study, the project area has been broadly divided into 8 sub-sectors depending on hydrogeology, hydrological and terrain conditions.

The PSIU, together with an expatriate consultant in March 1998 developed criteria for selection of pilot villages. The criteria are as follow:

- ❖ Ground water potential
 - ◆ Good i.e. availability of water for 12 months
 - ◆ Medium i.e. water supply for approximately 6 months
 - ◆ Bad i.e. no ground water potential
- ❖ Hygiene conditions (Subjective judgment)
 - ◆ Good i.e. clean surrounding near water points/public places etc
 - ◆ Medium i.e. level of cleanliness near water points/schools and hygiene practices of the people.
 - ◆ Bad i.e. sign of defecation near water points/ public places etc
- ❖ Size of population
 - ◆ 1 community more than 4000
 - ◆ 2 villages having 2000 to 4000 people
 - ◆ 3 villages 800 to 2000 people
- ❖ Condition of water supply facilities
 - ◆ Good i.e. condition of WS facilities
 - ◆ Medium i.e. number of WS in functioning condition
 - ◆ Bad – poor operation and maintenances of water sources
 - ◆ Potential for immediate relief assistance,
- ❖ Economic status of the village - rich or poor (subjective judgement),
 - ◆ 1 poor community
 - ◆ Not more than 1 rich community
- ❖ Strength of village institutions/Willingness of people to participate in the project
 - ◆ Village leaders willing and eager to participate/Sufficiently strong institutional basis
 - ◆ No big fight evident
 - ◆ Level of co-operation that can be expected from the villages, village dynamics - obvious divisions (conflicts) in the villages
- ❖ Need for water
 - ◆ Sources do not run dry in community -Perennial sources
 - ◆ Sources run dry 3-4 months in a year,
 - ◆ Sources run dry 5-6 months in a year.

On the basis of criteria developed, twenty-four villages out of 80 villages were selected for further detailed study. On the basis of study of water resource team, the consultants of the PSIU prepared a list of 24 villages spread over all 8 sub-area to select pilot villages. For more details report on hydro-geological study of the project area - see 2.12.1.

'Village walk' is the term used for appraisal about the existing situation in the village. PSIU team along with engineers of the Board went round the villages, had meetings and noted observations.

The PSIU team, accompanied by technical support staff from the GWSSB (WB PH Sub-division), formed teams comprising social as well as technical personnel. The appraisal, termed "village walk", consisted of a meeting with village leaders and a walk around the villages to observe existing situation. The dates for the "village walks" were fixed in consultation with village leaders and the talatis. The discussions with village leaders and observation of village conditions were based on separate checklists. Pertinent information (from discussions and observations) was fed back to the villagers for confirmation. The teams summarised the visit findings on a summary sheet. The appraisal was carried out during the period 30 April 1998 – 2 June 1998.

The following table shows villages short-listed for the selection of pilot (first batch) villages.
List of sample villages selected to conduct institutional and hygiene appraisal

	Village	Taluka	HG Sub Area	Population
1	Bapada	Talaja	VI	2355
2	Bhandariya	Bhavnagar	IV	5336
3	Bhuteswar	Bhavnagar	II	2056
4	Chhaya	Ghogha	IV	1253
5	Devli	Talaja	VI	3634
6	Dhardi	Talaja	VII	1110
7	Garibpura	Ghogha	IV	1388
8	Gorkhi	Talaja	VI	3781
9	Khadsaliya	Bhavnagar	III	3775
10	Koliyak	Bhavnagar	III	3330
11	Kuda	Ghogha	I	1985
12	Manar	Talaja	V	2593
13	Mathavda	Talaja	V	2110
14	Mithivirdi	Talaja	I	1300
15	Nagdhaniba	Bhavnagar	IV	2210
16	Nava Ratanpar	Bhavnagar	II	2381
17	Nesvad	Ghogha	VIII	1127
18	Padva	Ghogha	IV	2006
19	Paniyali	Talaja	IV	1377
20	Rampar	Bhavnagar	II	1117
21	Sanodar	Ghogha	IV	2454
22	Sartanpar	Bhavnagar	IV	1710
23	Ukharla	Ghogha	VIII	2842
24	Vavdi-G	Ghogha	IV	1990

Note—Nagdhaniba village replaced Sartanpur village pilot village in August 98 as much evidence of negative group dynamics was observed in Sartanpur village.

Final selection of nine pilot villages

The findings and results of the Rapid Institutional and Hygiene Appraisal were discussed at a meeting of Water Resources Study Team and the PSIU in which various aspects of short-listing villages were discussed. Out of the 24 villages fourteen villages seemed to have fairly good institutional strengths and appeared as better candidates to be selected as pilot villages. After elaborate discussion and application of the criteria the consultants together with the hydrologist arrived at the selection of the following nine villages as pilot villages namely Nesvad, Nava-Ratanpur, Koliyak, Sartanpur, Chhaya, Mithi-Virdi, Garibpura, Bapada and Mathavda.

2.3.4. Immediate relief assistance (IRA)

IRA refers to renovation of existing water supply facilities and aims at quickly improving the existing water supply systems by repairing stand posts, hand-pumps, cattle troughs etc.

In the inception phase, IRA works were conceived in terms of improving the existing water supply facilities and building rapport between GWSSB and the villagers. New water supply facilities or extensions to existing facilities were not considered for IRA, as these would be part of the regular village based programme that was to follow.

The IRA was started with the following essential elements:

- ◆ IRA should be demand driven.
- ◆ IRA should build up credentials of the GWSSB.
- ◆ IRA work should be done promptly.

Methodology

IRA was chosen as an entry point activity for the pilot villages. The works were executed through the panchayat and NAPU provided technical assistance. The cost of IRA was fully reimbursed by the GRWSSP, but panchayats had to incur the expenditures in the first instance. IRA works were designed by both software and hardware team of the PSIU with the consultation of the village people. Before planning and implementation of IRA works people were involved at each stage and *falia* meetings were also conducted in each village.

A rapid village survey was conducted in all the project villages in January 1998 by the PSIU and through this survey the willingness of the people to participate in the project activities and demand for renovating existing water supply facilities were assessed. It was found that people were quite dissatisfied with the existing water supply facilities due to poor operation and maintenance. They showed prompt interest in renovating existing facilities. On the basis of these findings, the project and village people identified IRA activities in the first batch of 24 villages in May 1998.

Engineers of GWSSB (NAPU) joined the project in mid June 1998. The consultants briefed them about IRA works. Before starting IRA works meetings were conducted with each panchayat/village people. In the meeting the PSIU (Consultants & NAPU) discussed the project concepts, approach, role of NAPU in IRA works, steps of IRA works and modalities for implementing the programme. It was decided that the Mechanical Division of GWSSB would repair hand-pumps.

For the IRA works, NAPU had to follow the Government procedure that includes cost-estimation, different approvals, tendering process, etc even for minor repairing of the facilities. Panchayats also had to submit a panchayat resolution to NAPU and procure a financial certificate from the Taluka Development Officer to certify their financial viability to pre-pay the IRA work. As panchayats faced delays in getting this certificate, work was delayed. NAPU had to spend a lot of time in these procedures.

In addition, while implementing IRA at the village levels, many varied experiences were observed:

In Chhaya village, the meeting was held with the village people to present the cost estimates and details of IRA works. The meeting witnessed strong group dynamics in the village. One of the informal groups objected to the panchayat taking the responsibility of IRA work. That group walked out from the meeting showing their protest. Disagreement continued for some time but was finally resolved with a lot of effort.

In Nagdhaniba village, the panchayat showed interest in the beginning but later refused IRA work and demanded new water supply facilities. IRA works experienced set backs from time to time due to such reasons.

Out of nine pilot villages, IRA works were completed in three villages. In four villages, it was dropped and in two villages there were no IRA works to be done. Of the 15 non-pilot villages, IRA works were identified in three villages and was completed in one village.

In four villages namely Chhaya, Dhardi, Koliyak and Nesvad village, IRA works were completed successfully and people also participated in the whole process of planning and implementation.

NAPU, Consultants and people of different villages discussed and analysed the IRA programme from September 1998 to October 1999. NAPU engineers felt that due to Government procedures, the IRA work became time consuming. Work for new water supply work was also started from in May 1999 that also made demands on their time. Hence demand was emerged to review IRA programme, it was carried out in September and October 1999. The detailed report is in annex 5.

Community participation has been identified as a core strategy of the Ghogha project because participatory approaches have been found to be both efficient and effective.

2.3.5. Selection of implementing support agencies (ISAs)

The Operational Plan of GRWSSP for the period April 1998 – August 1998 included two major activities – selection of pilot (first batch) villages and selection of Implementation Support Agency (NGOs). This report details the process of selection of pilot villages for the GRWSSP.

The PSIU, developed a step-wise procedure for selection of the ISAs and also developed Terms of Reference (ToR) for the NGOs. The ToR is attached in annex 6. The PSIU met several NGOs listed in the project document as also others from additional lists accessed from other sources. A brief profile of each NGO was prepared to highlight characteristics of significance to the project. The PSIU, external Consultants and SEU, Gandhinagar deliberated on the possible rationale and objective bases and transparent processes for selecting NGOs for the project. It was agreed that the NGOs could be rated on a commonly agreed set of selection criteria, which could then be used as a decision tool.

Their main role of the NGOs was:

- ❖ in an advisory role and for capacity-building in specialized areas, and
- ❖ in implementing the programme at the village level.

The GRWSSP envisages a participatory approach and strong village institutions in the form of Pani Samitis as integral to the project. It was proposed that NGOs will work at the grassroots level and form effective community organisations that can eventually be responsible for operation and maintenance of the water supply structures.

Some members of the PSIU visited the NGOs on the list, and prepared a profile of NGOs in various areas of expertise. Then, the PSIU along with expert consultants made a list of criteria for assessing the capabilities of the NGOs. The criteria are categorized under 'A', 'B', and 'C' based on the following logic.

- Criteria that can be considered absolute prerequisites, i.e. "without which not", fall under 'A'. These would be criteria that spell the project ethos, and if missing, cannot be instilled in the NGO in a short time.
- Criteria seen as "gaps that can be filled through training or other suitable means", would fall under 'B'. These would include those criteria that the NGO must have, but if missing, can be compensated either through 'capacity building training' of the NGO, or by support from another NGO.
- Criteria that can be considered "desirable but not essential", fall under the third category 'C'. These would include features that are "bonuses", i.e. "not serious if missing, but greatly facilitating if present".

Table: Criteria for selecting NGOs for the project:

Category	
A	<ul style="list-style-type: none"> ❖ Ability to form Village Institutions ❖ Participatory approach, ❖ Understanding of local context ❖ Professionalism (reflected in the use of planning, monitoring etc) ❖ Willingness and ability to work harmoniously with the Government ❖ Gender sensitivity ❖ Flexible attitude (Open to suggestions, willing to incorporate changes, adopt new strategies, innovations)
B	<ul style="list-style-type: none"> ❖ Experience in drinking water ❖ Experience in sanitation ❖ Experience in hygiene promotion ❖ Experience in panchayats ❖ Experience in baseline studies

Category	
	<ul style="list-style-type: none"> ❖ Experience in KAP studies ❖ Experience in PRA studies ❖ Experience in gender activities ❖ Training capacity ❖ Skills in institutional linkages ❖ Good relationship with Government ❖ Ability to take extra workload with full assignment of staff ❖ Logistic strength ❖ Local office (in or near Bhavnagar)
C	<ul style="list-style-type: none"> ❖ Skills in producing communications material ❖ Experience working with children ❖ Experience with foreign funders ❖ Engineering expertise ❖ Ability to bring together diverse subgroups for a common purpose.

Following the GWSSB procedure, an advertisement was placed in April 1998 in leading newspapers inviting "Letter of Interest" (LOI) from organisations willing to collaborate with the Ghogha Project. A copy of advertisement is in annex 7.

Five organisations responded to the advertisement. Based on the information supplied by the NGOs, these organisations were rated on the criteria prepared earlier. Three NGOs – CEE, Utthan and Medhavi were shortlisted and were invited to send a detailed proposal. They were provided with a detailed terms of reference and asked to submit a tentative workplan, staffing and an itemized budget for four villages. They were also asked to indicate some villages in their other projects, which exemplified their best work of relevance to our GRWSSP.

The PSIU (NAPU) examined the proposals sent by them. The members of the PSIU then visited the head offices of the NGOs and the suggested project sites, in July to appraise their infrastructure and backstopping capacity at the head office and to meet the organizational heads. Extensive discussions with the head office staff were held to understand their organizational philosophy, their approach to the project and judge their compatibility with the approach envisaged in the project document.

In a meeting the project team addressed NGOs' questions, presented the project details, appraisal of their proposals, and the guidelines for revising their budgets. The NGOs revised their budgets subsequently according to the guidelines issued.

The PSIU as Implementing Support Agencies (ISAs) for the project and contracted the three NGOs on 16-12-98. The contracts of ISAs are in annex 8.

At the time of writing this document, the first phase of ISA contract came to a close in January, 2001. Fresh proposals were sought from these NGOs to continue with the village based activities. However, the new contract will also include support activities to be done by ISAs for water resource management, pilot sanitation activities like soak pits and improved drainage systems, operation and maintenance of the water supply and sanitation facilities, and also contracting out the construction activities of individual village based schemes to village level institutions like panchayats. The revised terms of reference, as applicable from February, 2001, for the ISAs is also included in annex 9.

2.3.6. Development of strategies

The process of developing appropriate strategies for hygiene promotion, cost recovery and community participation started in the inception phase of the project. These elements were seen as important to sustain the effective use of water supply facilities which will be developed by the project. For this, participation of people in decision-making is necessary for local ownership of policies, programme and assets created by the project.

The consultants of the PSIU, initiated the process of developing strategies in the context of experiences learnt from the different water and sanitation projects and on the basis of the findings of the studies conducted in the project villages. One of the objectives was also to discuss strategies with the State Government, district administration, GWSSB and other related organisations to arrive at a common acceptance and approach towards those strategies.

Strategy for cost recovery

Cost recovery is an essential element of this demand driven approach. A paper was prepared on 'Recovery of costs of Rural Water Supply Services in India in April 1998. This provided a basis to the project to devise a strategy on cost recovery. The paper deals with the issue of cost recovery in India¹ and also covers benefits and costs of water supply, why cost-recovery, views on cost-recovery of GoG, other Indian states and Gol, International Donors and conditions for cost recovery.

Benefits and cost of water supply

It is important to draw relations between water supply and improved health, which means reduced expenses on drugs leading to increased family income.

❖ *Benefits*

The benefits of water supply projects have been identified as improved health for the consumers, leading to reduce expenditure on drugs, reduced loss of time that could be used for productive activities and therefore increased family income. Good quality drinking water becomes available at a shorter distance to the household, which will lead to increased convenience, reduced loss of time to fetch water, reduction of energy lost while fetching water thereby, indirectly, improved health of women.

❖ *Cost*

The costs comprise the investment cost (capital cost), which obviously depend on the technology. Cost per capita and per cubic meter of water supplied is much higher for relatively higher technology solutions, such as regional piped water supply schemes than for shallow wells with hand-pumps. The second component is the recurrent cost comprising all costs of operating and maintaining the water supply system i.e. including preventive maintenance and replacement of certain items, such as pumps. Obviously these cost are also higher for high-tech solutions than for simple village based schemes. In most of India's states electricity is heavily subsidised for the irrigation and drinking water sector.

Gol and GoG have recognized that these subsidies are untenable. Gol has therefore been formulating and implementing a number of measures to counterbalance the situation and it is unavoidable that GoG will come up with its own measures before too long.

❖ *Why cost recovery*

Recovery of costs is considered these days since:

- ◆ Public finance allocation principle dictates that the costs of supply be borne by the users themselves.
- ◆ Government discovers that their budget does not allow for the high cost of maintenance of water supply schemes. If the users do not bear the cost, the result will be the collapse of the water supply system with a negative impact on the population benefits.
- ◆ Without a substantial degree of cost recovery, there will not be sufficient funds for upgraded service levels. Paying a price for water provides a mechanism for the consumer to demand a certain service level at a certain quality. Cost recovery of water supply systems therefore contributes substantially to the sustainability of the system.

Cost recovery provides a mechanism to ensure optimal use of water. It also ensures that there are no 'free riders'.

- ◆ Views developed recently e.g. World Bank, 1997 take this view even further. In order for water supply services to be sustainable, projects should adopt a 'Demand Based Approach' in which the consumers decide which service level they acquire, with full knowledge of costs and responsibilities implied.

Cost recovery is an essential element of this demand based approach.

- ◆ Without cost recovery there will not be much incentive to rationalize the use of water that is increasingly becoming scarce. As a result, future generations or people elsewhere are likely to suffer from the wastage resulting from the fact that a certain population receives water free of charge. A regime of progressive tariffs is most effective in reducing wastage, but even a flat rate may contribute to raising the consumers' awareness regarding the cost and scarcity of good quality water.
- ❖ **Condition for cost-recovery**

Based on experience around the globe, one may conclude that the following are necessary conditions for successful cost-recovery.

- ◆ **Desires** - The service level should be in line with the beneficiaries' desires. If they already have access to wells with a hand-pump in the village, it is likely they will not pay sufficiently for yet another shallow well that is more expensive. In other words, competition with existing systems should not be too high.
- ◆ **Ownership** - if the beneficiaries consider the system as their own they will be more likely to contribute to its maintenance.
- ◆ **Reliability** - Water supply should be reliable. People are not prepared for an unreliable supply of water. This requirement also points to the need for providing accurate information to the villagers.
- ◆ **Faith** - The villages should have confidence that the money collected will actually be used for what it is intended. Villagers should also have faith that the price they eventually pay tallies with the information they received at the beginning of the project. This also pledges to realistic budgeting etc.

On the basis of this experience, the project devised strategies on cost recovery.

See Annex 10 for details.

Hygiene promotion

The first hygiene promotion mission was conducted between 22-3-98 and 14-3-98 at Bhavnagar during the inception phase. The main objectives of the mission were to develop the design and strategy of the hygiene promotion program and to assist the project team with capacity assessment, shortlisting of and drafting Terms of Reference (TOR) for NGOs that would be involved in the project.

Recognizing the importance of hygiene promotion for maximizing possible health benefits from improved water supply and sanitation facilities, it was planned to integrate hygiene promotion activities with the other components of the project. The project team and the ISAs act as facilitators to help people analyze their hygiene practices and to define their own priorities for changing conditions and practices. The community-oriented programme puts people in the centre of all actions.

A rapid village level survey was carried out in all project villages in January 1998. The main purpose was to collect preliminary information on hygiene practices and conditions before starting an in-depth study in the project villages. Based on the experiences in other projects, the consultant recommended that to achieve changed practices, hygiene promotion should be integrated with tangible physical improvements. Prevention of water and sanitation related disease is not a matter of new facilities. It is influenced by hygiene behaviour. For this continuous safe hygiene behaviour is very important. Hygiene behaviour includes a wide range of actions that prevent incidence of water and sanitation related diseases by influencing people to reduce risky behaviours and by developing and strengthening healthy hygiene behaviours.

On the basis of identified hygiene conditions and practices in the project villages and

experiences in other projects, the PSIU developed a strategy for hygiene promotion. For details please refer to 2.4.4.

Strategy for community participation (CP)

The underlying principle of the project was envisaged to be community participation and the overall project objectives were developed keeping this concept in focus. However, the operational strategies for community participation for the pilot intervention were a result of the first and second CP external missions.

In order to ensure that these concepts are appreciated by and internalized in the working of NAPU, their engineers were oriented and made aware of the need for involving people, ways to ensure a meaningful participation of the local people and also on the techniques that can be used for the purpose. The need for integrating community participation concepts in every component of the project was felt. Therefore the first and the second mission developed the operational systems for this. The methodology to elicit community participation was clearly spelt out, which later was refined and developed upon.

It was realized that the communities would act within the boundaries of a village level organization. It was proposed to develop pani samitis in the villages, but it was also felt that the existing Government Resolution fell short of addressing few of the changing requirements of the project. Certain changes were suggested in the GR to allow flexibility in the working of pani samitis. For details please refer to 2.5.4.

Meaningful participation of people is possible when partners fully understand and appreciate the need for it. From the beginning of the project, there were efforts to orient NAPU on the techniques that can be used to mobilize communities.

2.3.7. Conclusion

The activities that were conducted during the pre implementation phase provided a sound basis to start and implement activities in the implementation phase.

The information and findings of various studies were used to develop methodologies and appropriate strategies for cost-recovery, hygiene promotion and community participation according to the needs of the project villages. These led to an overall understanding of how the project was to be undertaken in the project villages and gave an insight for developing practical field based methodologies. As the programme evolved and with diversity of experience, these were further fine-tuned to suit site-specific requirements.

Selection of ISAs and selection of pilot villages marked the beginning of the implementation phase. They were assigned three pilot villages initially to start working. Later their intervention moved to newer villages, while still continuing with the software activities in the earlier ones. The work of ISAs in mobilizing communities, strengthening and capacity building of village based organisations, ensuring cost recovery from the communities have been encouraging. They have always been an inherent link between the communities and NAPU.

IRA programme helped to gain experiences of involving panchayat in the project work and provided an opportunity to learn administrative culture of NAPU/GWSSB in implementation.

2.4 Components of the Project

2.4.1 Introduction

Over the years the project aims gradually evolved from a regional piped water supply construction project to a community owned, operated and maintained water supply and sanitation project with emphasis on sustainability aspects. This is the result of policy developments in GOI and GON as well as findings and discussions during the Inception Phase.

Since 1995 the Indian and Dutch governments have been increasingly emphasising the importance of sustainability in rural *water supply* and sanitation. Sustainability should be achieved by decentralisation and user involvement as well as cost sharing on the one hand and on the other hand increasing the effectiveness of the sector by paying more attention to *environmental sanitation and hygiene*. Furthermore, a sustainable drinking water supply will only be feasible when a balance between replenishment and abstraction can be found. The Ghogha Project has therefore also included *water resource management* issues in its project components.

More information on how the Ghogha Project approached water supply, water resources management, hygiene promotion and environmental sanitation can be found in the following chapter. Although these issues are being approached in an integrated manner in the Ghogha project, they will be presented as separate components for reasons of clarity.

2.4.2 Water supply

Objectives and output

Water supply is the key component of the Ghogha Project. The project aims to supply safe and reliable domestic water for all at convenient distances. The approach aims at community ownership and responsibility for operation and maintenance (O&M) of the facilities. It has been estimated that the total domestic water supply per capita should be 45 litres and the requirement for minimum hygienic standard is about 15 litres.

Strategies of the water supply programme

The strategy for the pilot intervention in Bhavnagar district includes:

- ❖ the improvement of water supply systems based on a sustainable and suitable local water source. The project considers the supply of water from local sources as most sustainable, as the community can have sufficient control over the source. In case the individual sources are not available within village boundaries an agreement with the neighbouring Panchayat can be reached. The number of point sources may be explored to meet the total requirement of supply to the village at a rate of 55 litres per capita per day that includes a loss of 10 litres per capita per day for the estimated population of 2027 using present growth trend. For villages where local sources are not sufficient to supply the total domestic requirements, it is proposed to supply only 15 litres per capita per day to meet the minimum hygienic standard.
- ❖ supplying water from the Narmada based Mahi pipeline in case a local source can not be established at the moment. However, the supply from this distant piped water is seen as an emergency measure and, therefore, the project has started planning for water resource management activities to increase the supply from local sources.

The piped supply of water through stand posts, wash facilities and cattle troughs is normally taken up as a suitable technology for most of the villages for the distribution of water. Additionally, wherever feasible, hand pumps may be installed especially for settlements far from the main habitation. While designing water supply systems, it is planned to position stand posts not more than 150m far from any dependent household so that the distance travelled to collect water to houses is reduced considerably. The number of taps has been decided at a rate of one tap per 100 people for the year 2017. House connections will only be provided if there exists a strong demand within the community, the source can supply sufficient water, and the households taking house connections are prepared to pay higher tariffs as decided by the Panchayat. Water points in social institutions such as schools,

Integration of water supply, sanitation and hygiene education gives best likelihood of impact in terms of health improvement.

anganwadis and Panchayat offices are also proposed. It has been mandatory to provide at least one wash facility and one cattle trough per village. Their numbers may be increased provided the projected population for the year 2017 exceeds 2,500. These norms have been kept flexible for communities where social structure is likely to deny access to lower caste-groups.

Steps of planning and implementing village based water supply schemes

The planning, implementation and community managed O&M steps of water supply schemes in the village level are detailed as under:

- ❖ The participatory appraisal exercise and other baseline information are used to assess overall water resource situation in the village. Also, the initiatives taken up by community and other-government- organisations towards domestic water supply are considered .
- ❖ Planning for improved water supply is carried out without ignoring usability of existing infrastructure.
- ❖ Siting of stand posts for the piped water distribution, wash facilities and cattle troughs are carried out in consultation with the users groups and local government. Special attention is given to involve women in the site selection.
- ❖ The engineering team of GWSSB carries out a detailed technical survey. The analysis of levelling survey sometimes forces to relocate water points to ensure sufficient pressure at the point. The changing of such positions is normally done in consultation with the user community.
- ❖ Soon after detailed technical design and capital and O&M cost estimates, the scheme is generally presented to the community. A general report on such a scheme can be found in annex 11. This stage normally gives a last chance to the project to take community's feedback to bring any major change in the design of the scheme.
- ❖ The community gets almost an accurate figure of O&M charge and formally agrees to pay for it. A token of six-month O&M cost is collected from households as a matter of their agreement to use proposed water supply infrastructure and to take care of its future O&M.
- ❖ Then the scheme is sent for detailed technical and financial appraisal before it is tendered. The tender document clarifies the roles and responsibilities of various stakeholders such as of community, of water board and of the contractor.
- ❖ The contractor for the scheme implementation is selected at the appropriate level of GWSSB which scrutinizes the price quoted, competence and experience of the contractor. The work order is issued to the contractor only when at least 50% of token O&M deposit is ensured in the Pani Samiti account.
- ❖ Before implementation of the scheme, the roles and responsibilities of all partners are clarified to avoid possible future complications. The implementation plan is normally prepared by the contractor, which is shared with the community and GWSSB. The inputs from all partners are taken to make necessary changes in the implementation plan.
- ❖ Community supports contractor in providing appropriate space to store materials, tools and equipments, assists in finding watch-person and local labour, co-operates in cleaning the sites for construction, etc., while executing construction. They also monitor quality aspects of construction simultaneously.
- ❖ The contractor normally informs any change in plan of construction schedule to the community and GWSSB.
- ❖ The completed schemes will be handed over to the Pani Samiti of the village soon after the system is technically tested correct and the appointment of a trained operator.
- ❖ The stabilization period will ensure smooth resolution of issues on equity in the distribution of water; establishment of commonly agreed transparent cost recovery and accounting systems. It will also establish in-time performance of preventive maintenance and minor repairs, and establishment of rapport and linkage with appropriate private parties and GWSSB

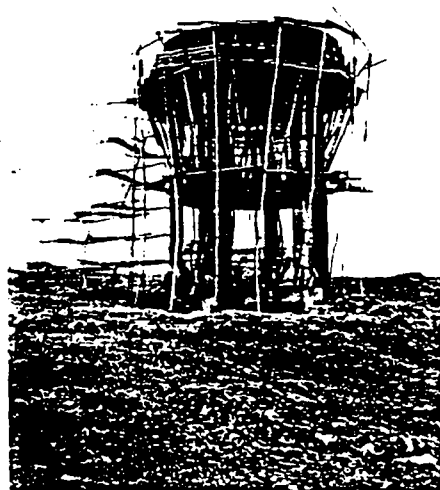
Once the design is complete the entire scheme is presented to the communities, where the details are discussed.

to assist the village for minor and major repairs. This stage may further pay attention to increased women's participation in all such issues and establishment of community based monitoring and reviews over the water supply situation.

In a significant achievement, Neswad village community, for the first time is involved in construction of its own water supply system. This shows the gradual reversal of roles.

Activities developed

Since January 2000 construction of a village based water supply scheme is ongoing in four villages. At the moment it is at its final stage following more or less the traditional government implementation procedures. Since December 2000 construction works have started in one more village. There, for the first time ever, GWSSB is piloting construction of a water supply system through the concerned Panchayat/ Pani Samiti. Hereby GWSSB seems to work as a facilitator of project implementation while, the community is managing the construction operations. In about 35 villages, water supply plans are at various stages of implementation.



The elevated storage reservoir and Stand post in Chhaya village under construction

Conclusions

The main factors, which have caused delays in implementation, are:

- ◆ Water scarcity and identification of source(s).

The identification of source for the project villages has shifted from Shetrunji Reservoir for all, to Local Sources for most and Mahi Pipeline for some, to Local Sources when possible and Mahi Pipeline for all. At the background of these shifts play two consecutive drought years and the realisation that no overnight change in management of the local sources will take place. The effect of the confusion, however, has been that GWSSB was reluctant in progressing the implementation and the Implementing Support Agencies (ISAs) were hampered in their community mobilisation because water was not available.

- ◆ Low internalisation of GWSSB of the participatory approach.

GWSSB being a traditional engineering organisation has not been able to internalise full involvement of the communities in planning and implementation. This is reflected by low motivation of staff in participating in the process and little adaptation and evolvement of systems to facilitate the participatory process.

- ◆ Arduous development of partnership and reluctant acceptance of new roles.

As a result of the above the partnership between GWSSB, ISAs, consultants and communities has not reached the required quality for smooth implementation. The two main implementers in the field, GWSSB and the ISAs, have hardly grown towards each other and consultants

It was the lack of mutual trust between the engineers and ISAs that often forced the consultants to take on the role of buffer between the two. While the engineers refused to innovate with the new approach, ISAs refused to accept the typically bureaucratic style of functioning of the government.

operate as a kind of buffer between the two. GWSSB continues to focus on their physical target oriented role, the communities are confused about the level of ownership that they are allowed to and the consultants are often trying to lead the project where they should have only an advisory role.

Recommendations

All partners of the Ghogha project have made an internal review on the implementation of water supply schemes during February 2001. The main conclusions and recommendations are given below.

- ❖ The siting exercise of water points must be carried out carefully keeping the disposal of wastewater in mind. It is proposed to specify in detail the drainage possibility of each water point while doing siting exercise.
- ❖ The physical design of water points needs to be reviewed in consultation with the community to make them more user friendly.
- ❖ The structural designs need to be reviewed. Overdesign of wash facilities, stand posts and cattle troughs are noticed. This is unnecessary and uneconomic. This will help the implementing agency, i.e. contractor, to find a way out to compromise proposed specifications as doing so will not necessarily lead to reduced construction quality.
- ❖ Hydraulic designs also need to be reviewed as design of pumping machinery needs to be carried out following pumping head of water instead of total depth of the borehole. Similarly, the height of cisterns needs to be decided depending on the minimum hydraulic head that is required in the most disadvantaged location instead of a standardized height of 12m. The height may reduce considerably taking the advantage of the topography.
- ❖ Promotion of handpumps should not be ruled out in the project. There exists a possibility of promoting handpumps in several disjointed settlements from main habitation.
- ❖ GWSSB must supervise the quality of construction for all the components, especially of the cistern. This must be supplemented by community based monitoring for greater assurance of quality.
- ❖ Construction management plans must be developed and reviewed jointly with the users community and community's role in construction support and monitoring must be clarified to all stakeholders.
- ❖ The community managed construction activities must be piloted in more number of villages. More specific technical assistance from GWSSB must be given to these Panchayat managed projects, as this is new as a venture by GWSSB. Lessons learnt in this process will be specifically more useful in sector reform projects.

2.4.3 Water resource management

Objectives and output

A number of factors contribute to making water a scarce resource in this region, including wastage and increasing use for agriculture.

In the Inception Phase it was decided to include water resource management (WRM) as a strategic component of the project. The focus of WRM is both on qualitative and quantitative sustainability of the local sources. It has therefore a strong link with environmental sanitation, hygiene awareness and water supply.

Although Narmada/ Mahi water will be imported to the project area, the philosophy of the project remains that local sources should be the primary source for domestic use. Therefore, strengthening and managing local water sources is given prime importance in the project.

Although water is an increasingly scarce resource in the project area, there are many evidences of wastage of water such as over-exploitation for irrigation purpose and leaking taps. Moreover, sincere initiatives have not been taken either to conserve rainwater and recharge groundwater or to reduce over-exploitation of groundwater. Further more, incidences of pollution of groundwater sources used for drinking water have been seen in several villages through the sanitary surveys conducted by the project.

Since the project aims to ensure the continuing availability of safe and adequate water

Conserving rain water through water resource management was seen as an option to improve the ground water potential in the area.

supply for domestic consumption, the water resource management in the project would primarily work towards:

- ❖ increasing quantity of overall water resources apart from its special focus on the sustainability of domestic water sources, and
- ❖ protecting/improving the quality of water.

Therefore, the project would take initiative in promoting activities that includes surface water conservation, groundwater recharge and efficient use of water by minimising wastage. Ultimately, it aims at establishing a positive water balance in the project area.

Proposed typical activities under water resource management

- ❖ Overall water resource management of the village through
 - ◆ awareness for water conservation and appropriate withdrawal of groundwater,
 - ◆ recharging aquifers with appropriate technical measures, and
 - ◆ promoting appropriate irrigation and cropping patterns to reduce excess withdrawal of groundwater.
- ❖ Sustainability of drinking water source through
 - ◆ recharging water sources used for domestic consumption,
 - ◆ collection and hygienic use of sources and roof water,
 - ◆ sanitary protection of sources by ensuring hygienic disposal of excreta, wastewater and solid waste,
 - ◆ appropriate technical measures for the protection of sources from both biological and chemical pollution, and
 - ◆ promoting moral/ legal responsibility, to take appropriate measures for reducing over withdrawal of groundwater and sanitary protection around drinking water sources.
- ❖ Institutional development and capacity building in the village level for sustained community management through:
 - ◆ formation of Pani Samiti as an executive committee in the Panchayati Raj system under the 73rd Constitutional Amendments. This may further be reinforced by the formation of users-groups, and
 - ◆ providing appropriate training and orientation.

The planning, implementation and community-managed O&M steps for water resources management in the village level are detailed as under:

- ❖ The participatory appraisal exercise and other baseline information are used to assess overall water resource situation in the village. See annex 12 for a village map that was made both by villagers and ISA as part of a participatory exercise. The log-frame technique is used to prepare a problem tree, objective tree and decide on the activities that need to be taken up to achieve desired outputs. See annex 13 for the result of this exercise for Nesvad village. In other wards, following the understanding of prevalent problems related to water resources in the village, the planning for improved water resource management is to be carried out.
- ❖ In case, there is any ongoing or proposed watershed/ water-resource management programme in a village, the project will take up additional activities to re-enforce its objective avoiding duplication of efforts.
- ❖ Following the participatory appraisal for water resources management, detailed technical survey and design of physical structures is carried out. A draft final plan is prepared in consultation with the community that explains both physical and non-physical interventions to be taken up and its implications including community cost sharing and their role in implementing proposed activities.
- ❖ The proposal for the improvement of water resources in the village is prepared and submitted to the water board for approval and release of fund to ISAs. ISAs will be primarily responsible for the execution of the prepared plan with the community.
- ❖ Soon after approval of proposal and release of initial grant, ISAs will prepare detailed implementation plan along with the community that will include:
 - ◆ construction management plan with the role of individuals, institutes and community,

- ◆ rapport development and liaison with related organisations to receive appropriate technical and financial assistance, and
- ◆ the definition of local legislation that will assist in protecting overall water resources and drinking water sources.
- ❖ Prior to taking up construction activities, ISA and Pani Samiti will define community contribution modalities and will see that it is followed as implementation takes place.
- ❖ The project will provide appropriate technical assistance to ISA and Pani Samiti in implementing activities and establishing a monitoring mechanism. In-built monitoring and process documentation activities in the initial projects will help in developing appropriate project cycle, and improving roles and responsibilities of partners.
- ❖ ISA may appoint contractors for the implementation of physical activities if community agrees to do so. Community will support contractor in providing appropriate space to store materials, tools and equipments, assist in finding watch-person and local labour, co-operate in cleaning the sites for construction, etc., while executing construction. They will also monitor quality aspects of construction simultaneously. The contractor will prepare a construction management plan in consultation with Pani Samiti and ISA. Contractor will inform changes if any, to both Pani Samiti and ISA, while implementing activities.
- ❖ The constructed physical structures and other initiatives will ultimately be property of individuals and community. Appropriate technical and management training will be provided to representatives of Pani Samiti for sustained interventions such as:
 - ◆ replication of demonstrations with the assistance of technically proficient organisations availing prevalent subsidy,
 - ◆ taking care of built structures and other initiatives taken up during intervention of the project, and
 - ◆ monitoring and administration of commonly agreed local legislation to protect excess withdrawal of groundwater and sanitary protection around drinking water sources.
- ❖ The stabilization period will ensure smooth resolution of issues on equity in the surface water use and groundwater development; replication of demonstrations with the assistance of technically proficient organisations with/ without availing prevalent subsidy, and establishment of commonly agreed transparent accounting system. It will also establish in-time performance of preventive maintenance and minor repairs, and establishment of rapport and linkage with appropriate private parties and related organizations. This stage may further pay attention to increased women's participation in all such issues and establishment of community based monitoring and review over WRM; similar to that is required for the water supply situation.

Activities developed

The NGO 'Action for Food Production (AFPRO)' has been involved in the project since the start of the year 2000 to provide technical assistance to the ISAs in WRM planning. Their activities primarily concentrated on training ISAs in carrying out participatory appraisal exercises with rural communities, to identify water resource related problems and the means of addressing them strategically. Furthermore, AFPRO has assisted the ISAs in explaining the rationality of various technical and management solutions to these problems especially in using local practices and knowledge to do so. The use of management tools like log-frame analysis is carried out in appraisal exercises to decide on activities to be taken up for required outputs. Engineering staff of ISAs has been trained in carrying out detailed technical surveys, designing and estimating. The management staff of ISAs has been trained how to prepare required project proposals.

Proposals for four villages have been submitted for approval and several more are under preparation. WRM will be carried out in all project villages, but the activities will vary from village to village and include both soft- and hardware activities.

Conclusions

- ❖ Although several WRM proposals have been made, no implementation of planned activities could start because these proposals have not been sanctioned till date. The major reason

WRM planning with the communities, to improve water quality and quantity has proven to have positive impacts on other components of the project.

why GWSSB has not been able to do this is because WRM activities were not budgeted for in the original '94 GRWSSP project document.

- ❖ Water resource management planning in co-operation with the community to improve the quality and quantity of local water sources has proven to have positive effects on the other components of the project. For instance, men have started to take more interest in hygiene activities after specifying technical activities to improve the quality of the water sources.
- ❖ The approach of WRM in the Ghogha project differs from traditional watershed management as it focuses on drinking water in stead of irrigation water. However, water for irrigation is taken into account during the WRM-assessment in order to safeguard and increase the amount made available for drinking water. This integrated assessment has generated more awareness among villagers on the overextraction of groundwater for irrigation. For example, once the whole village came together to count all the irrigation wells in the village and its surroundings they were often astonished on the high cumulative amount of wells.
- ❖ Although the village WRM-plans originally included the inclusions of roof water harvesting (RWH) structures, it was decided not to subsidise these structures in the project. This was done because of several reasons:
 - ◆ RWH is primarily seen as an additional water source to provide a back-up for periods when the local sources have dried up. As per decision of the WS department, the project will already provide all project villages Mahi/Narmada waters as a back-up.
 - ◆ In the WRM cost estimates for the entire project area it was estimated that with a coverage of 25% of the households with RWH it would take a 40% share of the total WRM-budget. Hereby the current guidelines for GWSSB subsidy for RWH were followed. As the project focuses primarily on community water supply rather than on water supply to individual households, the justification for consuming such a large share of the WRM plans was questionable.
 - ◆ The use of the RWH structures appears to be more as a general water storage facility at household level than as a buffer or reservation for the scarcity months.

Recommendations

- ❖ WRM activities should be included in a project document that is approved by the government of Gujarat.
- ❖ The exclusion of specific hardware activities from the project such as RWH should be clear before village WRM plans are made.
- ❖ RWH needs rethinking in both concept and application. In principle the Ghogha Project and CMSU may provide a good framework for such an evaluation. The following questions could be investigated:
 - ◆ If the project or government should subsidise general household storage facilities? If yes, a review of the cost share by the household seems appropriate.
 - ◆ If it functions as a private storage facility, the design should be reviewed which may lead to considerable savings.

2.4.4. Hygiene promotion

Objectives and output

Hygiene promotion is one of the important components of this project. Easy access to sufficient and safe water as well as adequate sanitation facilities are essential for community health. However, having these facilities does not automatically guarantee improvement in community health. Health benefits of clean water supply and sanitation come only through proper functioning of the facilities created and their appropriate use. Technical aspects and educational aspects together create conditions for improving and sustaining the community health. Hygiene promotion aims to be instrumental in this process as it promotes an optimum use of water supply and sanitation facilities and care for their continuous functioning through proper operation and maintenance. Furthermore, personal hygiene –including the optimal use of water- and safe excreta disposal are important measures to maximise health benefits.

The hygiene promotion programme aims at changing key behaviours of the target groups to ensure continuous safe hygiene practices at both the household and village level, in order to reduce the incidence of water and sanitation related diseases. Originally, the following objectives were formulated for the hygiene promotion programme:

- ❖ To promote continuous safe hygiene behaviour to reduce incidence of water and sanitation related diseases.
- ❖ To encourage safe methods of water collection, transportation and storage and to use water under hygienic conditions
- ❖ To motivate hand washing with a cleaning agent after defecation/handling of babies stools and before cooking and eating
- ❖ To promote safe disposal of human excreta
- ❖ To increase use of adequate quantity of water from safe sources at least for drinking, cooking and bathing babies.
- ❖ To motivate and make aware specific target groups including children to identify unhygienic situations/practices in the village and to prioritise these as targets for change.
- ❖ To ensure proper upkeep of water supply and sanitation facilities.

However, reaching these objectives has been constrained by a delay in the implementation of improved water supply facilities in the project villages. Therefore, the focus of the programme has been concentrated on these objectives:

- ❖ To promote continuous safe hygiene behaviour to reduce incidence of water and sanitation related diseases.
- ❖ To encourage safe methods of water collection, transportation and storage and to use water under hygienic conditions
- ❖ To motivate hand washing with a cleaning agent after defecation/handling of babies stools and before cooking and eating
- ❖ To promote safe disposal of human excreta
- ❖ To motivate and make aware specific target groups including children to identify unhygienic situations/practices in the village and to prioritise these as targets for change.

In addition the hygiene promotion programme has also helped to create a demand for improved sanitation facilities i.e. soak pits and protection of existing water sources. As soon as the level of water supply increases, hygiene promotion activities will also be aimed at maximising the potential health benefits from this availability of water.

Strategy of the hygiene promotion program

- ❖ Creating awareness about safe hygiene practices and increasing participation of village people in hygiene promotion programme.
- ❖ Developing capacity of community based organizations (CBOs) to promote safe hygiene practices.
- ❖ Networking among ISAs and with government health functionaries and integrating activities of hygiene promotion with other components of the project
- ❖ Use of communication materials / participatory tools

Inadequate water supply, poor sanitation facilities and poor hygiene practices, all contribute to transmission of faecally contaminated matter, resulting in diarrhoea and many other diseases.

❖ Developing capacity of ISAs:

ISAs are in charge of community mobilization. The field workers are also responsible for hygiene promotion activities. Experiences and professional backgrounds of the field workers differ per ISA. Since the level of their skills and knowledge can have a significant impact on the success of the programme, it is important to build the capacity of ISAs in the area of planning, implementing, designing and using communications materials and monitoring hygiene promotion programme. The ISA personnel will finally build the capacity of village-based CBOs who will sustain the hygiene programme.

Activities of hygiene promotion programme

Activities for developing capacity of ISAs

Before starting the hygiene promotion programme, a meeting is conducted to identify the training needs of ISAs. Field/class room trainings/meetings/ workshops to develop the capacity of ISAs in planning and implementation of hygiene promotion programme follow this. The trainings are held over 1 to 3 days and periodical reviews are done every month through meetings with each ISA. Developing skills and knowledge occurs through orientation/ workshops on the following topics:

- ❖ Aim, definition and strategy of hygiene promotion programme
- ❖ How to conduct baseline study and to analyse this (PRA, focus group discussion, structured observation skills).
- ❖ How to develop and use participatory tools, flip charts and puppets in the field
- ❖ Development of training modules to develop capacity of CBOs
- ❖ Monitoring

The training is imparted through different methods such as group-discussions, case studies and lectures. Training is also conducted on how to make use of puppets to create awareness among the village people. CHETNA, an NGO of Ahmedabad, acted as the resource agency for the ISAs to enable them to implement school hygiene programme through meetings and discussions. The report of the workshop can be found in annex 14.

Activities for BLS

PSIU and ISAs conduct introductory meetings with the village people. Hygiene topics are introduced to the village people and links between water, sanitation and hygiene are discussed. Then ISAs establish rapport with panchayat, school, Padurang Aathvale Mandal (religious NGO), and CBOs of the different villages. The meeting is followed by a baseline study that includes Participatory Rural Appraisal (PRA), household survey, structured observation (spot-check observation), and focus group discussions. The study is conducted with the following objectives in view:

- ❖ To collect information about prevalent hygiene conditions and practices in the villages and to find out what people do, know and want to do about hygiene.
 - ❖ To plan and implement the hygiene promotion programme.
 - ❖ To develop indicators and an intervention strategy for the hygiene promotion programme.
- The ISAs identify the risky practices and at-risk groups and discuss practices that can replace the unhygienic ones. Some of the common unhygienic practices that are identified are as follows:
- ❖ Unsafe handling of drinking water while taking water from drinking pots
 - ❖ Young children defecate near waterpoints /houses
 - ❖ Not washing hands after defecation/before taking meals.

It is observed that hygiene practices differ from village to village. Caste and availability of water influence hygiene practices. The findings of the BLS are shared with the village people. The main hygiene promotion activities are selected on the basis of the findings of the various baseline studies/ participatory observations and discussions with community members. Each ISA prepares a Village Action Plan in which hygiene promotion activities forms an integral part.

Health benefits are maximized only when improvements include the three interrelated aspects of water supply, sanitation and hygiene behavior.

HP activities are mostly clubbed with other community-based activities i.e. in group gatherings, formal meetings and informal talks at water collection points. In addition all three ISAs organize special school programmes and awareness programme campaigns.

On the basis of the identified risky hygiene behaviours, ISAs conduct hygiene awareness programmes for establishing good hygiene behaviours among the target groups using participatory tools. The exercises cover different topics like transmission routes of diseases, causes of diseases and importance of safe drinking water and its safe handling. ISAs also conduct three-pile sorting exercise in small groups with women, men and children. In every meeting with the village people, ISAs try to integrate hygiene components and emphasise the importance of safe hygiene practices among the people.

School hygiene and sanitation programme

ISAs conduct meetings with schoolteachers before starting an intervention in schools. They brief the teachers about the project and their role in it. They conduct studies in the school about the existing hygiene condition and hygiene practices of children. Every village has one school and the school usually has classes up to the 7th Standard. ISAs have established rapport with school children through informal talks. ISAs also organize the following activities in the school: drawing competition, puppet show, games, story telling, slogans, exhibitions on health and hygiene, action songs and garba.

Children's hygiene clubs have been formed in many schools to make the children responsible to promote safe hygiene behaviours such as washing-hands after defecation and taking care of personal hygiene. Each club consists of 12 to 14 children. Two children are selected as members from each class. Children are encouraged to promote safe hygiene behaviours themselves.

ISAs take children to filthy places of the village in order to make them conscious about the undesirable state of cleanliness and consequences of unhygienic condition. As a result in a few villages children have stopped throwing all kinds of materials in the wells. ISAs also succeeded in establishing good rapport with the village people and have got good support from the children's parents.

Bal-Mela (Children's Fairs) are organised for school children and efforts are made to spread the message of taking responsibility for better hygiene practices. Children of different schools are provided an opportunity to interact and to learn from their interaction.

Organizing children through hygiene clubs have proved to be successful. Field visits to show unsanitary conditions in the villages have a lasting impact. The results are more prompt and assured.



A Bal-mela organised by CEE to spread the message of safe hygiene

Developing capacity of CBOs

ISAs have worked towards developing the capacity of CBOs and preparing them for taking responsibility for promoting hygiene. Periodical training and meetings are held with the CBOs for creating awareness regarding personal and environmental hygiene. Gujarat Jel Sewa Training Institute, Gandhinagar, as well as some experts working independently are invited for this purpose. The following topics are covered in the training/workshops for the CBOs: orientation about objectives and approach of the project; transmission routes of diseases, discussion on prevalent water and sanitation related diseases in the villages, water and hygiene, role of women in hygiene promotion programme. Hygiene promotion materials are also distributed to them during the training.

Schoolteacher's trainings are organised to enable them to elicit participation of children in hygiene activities. They are quite enthusiastic to learn better methods of motivating children for adopting safe hygiene practices. Please refer to annexe 15 for training module.

Communication

A number of participatory tools have been developed. Simple educational materials are translated into Gujarati. Special care is given to gender aspects while designing communications materials. The project procured educational and communications materials on hygiene from different agencies. Furthermore the following materials were developed:

- ❖ Flashcards
- ❖ Flip charts (a sample can be found in annexe 16)
- ❖ Posters
- ❖ Games
- ❖ Puppet
- ❖ F-diagram in pictorial form
- ❖ Action songs and Garba
- ❖ Play & Role-play
- ❖ Leaflets, Slogans, Folder
- ❖ Participatory tools i.e. Three Pile Sorting Exercise (details can be found in annex 17)

The ISAs use these materials in the field to create awareness about safe hygiene. A wide range of simple inexpensive educational and promotional materials have been either adapted or developed. In addition ISAs have developed different games, drama and songs dealing with various hygiene messages, e.g. cards showing transmission routes of diseases in pictorial form.

Strengthening and reviewing hygiene promotion programme

The monitoring system for the hygiene promotion programme varies from ISA to ISA. A simple monitoring form is used to review the impact of each hygiene promotion activity. Information received from the forms is analysed to improve hygiene promotion activity. A sample copy of the progress monitoring form is given below:

Progress monitoring of hygiene promotion activities

Name of village	Date of visit and Name of field worker	Target groups	No. of Male/ female/ Children	Topics	Methods used	Review of activity for school prog.	Issues which came up for followup	Next -plan	Observed changes

Information received from the forms is analysed to improve hygiene promotion activities. Nevertheless, common indicators to measure the impact of HPP have been developed. It can be found in paragraph 2.9.2. ISAs also submit reports of specific events as and when required. The overall progress in this programme is reflected in half yearly reports.



Children actively responding to a query during a school sanitation programme

Conclusions

- ◆ Training given to ISAs succeeded in developing their capacity in planning, implementing and monitoring the programme and integrating hygiene promotion activities with other components of the project.
- ◆ Various community groups, including women, are involved in the PRA exercises to obtain a picture of the village context in which unhygienic practices occur. In general there is an improved understanding of the relationship between water and health.
- ◆ Many improvements have been noticed regarding hygienic water use. Village people are made conscious about the importance of the use of safe water and consequences of the use of unsafe water on the health of the people. More families tend to use a ladle for taking drinking water at home. People have started to come forward and demand water quality testing. Some women have started to keep the surroundings of their houses clean and to throw the garbage at designated places in the village. In some villages, people used to throw left over religious (pooja) materials into the wells that polluted the drinking water. Now with the awareness created in regard to link between contaminated water and diseases, people have stopped throwing waste materials in wells.
- ◆ ISAs succeeded in establishing rapport with Panchayat, Schools, Padurang Athvale Mandal (religious NGO), and different CBOs of the village.
- ◆ Village people are quite receptive and quite cooperative in the hygiene promotion programme.
- ◆ The hygiene promotion programme has been implemented in all the schools of the project villages. Children are quite receptive and have started to promote safe hygiene practices in the villages. For example, about 22 to 25 primary school children of Chhaya village made their parents purchase ladles and use them in their homes.
- ◆ Hygiene practices such as washing clothes and frequency of bathing are poorer among men of some castes e.g. Kanbi Patel and Khadak Patel as compared to women in project villages. Men were reluctant to discuss hygiene with the ISAs. Different methods such as water quality testing were therefore used to involve them and the resulting is encouraging.
- ◆ People have become conscious of keeping the surroundings of water points clean. As a result, women have asked members of pani-samiti to make arrangements for proper wastewater disposal system near the wash facility of the village such that the wastewater does not percolate and pollute the drinking water. In Nesvad village the drain system of one of the handpumps was blocked. The people cleaned it and now it runs smoothly and water does not stagnate near the handpump.

As part of encouraging children to take responsibility, ISA took children to the filthy places of the village in order to make them conscious about the undesirable state of cleanliness and

Communities need to know and understand the linkages of contaminated water and health, in order to change their practices.

consequences of unhygienic condition. In one instance, when CEE took children to one of the water sources of the village, they observed that branches and thorns of *Ganda Baval* trees had grown all around the well. It created obstacles for women in pulling out the water pots from the well and surrounding area was dirty. Children immediately took action and cut down the branches of the tree, which were creating trouble for women in fetching out the water and children also cleaned up the surrounding of the water source.

Recommendations

- ❖ Efforts should be made by the ISAs to train people family-wise to take responsibility for promoting safe hygiene practices.
- ❖ Children will have a greater impact on future hygiene practices and hence the school hygiene programme should be emphasised to bring about lasting changes in the villages.
- ❖ Specific communications materials and techniques should be developed to respond to unhygienic practices of men such as not washing clothes and not bathing.
- ❖ Efforts should be made to properly document the successful experiences in implementing the hygiene programme with men.

2.4.5 Environmental sanitation

Objective and outputs

Supplying water without providing sanitation and hygiene education is often counter-productive, as instead of improving living conditions it can lead to an adverse health impact. For this reason, sanitation improvement in the project area has always been one of the general development objectives of the Ghogha project. Of the total investment budget for water supply and sanitation in the project, 20% was allocated to sanitation. These activities would be carried out through the development and implementation of village based methodologies, and based on actual demand.

The general project outputs concerning sanitation were formulated as follows:

- ❖ improvements of safe disposal of human excreta including, where there is a demand, increase in household latrine coverage;
- ❖ improved communal sanitary conditions, particularly with respect to waste water and solid waste disposal.

Situation at the beginning of the project:

During the inception phase and the first part of the implementation phase the focus was mainly on the collection of baseline information to understand the environmental sanitation issues and priorities in the villages. Gathering of information was done by PRA, village walks, focus group discussions and household surveys.

Major findings of the investigations were:

- ❖ The overall sanitation in the project villages is unsatisfactory. The open disposal of excreta, waste water and solid waste is commonly seen in all project villages.
- ❖ There is a high incidence of water related diseases like diarrhoea, dysentery, gastro-enteritis and malaria in the project area.
- ❖ In the demand assessment study conducted it was found that in the last three months 70% of the households in the project area had hospital expenses and 73% had doctor's bills to pay. Their average expenses per household during this period were Rs. 1364 for hospitals (incl. travel) and Rs. 2214 for doctors and medicines.
- ❖ Only 5-10% of households in the project area have latrines, which are either single or double pit pour-flush latrines. Most of the primary schools lack sanitary facilities, at best only urinals are present. Latrines are either not existent or not used due to lack of water. The vast majority of villagers practice open defecation. Women and children have stated to adjust their food and liquid intake in order to control their need and timings for defecation till after sunset.
- ❖ Household waste water from kitchen and bathing is usually channeled outside of the family compound in a shallow open pit or left to flow freely through the streets, adding to the flow from the numerous community water points which lack any drainage provision. Waste

There is no existing drainage system for household wastewater and in most cases for the waste from the public water points as well. These normally find their way to the streets or open pits.

The project believes that to be sustainable, technology-based improvements should be affordable to the users and properly operated and maintained. Trainings and capacity building of the users to manage these adequately, support these interventions.

water inevitably accumulates in the many low-lying areas of ill-planned rural settlements, making roads muddy, inconvenient and, at worst, inaccessible. This stagnant water attracts both filthy animals and disease-carrying insects and serves as an accumulation point for garbage.

- ❖ Some families were motivated by the Swadhyay religious group to construct soakpits for disposal of their waste water. Users report overflowing of the pits after a few months. This is attributed more to poor designs than inappropriateness of the technology. A few communities have implemented open (in Koliyak) or underground (in Rajpara-T and Piparla) drainage systems. The centrally collected waste water is disposed off without further treatment.
- ❖ The open manuring of solid waste, especially of cow-dung heaps within the settlements, is a normal scenario in almost every village. Many heaps are found near the water supplies.

Factors influencing sanitation choice:

The aim of the sanitation programme has been to provide a range of sanitation technologies from which the villagers themselves can choose the most appropriate option. The conditions taken into account for technology selection are described in the following paragraphs.

At present, water availability is minimal in the majority of the project villages. This lack of water has been stated as a reason for not constructing pour-flush latrines. In fact, many of the constructed pour-flush latrines are not used, especially during summer periods. There is a demand for latrines in the villages, mainly in congested areas where there is virtually no privacy for open defecation.

Aquifer pollution by on site sanitation is a risk in the Ghogha project area due to the occurrence of highly fissured hard-rock conditions. Foster et al¹ recorded rates of water movement in this type of aquifers as high as 1 km/d and commonly see rates of 1-10 m/day. Thus, implementation of on-site disposal systems on a large scale will inevitably lead to the deterioration of ground water quality.

With the characteristics differing widely among the villages in the project different levels of technologies are needed. For instance, the population distribution of the project villages is (based on projected census figures to 2002) the following:

Population	Number of villages
0 – 1000	12
1000 – 3000	44
3000 – 5000	18
> 5000	6

On-site sanitation might be the most desirable option in small or dispersed settlements, but when the natural environment cannot absorb the effect of human activity any longer –off-site- alternatives are needed.

Strategies of the environmental sanitation programme

The Ghogha project has always considered environmental sanitation in an integrated way. It is concerned with removal of all liquid and solid waste from the household environment. Disposal must be done in a way that does not cause harm to either people's health or the environment.

Till date, the government programmes on rural sanitation in Gujarat deal mainly with the safe disposal of excreta. Until 1995 the government programme on household latrine construction was under mandate of GWSSB. After that it was transferred to the Rural Development Department. There it is currently being implemented along with the 'Gokul 1985 Gram Yojna', a programme for building rural infrastructure.

¹ S.S.D. Foster, A.C. Skinner, G. Matthes, Theoretical Background, Hydrogeology and Practice of Groundwater Protection Zones, International Association of Hydrogeologists, Volumes 6, 1985

In order to find solutions to the sanitary sanitation problems in the project area new technologies and approaches had to be developed and tested by the project. It was therefore decided to apply parallel strategies:

Firstly, pilots on a small scale are used to test whether new technologies will work in the project area, are affordable and can be maintained at the lowest level possible. Information from these pilots can be used to assist decision makers in Gujarat on innovative approaches to environmental sanitation.

Secondly, whenever possible, the project tries to make use of existing government programmes.

Activities developed

The following activities were developed as pilot/studies by the project:

- ❖ implementation of 'improved' soakpits,
- ❖ study on the feasibility of a sewer system for a village,
- ❖ study on and implementation of a root zone technology waste water treatment system,
- ❖ implementation of community composting pits,
- ❖ implementation of improved drainage for public water points,
- ❖ development of proposal for centralised waste water treatment schemes.

The government programmes that the project collaborated with were:

- ❖ masons training on construction of school sanitation unit and construction of units under the government run school sanitation programme.

In the following paragraphs the activities that have been taken up by the project are described in more detail.

Implementation of 'improved' soakpits

- ❖ **Goal**
reducing the nuisance caused by non-excreta household waste water by simple measures
- ❖ **Situation before implementation**
household waste water from kitchen and bathing is channeled:
 - ◆ outside of the family compound and left to flow freely through the streets
 - ◆ to undep open pits in front of house
 - ◆ to 'conventional' soak pits as promoted by the Swadya religious group, these usually start to overflow after a few months
- ❖ **Development activity:**
 - ◆ March 2000: 1-day training to NGO-staff on improved soakpits design. See annex 18 for the paper on how to construct a soakpit that was distributed.
 - ◆ April-June 2000: large scale demonstration (min. 50 soak pits per NGO) in several villages (see annex 19 for design and costing of improved soak pit), household provides labour, project provides material and technical assistance.
 - ◆ July 2000 onwards:
 - ◆ possibility to receive subsidy of 150 Rs. through GWSSB channels after demonstration, so far proposals were made for 2 villages by CEE
 - ◆ demonstrations are carried out in most of the villages where NGO's are working, often they are even using it as entry point activity.
- ❖ **Lessons learnt**
 - ◆ Maintenance of the soak pit needs to be stressed from beginning onwards, otherwise people cover them and forget about it which reduces its lifetime; if women wash with ash maintenance is a problem.
 - ◆ If village had the experience of 'non-improved' soak pits from Swadiya family they are very reluctant to believe soak pits will work and a large scale demonstration of the improved design is necessary.

Wastewater disposal still remains a problem, especially as soak pits are not an answer everywhere. However they will contribute significantly to addressing the problem in the project area.

- ◆ Soak pits are not suitable everywhere (not in hard rock area, not near handpump) and no long term solution for all waste water disposal, especially if water supply increases and toilets will be build. It can nevertheless be seen as a major improvement of the existing situation in a majority of the project area.
- ◆ The soak pits activity has shown to be a good entry point activity for the NGO's. The direct improvement in the village environment lets the NGO gains credibility by showing they do more than talking only.



'Before' and 'after' soakpits

Study on the feasibility of a sewer system for a village

◆ *Goal*

investigating the technical feasibility of off-site waste water treatment and disposal in one of the project villages

◆ *Situation before implementation*

In several villages of GRWSSP there is a strong demand for an off-site drainage system. This demand rises from both the magnitude of the problem of waste water disposal and the fear of groundwater contamination associated with on-site waste water disposal.

◆ *Development*

Aug – Dec 2000: A study is carried out on the feasibility of a settled sewer system and root-zone treatment for Bapada village (see annex 20 for design).

◆ *Lessons learnt*

- ◆ Traditional sewer designs can be adapted to produce systems that are economically, socially and technically sound and sustainable, even in communities that rely on communal waterpoints for their water supply. Most common adapted designs are settled and simplified sewerage. Settled sewers carry only liquids, simplified sewers both the liquids and solids of waste water.
- ◆ The design was made for a settled sewer, but the major disadvantage of the system is that it requires a septic tank at either the household or cluster level to separate solid excreta from toilet waste water. The septic tank technology appears to be costly and impractical in rural areas, due to the desludging requirements every 1 to 4 years.
- ◆ Simplified sewers seem more appropriate for the project area. Their design comes mainly from a reassessment of conventional design criteria and standards, based largely on experience and experiment, resulting in shallower slopes, smaller pipes and fewer accessories.

Study on and implementation of a root zone technology waste water treatment system

❖ *Goal*

improve domestic waste water treatment at village with existing sewer lines

❖ *Situation before implementation*

The outlet of the sewerline in Rajapara-T empties directly into non-perennial water bodies with no treatment whatsoever. Complaints have been generated regarding odour, mosquito nuisances and general filth.

❖ *Development*

Mid Sept 2000	Visit by Ghogha project members to Vikram University in Ujjain, MP, where professor Billore has researched the rootzone method for waste water treatment and constructed two demonstration sites.
September 29	Village meeting in Rajapara-T to introduce the technology to the community and assess its feasibility. About 20 men and women attended and all showed great enthusiasm for the project and willingness to contribute the necessary labour.
November	2 Phd. students from professor Billore come to Rajapara-T to make a detailed design and estimate and locate an appropriate site for the rootzone constructed wetland.
Jan-Feb	Implementation of rootzone constructed wetland. See annex 21 for more details on this wetland.

❖ *Lessons learnt*

- ◆ It is difficult to motivate village members to contribute for the construction of a community sanitation structure. Probably, this is more easy when it concerns an integrated package up to household level.
- ◆ The cost of construction (not taking the piloting costs such as consultants' costs in account) of the rootzone waste water treatment facility is around 680 Rs. per connected household.
- ◆ As the construction of the system is just finished, it is too early to make any statements on the quality of the treated water.

Implementation of community composting pits

❖ *Goal*

improve solid waste disposal, mainly that of cow dung and crop residues

❖ *Situation before implementation*

The open manuring of solid waste, especially of cow-dung heaps within the settlements, is a normal scenario in almost every village. Many heaps are found near the water supplies.

❖ *Development*

August 2000	Visit by Ghogha project members to Surendranagar area where AKRSP(I) has motivated several women groups to take up composting as income generating activity.
August	Circulation of paper on organic composting among Ghogha project members (see annex 22)
February 2001	Training by AKRSP members to 9 village groups of the Ghogha project area who wish to take up organic composting

❖ *Lessons learnt*

- ◆ The pilot has only just started, so it is too early to draw any conclusions.

Implementation of improved drainage for public water points

❖ *Goal*

encourage the installation of proper drainage at all community water points

❖ *Situation before implementation*

Proper drainage of waste water is virtually non-existent in the Ghogha project area. This creates nuisances such as odour, mosquito breeding, the accumulation of solid waste and general filth. The situation is especially severe at community water points such as handpumps and washing facilities where the number of users and volume of spilled water is high.

❖ *Development*

Sept 2000	Selection of problematic sites in 12 villages by ISA's and pani samitis.
Oct	Designing of simple drainage facilities such as soakage trenches and leach pits.
Nov-Feb	Construction of improved drainage by ISA's.

❖ *Lessons learnt*

- ◆ The drainage facilities have only just been constructed, so it is too early to draw any conclusions.

Development of pilot on centralised waste water treatment schemes

There is a persistent and growing demand for underground drainage from several villages within the Ghogha project. Such demand has in some villages been strong enough to outweigh that for new water supply schemes and has led several communities to construct their own haphazard lines. Problems regarding waste water disposal are seen throughout the project area but are particularly intense in highly populated villages where water supply is more or less adequate, especially in communities where many households have private handpumps. The current situation is expected to worsen in the future with both population growth and the increase in water consumption, as more water is expected to be supplied by the Ghogha project.

Based on research in the Ghogha project it was decided to propose implementation of the components mentioned below in 3 project villages in order to check its technical and economical viability in rural areas:

- ❖ Simplified sewerage
- ❖ Roads and landscaping
- ❖ Waste water treatment by rootzone method technology

Simplified sewerage systems are currently emerging around the world due to reassessment of conventional design criteria and standards. This has resulted in sewers with shallower slopes, smaller pipes and fewer accessories such as manholes, than standard urban systems. These changes have resulted in substantially reduced costs. The implementation of simplified sewers has seen substantial success within India, particularly as a component of the slum-upgrading work of Mr. H.H. Parikh in cities such as Indore, Baroda and Ahmedabad. The projects involved an integrated approach to infrastructure development where roads, sewer lines, water lines and landscaping were done simultaneously to maximise both its technical and economical efficiency.

Masons training on construction of school sanitation unit and construction of units under the government run school sanitation programme

❖ *Goal*

- ◆ Creating awareness to NGO's and schools on government run school sanitation programme
- ◆ Use Ghogha field experiences with the programme to make it more effective
- ◆ Improve the sanitation status of schools (expected effect: reduced drop-out rate girls)

Underground drainage is another demand that is gaining ground in the area.

- ◆ Improve the knowledge/capabilities of village masons in the field of sanitation
(expected effect: better quality of work, increase in sanitation structures)
- ◆ *Situation before implementation*
 - ◆ Only a few schools have a latrine in the project area.
 - ◆ Sanitation units are implemented through the government scheme, but not used due to lack of water.
 - ◆ Local masons usually build one pit pour flush latrines as they do not know the benefits of the twin pit technology.
- ◆ *Development August 2000*
 - ◆ start school sanitation survey and selection of schools to be included in programme November 20-25, 2000: training of 18 village masons (10 men, 8 women) in construction of school sanitation unit by the Environmental Sanitation Institute (ESI), Ahmedabad.
- ◆ *December 2000 onwards*
 - ◆ the masons that have been trained will assist in construction sanitation units under the government programme. The Ghogha project is stimulating involvement of the female assistant masons so that they can improve their capabilities by paying for their wages.
- ◆ *Lessons learnt*
 - ◆ It is difficult to get reliable information on water situation at schools. Schools either state they have no water because they are afraid they won't be included in the Ghogha scheme, or say they have water all year round because they think they won't be eligible for a latrine otherwise
 - ◆ Village masons are very interested to develop their skills, especially women. After the training 6 out of 8 female assistant masons said they wanted to become a master mason.

One way of ensuring greater self-reliance is to develop the skills present in the village. Training conducted by the project for female masons have been very popular and women have shown interest in working as masons.

Conclusions

- ◆ The project has reached the status that the total package of sanitation technologies suitable for the project area is known. Most of these have been tested out in pilots.
- ◆ ISA's have gained field experience through these pilots and the demonstration villages can be used as examples to create awareness on suitable sanitation technologies for the project area.
- ◆ The options on environmental sanitation improvement that were piloted were mainly in the field of improved waste water and solid waste disposal, as demanded by villages. In part of the project area demand for appropriate waste water disposal was even higher than for improved water supply.
- ◆ Apart from some school latrines, physical implementation of household latrines has not taken place through the project. The technology for excreta disposal that is strongly promoted by the government is the twin pit pour flush latrines. The few latrines of this type that exist in the area are often not used due to lack of water or fear of groundwater pollution. Safe disposal of human excreta was improved by motivating villagers to defecate away from water points.
- ◆ The project did not see scope to develop a large scale latrine programme independently from the existing government programmes. This was largely motivated by the inflexibility of the programme and the non-appropriateness of the technology in the majority of the project area.
- ◆ It is expected that if the level of water supply will increase in the area the implementation of pour-flush latrines will increase. Villagers have also stated that they will construct latrines if an appropriate disposal option such as an underground sewer system becomes available to them.

Recommendations

- ❖ The government should promote a wider range of environmental sanitation technologies apart from only the twin pit pour flush latrine.
- ❖ Improvements in drinking water supply should go hand in hand with provisions for appropriate waste water disposal.
- ❖ In villages where the water supply is not going to increase in future and a demand for latrines exists, the project sees potential for testing out the acceptability of composting latrines. This technology has been tried out successfully in villages of Kerala. See annex 23 for more details.

2.5 Features of the Project

2.5.1 Introduction

Community participation is seen as the one factor that holds the key to sustainability and efficiency of water supply projects through better delivery, operation and better maintenance of structures. This project aims at integration of concepts of people's participation and cost recovery for operation and maintenance of the water supply system, for better sustainability of these systems. Decentralization of decision-making and increased emphasis on sanitation and hygiene has been adopted as strategies for increasing the effectiveness of the sector. For the purpose of working closely with the communities, NGOs have been active as they have the added advantage of following a process or development oriented approach. These NGOs are able to build local capacity to sustain benefits, enabling a shift of control and decision-making powers to the local community.

The sustainability of the new water supply systems depends on the degree to which the Panch Samitis and the Board can provide regular preventive and corrective maintenance when needed. Such issues as who controls the spare parts and where these are available etc. make operation and maintenance as much an institutional issue as a technical one. Therefore the project has made a careful planning for handing over of the facilities to the local Panchayat.

The hygiene education programme helps people not only to understand the benefits of improved facilities but also ensure as a result, that people properly operate and maintain the new facilities. Women as the primary users and providers of water at the domestic level have been an important part of project activities. Principally the project believes that both men and women are disadvantaged by gender as they are by caste, disability, economic status, education level etc. Consideration of gender relates to men and women, their needs, priorities and strengths and ultimately benefits everyone. The project believes that working with a gender perspective means giving a voice to those who are at present silent and marginalized and giving priorities to their needs. Therefore the project is working closely with women by addressing their needs while men are also sensitized to appreciate women's requirements and thereby their increasing involvement in project related activities.

In the chapters that follow in this section, each of these topics have been dealt with separately, trying to highlight the methodologies and approaches, formats, findings etc.

2.5.2. Incorporating gender concerns in the project

The need to incorporate gender concerns in the project arises from the fact that the drinking water and sanitation sector provides a unique case for involvement of women. Women play a vital role in this sector as-

- ❖ the providers, users and managers of water in the household and are responsible for household hygiene.
- ❖ they therefore often know a lot about water sources and their condition.
- ❖ if they are not involved in decisions of the project, the project is likely to run the risk of not being sustainable in the long run.
- ❖ women are the potential users of the new or improved water supply system and also their role in disseminating information about improved hygiene practices is crucial.

The situation in the project villages

Women's position in the society in this region is a reflection of the rigid caste system and male domination in the society here. Traditionally women's domain has been limited to domestic activities with very less say in community matters. The project has tried to address this issue through various ways. Initial experience of interactions with men have shown their hesitation to include women in any decision making process. They were reluctant to include women in the community meetings, even if the project staff insisted on it. Village leaders always argued that it is practice that women will not face men and they should sit in the separate room. Women are members of the local Panchayat but in most cases, it is the men who take all decisions, grossly undermining the capacity of women folk to independently decide. Women merely are mute signatories to such decisions.

In the local Darbar community women do not move out of their houses even to collect water. It is predominantly the man's responsibility, a practice governed more by social norms than out of concern for women. Thus despite a stiff resistance of the male members of the village, the project staff continued to convince and motivate the villagers. The efforts included carefully drawn out strategies, to include women in all matters related.

Objectives of gender in the project

- ◆ To reduce drudgery of women by providing adequate quantity of safe drinking water within convenient distance.
- ◆ To provide equal opportunities to men and women of all castes to participate in matters related to the project.
- ◆ Improving the relative status of women in the project area that will help improve gender relations and reduce gender disparities in the context of water and sanitation practices.

Both men and women have a key role in maximizing the benefits of a water supply programme.

As a project, it believes that the focusing on gender is not meant to be a focus on women alone but both on men and women and the way they interact with each other to make decisions, share tasks and complement each other in roles related to water supply and sanitation. The approach recognizes that the roles of both men and women will have to be considered to if equitable development has to take place.

The Project is committed to

- ◆ Incorporating gender concerns in every stage of project implementation.
- ◆ Reducing the drudgery of women by addressing the practical needs and strategic interest of women in the context of water supply and sanitation.
- ◆ Increased participation of weaker sections of the village community in the project.

THE STRATEGY AIMS AT

- ◆ Sensitisation and capacity building of institutions that are involved in the project to incorporate gender concerns.
- ◆ Elicit equal participation of men and women in all project activities i.e. planning, implementing and monitoring process.

Methodologies adopted to enhance women's participation

The project believes that if women are not involved in the planning and implementation of the water supply system, their motivation to use and maintain the new system will be less. Thus they will continue to be overworked but underutilized. The project has therefore attempted to incorporate women's special needs and priorities at different steps of the project by involving them in many key decisions. These steps are interrelated and are being evolved during the project cycle for better implementation.

The following is an indicative list of some of the processes involved in involving women in the project.

◆ Their presence in meetings

From the beginning it is insisted that women do attend introductory meetings which will serve as a forum for them to have a brief idea of the programme. PRA is a process where

women are actively involved and this gives them an opportunity to identify issues concerning them and collectively plan actions. In the household survey, women get an opportunity to personally know the project and project staff and also highlight the problems regarding hygiene and sanitation practices. In all the meetings that take place at the village level, the role of women is emphasized and also ensured.

◆ **Participation in village institutions**

Women are motivated, trained and encouraged to form members of the Pani Samiti. Women sarpanches are encouraged to become president of Pani Samitis. It is also emphasized that in case of a women sarpanch not interested in becoming a Pani Samiti head, she should be replaced by a women member. In villages where local women's groups are active, the groups are involved in the formation of the Pani Samitis.

◆ **Participation in project activities**

It is always ensured that women do participate in all major decisions related to the project. They are adequately informed and aware about the various stages of the project and approve of the developments that take place in the village. Site selection is an activity where women's special needs are being considered and they are consulted in deciding sites for various facilities like stand posts, wash facilities, cattle troughs etc. In case of handling of bank accounts, it is insisted that a woman is one of the signatories. Hygiene promotion programmes focus on women and try to build on the existing hygiene patterns. Trainings are conducted specifically for women to orient them about better hygiene practices and bring about greater awareness amongst them regarding the benefits of the project and how they can assume a very



responsible role in maintaining a better environment in the village. Village Action Plan is an activity where women participate to plan for the developmental activities in the village. In villages where Panchayat have taken up construction, women are involved in construction activities. It is envisaged that they will take an active part in operation and maintenance by taking preventive maintenance measures, informing timely about repairs and maintenance required etc.

◆ **Training**

Women form an important target group in all the training programmes. Trainings conducted for them include hygiene promotion, pani samiti functions, their roles and responsibilities as pani samiti and Panchayat members, organizational strengthening, soak pit constructions. Women masons have been trained in construction and maintenance of latrines. They will later act as motivators to promote the latrine programme in the area.





Women inaugurating a training programme for women sarpanches

◆ **Including men**

Efforts to include women have not been done in isolation. At every stage men have formed a part of the process, where they have been made to understand, appreciate and finally initiate the process of involving women. Even though the initial efforts did not meet much success because of the traditional image of women, dominated by the existing rigid caste structure, persistent efforts finally showed results.

Several meetings with men to sensitize them about the basic need to include women as a part of decision making process served as a good mechanism. Men realized the significant relationship women shared with water and how the availability or non-availability of this resource seriously affected their lives. A number of tools like gender cards, video films etc. were used for the purpose. PRA exercises formed the initial stage where awareness was created about the time spent by women in household activities and especially water related activities. Decision making forums included both men and women, where women were given opportunities to voice their opinion in the presence of men. Gradually from a situation where men opposed the very presence of women in collective forums, they now make efforts to involve them in many decisions, and believe in the crucial role played by women.

◆ **Capacity building of the implementing partners**

As a part of the capacity building exercise, the three implementing ISAs and NAPU have been periodically oriented on gender aspects of the project and what we are trying to achieve by it. A number of training and workshops have been conducted to familiarize them with the concept of gender, appreciate the concern and need for it, and also for developing their skills to incorporate gender concepts in the project.

A series of three Gender Networking workshops have been held in the project period for all Dutch aided projects in the state to provide a platform to all projects for exchange of experience of working on gender. A detailed report follows in this chapter.

With an improvement in water and sanitation conditions, women and thereby the entire family stand to benefit from it. Once the water supply systems are functioning, women will benefit in more number of ways than one. It will result in-

- ◆ decrease in water and hygiene related diseases for the entire family.
- ◆ decrease in time consumed for collecting water leading to reduced physical strain of women and extra time available.
- ◆ chances of spending the available time in qualitatively or in leisure activities.
- ◆ increase in learning new skills and thereby developing more self confidence with the expansion of their involvement through the project.
- ◆ increase in better access to sanitation facilities.



Some of the important general steps followed are

- ❖ Contact men and especially male leaders for their understanding and support
- ❖ Facilitate women to attend and participate in meetings by ensuring favorable-
 - ✦ time and place of meetings
 - ✦ highlighting the need to attend and prior information
 - ✦ appropriate seating arrangements
 - ✦ create an environment where they can speak out
 - ✦ conduct separate meetings with them.
- ❖ Involve them in local planning and decision making
 - ✦ choice of pani samiti members
 - ✦ design and location of facilities
- ❖ Representation of women in key positions.
- ❖ Expansion of their work and responsibilities-
 - ✦ maintenance and repair of water points and WS system
 - ✦ collection of money for operation and maintenance
- ❖ Training of women for managerial and technical tasks

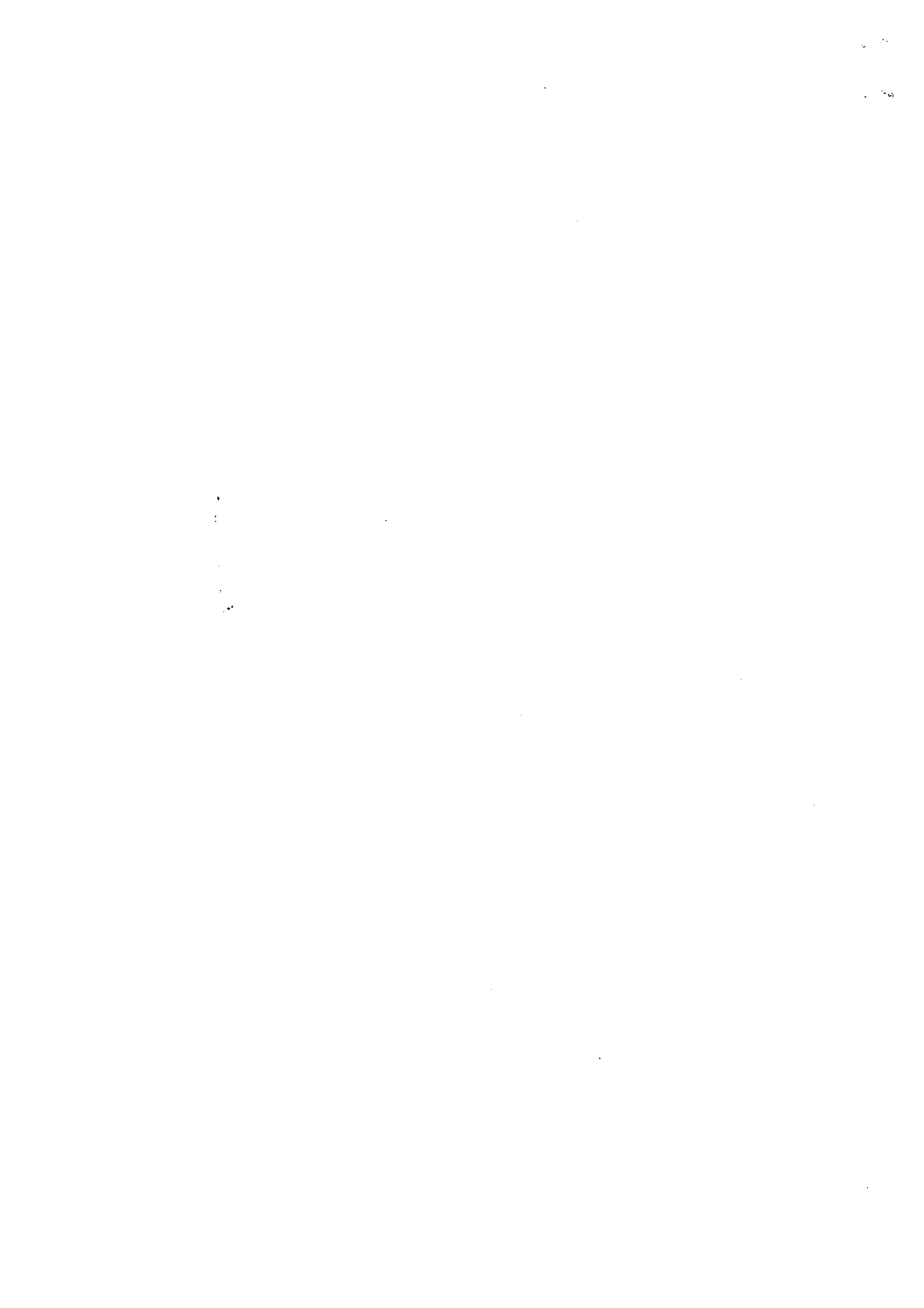
A list of indicators (please refer 2.9.2 - Indicators on gender) have been developed for the purpose of assessing gender awareness in the project. These can be periodically used to measure the success of the programme and also develop and refine methodologies.

One of the achievements of working with women in the project villages, has resulted in increased participation of women in pani samiti functioning. One of the indicators developed was their membership in the PS. The result is highlighted in the following table, which is indicative of a few villages.

Villages	Total members	No. of women members	No. of male members
Neswad	19	6	13
Chhaya	18	3	15
Mithi- virdi	14	7	7
Nagdhanibha	11	4	7
Navaratanpur	13	4	9
Bapada	14	7	7
Mathavada	12	4	8
Bhandariya	13	4	9
Garibpura	17	4	13
Lakhanka	13	4	9
Odarka	13	2	11
Vavdi (B)	13	5	8

❖ **Regional Gender Networking Workshops**

A series of three regional gender networking workshops have been conducted in the project period, which was attended by the PSIU and NAPU and also ISA staff. These workshops are conducted for projects in the state supported by the Netherlands govt. which includes those projects for water supply and sanitation, DPEP programmes, Mahila Samakhya, and women in agriculture. RNE members also attend these.



Regional Gender Networking Workshops were organized with the following objectives:

- ◆ To provide an opportunity to all partner organizations to share their experiences of working on gender issues in the last one-year.
- ◆ To strengthen the networking process to address gender issues. To acquaint new members of the partner organizations with the basics of gender.
- ◆ To initiate the process of developing indicators and strategies for addressing gender issues in the coming year.
- ◆ To familiarize the participants with some of the participatory tools for gender analysis at the community level.

The workshops have dealt with developing a basic understanding of gender, on aspects such as access and control over resources and how development professionals through such projects can help in changing these adverse situations. Different projects share their experience of working with gender, and how they have developed strategies and programmes. These workshops have also helped identify the capacities needed by different organisations to work with the community.

◆ **Workshops organised for project staff**

A number of workshops and training programmes organised for the project staff of ISAs has helped enhancing their understanding and develop a focus for incorporating gender components into the project. These have also helped in developing strategies to be adopted, based on feedback from the ISAs and their experience. NAPU has also been involved in these training sessions and these have helped to orient them on the basic concepts of gender and appreciate the need for incorporating gender concerns in the project.

2.5.3 Cost recovery for Operation and Maintenance:

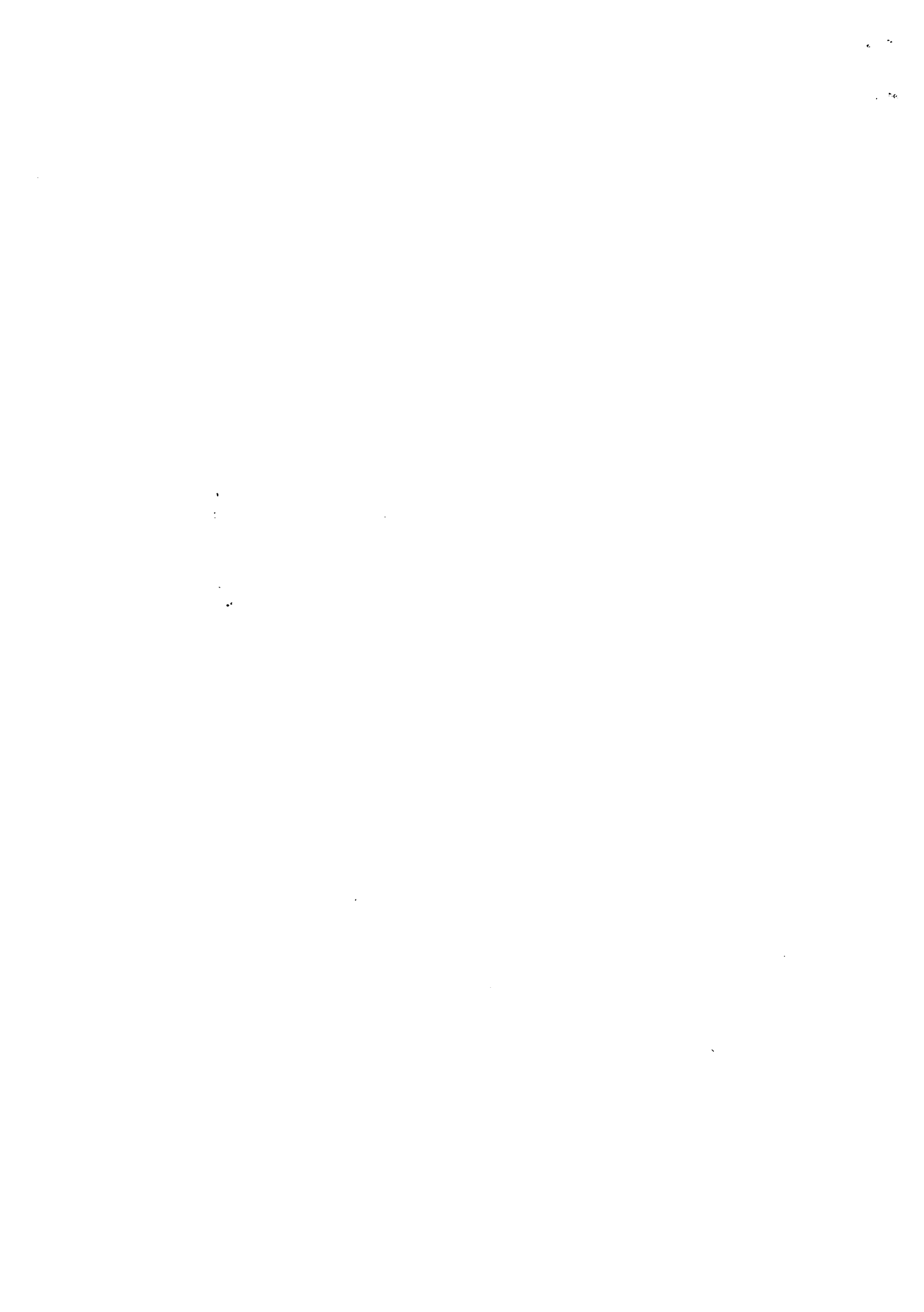
Cost recovery is argued as one of the important components of the project. The case for user payment derives from a number of underlying principles:

- ◆ The capital funds which are currently available are inadequate to provide a safe and reliable water supply to everyone
- ◆ Subsidies reduce the decision making power users might have if they were paying for their service.
- ◆ Payment would increase the commitment of users to efficient management and use of systems.

Inadequate cost recovery results in poor maintenance of structures, lower levels of use and prevents expansion of the system.



Receipts being distributed by Pani Samiti members in Chhaya



- ❖ Statistics suggest that the aspect of cost recovery has been absolutely neglected in the existing govt. schemes by the GWSSB.
- ❖ User payments results in the maintenance of good standard of service and maximization of the available resources.

The cost recovery concept adopted for the Ghogha Project aims at enhancing the effective and sufficient payment of water tariffs by the water users for greater sustainability of the water supply system. The cost recovery mechanisms adopted, attempt to reinforce this concept of a demand based approach.

Cost recovery is an essential part of the project cycle and involves a detailed effort right from explaining the concept to actual collection of the amount. ISAs play a crucial role in this process by facilitating the designing and adoption of strategies and enhancing the understanding of the people regarding cost recovery. As a project, one of the ways we measure sustainability is how well communities recover costs. Therefore, right from the beginning, efforts are made to explain, what the people are paying for.

Methodology

- ❖ In any village, the process of cost recovery is preceded by formation of Pani Samiti, preparation of the design of water supply scheme by NAPU and estimation of the operation and maintenance cost. Refer to annex 24 for CR model.
- ❖ A meeting is convened in the village, which includes men and women apart from those in the Pani Samiti. Members from NAPU, PSIU and the concerned NGO are present in this meeting. The plan is then shared with the people, and the cost and estimates explained. Information is shared on how the costs have been arrived at. This meeting provides an opportunity for very preliminary discussions on how the amount is to be collected.
- ❖ Decision on the methodology is the outcome of a series of meetings, discussions and negotiations that take place in the village. By this time house listing is done by the ISAs, which provides the information on the number of actual users of the system. The methodology is then decided. A rough estimate is done on the amount that each household has to pay, if it is so decided. The options for deciding the tariff structure is explained to the people so that they can make informed choices regarding the mechanism of charging fees. It is well established that the distribution of the community contribution is rather equalized. The major concerns as shared with the people are -
 - ◆ every user should contribute so that he/she does have a sense of involvement in the project and would be involved in the management of the system. This would also ensure that there are no "free riders".
 - ◆ those better off do not "buy" off the project for their own advantage.
 - ◆ that the Pani Samiti has the primary responsibility of collecting contribution while the ISAs will play a facilitating role in the entire process.
- ❖ A period of about 60 days is required to collect the amount. Soon after first few contributions are made, an account is opened in the name of the PS and the money transferred there. This account is currently jointly managed by two PS members and one member from the concerned ISA. This transparent financial system is expected to significantly reduce the misuse of funds traditionally associated with the govt. departments, and helps to build trust amongst the community.
- ❖ The Pani Samiti maintains a bank account for which a pass book is issued to the Panchayat. The pass book is kept with the president of the PS. Once the required amount is generated, the Panchayat informs NAPU and ISA about the progress and then NAPU carries out further the work of tendering the scheme.

O&M is an important policy instrument to ensure that the systems continue to provide appropriate and sustained levels of service in future.

Unit for charging fees

One of the most important issues that emerged in cost recovery process is determining the unit of cost recovery. Different strategies have been adopted in different villages. In Babada, Mathavada and Garibpura, a household has been accepted as the unit for collection while in

village Pithalpur, it is per person. A household here is defined by the one *Chulha* (kitchen). In Bapada, the unit decided upon was a ration card holder of the village. The differentiated strategies formed for cost recovery are governed by the fact that household strength varies in the villages. In villages where there were not much variations in household strength, the charges were somewhat equalised. The average amount collected from each household in most cases is about Rs. 150/-.

In Pithalpur during house listing exercise it became evident that there were more number of joint families which were large, having about 18-20 members each. A decision to go by the per household criteria would mean that the few families with six or less members would also have to share the additional burden of others. Therefore it was unanimously agreed upon that they would adopt per capita as the unit, thus minimising the chances that some people are not overburdened. They further decided that young girls be exempted from the calculations as they would move to another village after their marriage.

The arrangements made

Cost recovery has come as a major challenge to this project. While methodologies and strategies have to be further tested, tried out and streamlined, useful experience has been gained in this area. Pani Samitis have responded in varying ways to this new concept. The responses initially are lukewarm. The Pani Samiti members are the first few ones to contribute, and then they take the responsibility of other members. One person from the Pani Samiti takes on the responsibility of maintaining record of those who have contributed while another issues the receipts. In certain cases receipts are issued even before the payment, simply to ensure that this will put an additional pressure on the person. Finding it easy to convince members from their own family, the Pani Samiti members take on the responsibility of collection from these members. Social pressure has been the crucial factor to prompt cost recovery so far. Cross subsidisation has been an aspect which is discussed at length in village meetings. People do appreciate the need to subsidise the amount for special groups like women headed households, economically poorer households, occasional users of the system etc.

Recovery of O & M costs from users leads to increased reliability of existing systems.

Cost recovery involves a number of meetings conducted at the village level to make the people aware of the need for community contributions. The project has also learnt a lot as the activity progressed in more and more villages. It is a natural phenomenon to have initial doubts and confusions. Pani Samitis have been very active in mobilizing the CR amount. The attached annex gives a feel of one such process.

It is proposed that once the construction is completed, technical training will be conducted for the PS members, which will highlight-

- ◆ Overview of possible faults and defects and ways to rectify problems in pump house, ESR, distribution system etc.
- ◆ How to carry out leak repairs.
- ◆ Technical requirements for installation of house connections etc.
- ◆ Maintaining and monitoring water quality.
- ◆ Devising formats for record keeping of collection of revenue, functioning of mechanical installation, leak repairs, water testing, house connections etc.

Practical demonstration will be given to members of the PS and the operator cum caretaker hired by the PS, in maintaining the WS system.

2.5.4 Community participation in the Project

Introduction

It is felt that drinking water problems are not purely technical and singular. This program therefore is committed to develop and apply new methodologies and concepts, through an approach that aims at community owned, operated and maintained water supply systems. Besides improvement of water supply system by relying on a sustainable and suitable local water source, the strategy also includes improvement of household and environmental sanitation through promotion of hygiene practices.

This project establishes the shift in focus from large piped regional water supply schemes to a more community owned, sustainable system through decentralization of decision making and user involvement on one hand, and increasing the effectiveness of the sector by paying more attention to sanitation and hygiene on the other. The project also believes that sustainability depends on more than community participation alone, although this will provide a required environment for community management. Efforts have been made to involve communities in significant decision making which appears as a precondition for community management. The community must be capable of carrying out management functions like mobilising local resources, negotiating with external agencies, monitoring constructions, conflict resolving, operation and maintenance and monitoring the performance of the water supply system, financial administration etc. without or with limited external assistance.

The strength of this project lies in the inclusion of community participation as a major element of our strategy. The need was felt for a few obvious reasons:

- ❖ There does exist a gap in understanding and perception between the planners and user communities that needs to be bridged.
- ❖ there is also a need to ensure that the facilities created are based on the actual needs of the people,
- ❖ that there is a need to evolve a system of decentralized and cost effective management of water supply structures.
- ❖ it is equally important to ensure that the people have a sense of ownership and responsibility towards the system.

Community participation has potential benefits that go beyond the project alone.

Different forms of community involvement in the project

A few illustrative forms in our project are mentioned below –

- ❖ community leaders are consulted by the project staff initially
- ❖ the entire community is consulted by the project staff
- ❖ the community is involved in financial contribution
- ❖ operation and maintenance management
- ❖ women are involved in key decision making
- ❖ the community participates in a number of training programmes.

Field methodologies adopted

Community based participatory approaches include small and large group discussions, household visits and interactions, observations, use of participatory tools, interactions with specific target groups like women, and training. In a largely process oriented approach, few activities have evolved based on our experiences and learnings, while others have been pre designed to achieve the anticipated outputs. The methodologies adopted at the village level includes

- ❖ participatory rural appraisal techniques
- ❖ semi structured interviews
- ❖ household survey
- ❖ focus group discussions
- ❖ field observations.

INVOLVING PEOPLE THROUGH PRA:

After the initial introduction of the project and after the ISA staff is sufficiently familiar with the village, PRA is conducted. PRA primarily helps generate information about the village, helps communities to analyse their problems and identify issues and also identifies priorities for action. PRA thus motivates and mobilises people for further action. We ask the people for opinions and assistance, while emphasising on the crucial role of people, in the project. This helps establish the project's neutrality right from the beginning. In the initial stage itself, it is emphasised that members from every family attend the meetings and special attention is paid for women, which helps to bring to the mainstream, the group most affected by the project.

PRA includes social mapping, which is done in smaller groups, including women. This allows an opportunity to meet people in smaller numbers and also serves as a process where both the village and the project get to know each other in a sustained and intense interaction. Seasonal and resource mapping allows the village to examine the project within the context of the village. Separate meetings are held with people in different families so that people continue to be made aware of the framework defining the project, their roles and responsibilities, and serve as a constant affirmation of their ability to successfully undertake the project. All information generated is constantly confirmed with the people. Apart from ensuring that the project continues to be responsive to the needs of the poor and the women, it also serves to reaffirm the project's commitment to reach out and involve everyone and not be restricted to a few influential people alone.

The use of time line, done separately with the women helps plan for activities with women and sensitizes men about the amount of time spent by women daily on collection of water and water related activities.

The overall approach of the project has been participatory, putting people at the center of all decision-making processes. Women's priorities are given special attention and importance in prioritization. Efforts are made to bring women out of their traditional domestic domain to collective decision making.

The strategies adopted to incorporate community participation in the project occur in a number of interrelated steps.

Case Study- Nesvad

Monghi ben of village Nesvad looks far more confident today. She is happy that she has been able to utilise her training and skills she has gained over the last two years. Yes, she along with other members of the *Nesvad mahila mandal* and other people of the village are involved in the construction of the village water supply and sanitation facilities. It has been a long persistent effort on the part of the Pani Samiti members of the village. Frequent visits by the members to Bhavnagar and discussions with project staff ensured ultimately that the water supply scheme construction be given to the local Panchayat. Nesvad village was chosen as one of the pilot villages and drilling revealed that there was a sufficient quantity of groundwater to proceed with a point based water supply system. The supply system was designed and the pani samiti began collection of people's contributions for O&M in late 1999. The scheme was about to be tendered, when water quality tests showed those fluoride levels exceeded permissible limits. Hence the activities were put on hold, while solutions were sought.

Further quality testing at a later date showed that fluoride levels had declined, and that blending water from two bores would provide drinking water that satisfied quality norms. The project decided to go ahead with construction and called for new tenders. At this point the Gram Panchayat of Nesvad stepped in with its own proposal: Rather than calling for new bids from outside contractors, the village was willing and prepared to construct the water system with costs as indicated in the tender and as per schedule of rates. The project examined the request and found that the village was capable of carrying out some of the work by itself. These included laying of pipelines, construction of standposts, cattle troughs and wash facilities. The project and village decided that the construction of the ESR was a specialized job, and this was contracted out to an outside party. The project sought the permission of the GWSSB to award the work to the GP, as the value of the construction, Rs. 18.89 lakhs, exceeded the limit that could ordinarily be awarded.

The work was started using locally recruited labour and the stand posts, cattle trough and wash facilities were built. Bids were invited for the construction of the ESR and a contractor was selected. Construction of the ESR also commenced.

The local people's involvement brought in concrete benefits. Disputes with the contractor, which had plagued the construction in earlier villages, were, of course, avoided. Since

the villagers were themselves responsible for procurement of materials like sand and aggregates, disputes on this score also did not arise. Who will work, when the work will start, how many people are required for a particular activity, how the payments are made, are all a result of well attended meetings of the Pani Samiti and thorough negotiations held under the guidance of the concerned NGO. Besides, Neswad also underlines the need of a strong, motivated and able leadership to take issues further. It proves without doubt that the sarpanch has played a major role in initiating and sustaining the interest and motivation levels of the people.

Some problems remained. Laying of pipes has been delayed, as the pipes have not yet been supplied by NAPU. Also, payments to labour were delayed while GWSSB made the requisite funds available, causing some anxiety to the GP. Some villagers felt that the height of the ESR, 12 metres, was excessive. Others felt that that in the event of an earthquake it would collapse on top of their houses. The matter was investigated and it was decided to reduce the height to 8 metres, which would still supply water at a residual head of 5 metres.

Few operational problems notwithstanding, Nesvad presents a strong case for user participation in construction activity. However the larger issues of who should have the financial control still remain. But it can be definitively said that in this village, people are more sure and assured of the quality of construction, about timely completion of the project and above all their involvement at this stage has given them a tremendous sense of involvement. The experience in Nesvad has resulted in other gram panchayats coming forward with proposals to construct their own water supply systems. Because of the financial limits, these cases are being referred to GWSSB for approval. However efforts to make a policy decision to grant panchayats the construction activity are underway.

Community mobilization

This means involving as many community members as possible by providing an institutional vehicle through which they can act. The organization at the village level for this purpose is the Pani Samiti. The pani samiti is a representative body of the village. To make the pani samiti adequately representative, people from different falias, representing different caste groups are selected by the people. Women are especially encouraged to participate as members of the Pani Samiti and we generally have a membership of 30-40%.

Project activity negotiations

Communities are actively involved in the selection of sites for the stand posts, cattle trough, and other facilities to be constructed in the village. These decisions are taken in public meetings attended by majority of men and women of the village. The Village Action Plan is an activity that helps the community to plan for their own development and that of the village. It gives them an opportunity to assess their own problems, identify the solutions and collectively find ways to resolve those. In the entire process the ISAs play a very crucial facilitating role.



People accepting the project unanimously

Training

Besides relying on a continued interaction for information dissemination through informal meetings and communications, training opportunities are provided for more structured and organised learning. Men and women are given a number of field level training on various aspects of the project like operation and maintenance, cost recovery, strengthening of village institutions, roles and responsibilities of the Pani Samitis, hygiene promotion and sanitation activities etc. It is assumed that over a period of time some of these skills will be passed on to others.

Community contributions

In order to instill a sense of ownership and responsibility for the system, community contributions are sought from the community. The contributions are only towards the operation and maintenance costs and not the capital cost of the WS structures. The decision on the amount of funds to be collected, strategies to be adopted and other details regarding cost recovery is a result of long well attended meetings and discussions, so that people can make informed choices.

Operation and maintenance

The local people are trained to take up the responsibility of operation and maintenance of the facilities, in order to reduce the dependence on any outside source. The Pani Samiti is

motivated to undertake timely repairs and maintain the structures, ensure timely collection of the O&M cost and deal with any such problems.

Monitoring

It is envisaged that the community will have a continuing monitoring system that will monitor aspects like constructions, operation of the system, resource mobilisation etc. The Pani Samiti is trained on these aspects and motivated to take up increasing responsibilities.

Hygiene education

Hygiene education helps to instill a sense of responsibility for the system and generates a feeling in the minds of the community to control their immediate environment. Hygiene education is based on practical experience of the people and encourages change in the existing habits.

Conclusion

Thus community management will assure sustainability of the WS system. Community managed systems place the responsibility and authority of operations and maintenance in the hands of the users and maintenance is usually more efficient and effective and the overall performance is better. As consumers and owners of the system, the community will be motivated to keep the system functioning well. This will be a motivation to ensure timely collection of O&M cost, deciding methods of preventive maintenance and decides timings for routine repairs. Besides, community's involvement in hygiene promotion will contribute to achieving the larger sustainability goals of the project.

2.5.5. Institution development

The development of community ownership and management of water supply facilities is a key feature of the project and efforts are made right from the beginning to ensure a meaningful involvement of the community at different phases of the project. The strategy is to gradually develop and build upon a sense of ownership amongst the people for the WS facilities, by increasing their involvement as the project progresses through different phases, like planning, construction and operation and maintenance.

In the project, participation is facilitated by clear explanation of what is expected from the community and what the community can expect from the project. The project believes that the most important community level factor is the existence of a strong and functioning village institution, in whose activity community members participate. But mere existence of these institutions is not enough; they have to be woven into the project, otherwise continued participation becomes unlikely. The process of integrating the concept of community participation into the project cycle is a detailed one, drawing upon people's interest, capacities and commitment to participate in the project. In order to facilitate the process of people's participation, local level village institutions are formed, called the 'Pani Samitis.'

The formation of pani samiti is endorsed by a government resolution (GR) passed in 1995. This GR explains the need to form pani samitis, under the Gujarat Panchayat Act, as a statutory body within the Panchayat. The GR also states that the PS will be responsible for all drinking water related activities in the village and be responsible for providing water. (For details refer to the GR annex 25)

At the stage of introductory meeting itself, the people are oriented about the importance of community involvement. A pani samiti is formed after the base line studies are completed, by which time, the project staff and the people are comfortably acquainted with each other. In order to make the process evolve and to allow space for the community to act on their own, the project has adopted flexibility regarding the time of formation of PS. As a matter of convenience, ISAs start the process either after the preparation of village action plan or before it. But PS are formed around the 3rd month after the introduction of the project.

After having introduced the project, the project staff continues with informal interactions with the people. This helps to build rapport with them and also identify key players in the community. BLS further strengthens the process of interaction with the community while

giving the desired outputs. After this is the process of formation of Pani samiti in the village. By this time the project principles are explained well, the role of the people in the project highlighted, the role of women stressed upon and also the need for involving people discussed at length.

The process followed

A meeting is convened in the village in which the entire village is expected to be present. Members of the NAPU, ISA and PSIU are also present. The Panchayat members are especially present in this meeting. The purpose of this meeting is intimated earlier, and underlined again to orient any newcomers. It is made very clear that women need to be present in large numbers for this meeting. In the events that follow, the principles of forming a pani samiti is explained, the functions, duties and responsibilities are made known and attempts are also made to explain briefly the likely difficulties that such an organistaion may face. Then the GR is read out in the presence of all members and explained. The purpose is to highlight the roles and responsibilities of the institution and prepare the potential members for it. Questions raised at this stage are explained. Also the GR explains the structure of the pani samiti.

Then the people discuss who should be in the pani samiti. Many discussions take place on who should represent a particular *falia*, whether the Sarpanch should become the president of the pani samiti, how many women members should be there, and what should be the strength of the pani samiti etc. These discussions are well mediated and facilitated by the ISAs. It has been generally observed so far that the presence of ISAs is very crucial to democratic decision making. Women are prompted to express their desire to become members of the PS. Hijacking of ideas by a particular community is strongly opposed. This situation has been observed at times in a few villages and these have been strategically handled. Some of the criteria adopted are:

- ◆ every caste group is represented adequately
- ◆ PS includes members of groups which are active.
- ◆ women are included as members of the PS.
- ◆ it is preferable to include members of the groups residing around the proposed stand posts
- ◆ members with adequate amount of interest and enthusiasm are preferred.

The Sarpanch automatically becomes the president of the PS unless otherwise decided. Then the other members are chosen. There has not been a distinct desire to elect the members, as most of them are nominated by mutual agreement and unanimity. In most cases it is the most active member of the *falia* who represents his or her group in the PS. Women who are



Pani Samiti formation in progress in village Bhandariya

in the Panchayat prefer to be in the PS. The membership of women in the PS ranges from 30% to 50%. The other office bearers are decided upon, e.g. the deputy pramukh. As per the GR an engineer of GWSSB and staff member of the concerned NGO are also members of the PS. It is the practice that the PS members are tentatively decided in the first meeting but are finalised in subsequent meetings. This gives an opportunity to accommodate changes if any. Even though the GR stipulates the membership of PS as 8, the strength of the PS in the project villages varies from 9 to 16, depending upon the size of the village. In certain cases, the Watershed committee that existed and was functional, is currently functioning as the Pani Samiti, to avoid duplication and overlap of responsibilities. These committees had been working for the water shed activities in the village.

Soon after the PS is formed, the members declare an undertaking that they have joined as members of the PS on their own. This is followed by a resolution made and passed in the meeting of the Gram Panchayat regarding the formation of the pani samiti. Then the Taluka Development Officer (TDO) is intimated about the formation of the PS by the Sarpanch. The date for the first PS meeting is then decided and the TDO informed.

ISAs have accommodated field level realities by adopting different approaches. For eg. Medhavi has preferred to promote a small pani samiti for functional purpose which would do the overall planning and management, while, maintaining the need for a bigger 'Gram Samiti' to undertake activities like cost recovery, sanitation measures etc. In a number of villages, smaller functional units of the PS have been formed for operational purpose, having four to five members. One person may be a member of more than one sub committee. These sub committees are formed for activities like- cost recovery, operation and maintenance, financial management etc.

Management of the Pani Samitis

It is made very clear from the beginning that the community has to carry the work forward and the ISA will have a limited presence after the facilities are handed over to the community. After the PS is formed, a Memorandum of Understanding is signed between the Pani Samiti, NAPU and the ISA, whereby they declare to undertake their respective responsibilities. The PS are trained and prepared to take over new responsibilities right from the beginning. Certain rules have been framed and are adopted to varying degrees-

- ◆ the committee has to meet at least once a month.
- ◆ records are kept for all decisions made
- ◆ minutes of meetings are noted formally



Pani Samiti members discussing a serious issue in village Chhaya

- ❖ any member not attending 3 meetings in a row automatically cease to be a member of the Pani Samiti.
 - ❖ the account of the PS will be handled by any three members of the committee
- Indicators have been developed to periodically assess the functioning of the Pani Samitis and a major task they perform i.e. cost recovery. These have been included as an annex 41d.

Memorandum of Understanding

An MoU is signed between the PS, NAPU and ISA representative after the formation of the PS. This indicates the readiness of the Panchayat to undertake the project activities and perform its tasks effectively. The MoU essentially mentions the tasks to be performed by the PS and the facilities the project will provide. A copy of the sample of MOU is give as an annexe26.

Capacity building of PS

Once the pani samitis are formed, they are trained on various aspects of institution building, on their role in the project, role of women etc. The project tries to involve these pani samitis in every step of the project, thus strengthening their capacities while also making them realize the crucial role they are to play later on. One of the training report is attached here as an annexe 27.

2.6 Guidelines of the project

Introduction

The project formulated guidelines and procedures for all project partners to ensure uniformity in approach by all partners, and to avoid confusions in interpretations of the boundaries of interventions.

It was found that various confusions arose during the early part of the VBP in the pilot villages, as there was an absence of role clarity. Also, interventions were interpreted differently and different players took dissimilar, contradictory, approaches.

Guidelines were formulated after taking inputs from all players, and were ammended from time to time to reflect new ground realities and experiences. The guidelines were understood to be organic in nature and could respond and change as needed.

The guidelines cover Water Supply, Hygiene Promotion, Community Participation, Gender, Sanitation and Water Resources Management

The guidelines at the time of writing are given in Annex 28

2.7 Well development programme

Objectives

- ❖ To find a local source of drinking water for as many villages as possible.
- ❖ To establish a clear view on the possibilities of groundwater for local drinking water supply in the project area.

Approach and methodology

The project area consists of two geological different areas: the coastal zone and the Deccan trap. A different approach has been followed for each of these areas.

In the coastal zone for drilling in sediments Direct Rotary Rigs (DR-rigs) were employed. The lithology and salinity of possible aquifers was estimated from the logging results. Local investigation of shallow aquifers also took place. Existing wells and Vertical Electrical Soundings (VES) were used to determine the depth to the first layers of (saline) clay, especially in riverbeds.

In the basalt area, the local differences required an intensive investigation of each village and its surroundings. Successful bore wells and unsuccessful ones can be only a few metres apart, depending upon the location of water bearing fractures in the basalt. DTH rigs were employed and successful bores were tested on quality and yield. A number of villages were visited a second time either because quantity or quality was not sufficient or because no water had been found. For this 'second round' of drilling, site selection took place using a WADI-instrument and satellite imagery.

Details on the methodologies applied are presented in Annex 29.

Communication with NGOs, NAPU and other PSIU members took place during weekly meetings. If a sustainable source of water supply had been secured the NGO and NAPU would initiate a village based program involving the villagers, leading to planning for construction of the water supply system. The responsibility for the employment of equipment like drilling rigs, logging units and pumping test units was with the GWSSB. They either asked for a government unit or hired a private contractor.

A water balance was made to study the hydrological situation in the Ghogha region. The insight gained from making a water balance can be used to identify possible problems and their solutions. The water balance was made for the Bapada watershed, containing 4 villages and an observation well of the Central Groundwater Board. The water balance results will be used to make recommendations for groundwater management.

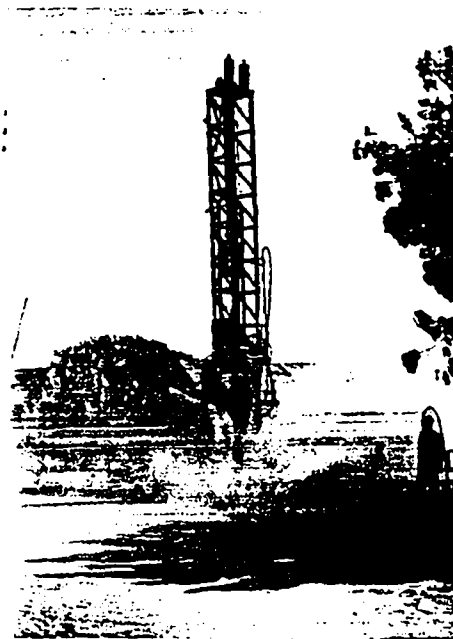
Results

◆ DTH-drilling

In the basalt area, 222 bore holes have been drilled, using a DTH rig. The overall success rate is 33%. The drilling rig visited 51 villages: an average of 4.3 bore holes per village. Successful bore well(s) were found in 38 of the 51 villages visited (75%). The average depth of the bore holes drilled is 104m with a maximum of 183m and a minimum of 32m, the latter being a trial-bore for the construction of a dugwell.

◆ DR-drilling & Logging

In the coastal zone, 8 bore holes were drilled using a direct rotary rig. 7 of the bore holes were drilled up to the basalts, the maximum depth being 198m at Surka village. All deeper aquifers – layers of sand or gravel below the clays – have been found to be brackish or saline. It is very likely that this situation is valid for all of the coastal area; it doesn't contain fresh water below 50m depth.



DTH drilling underway in village Bharapara

◆ Pumping tests

A total of 65 pumping tests were carried out. From these tests, 8 were step drawdown tests and 57 continuous drawdown tests of which 5 were conducted on open wells (dugwells). Detailed information on pumping tests can be found in Annex 30

◆ Water quality tests

A total of 355 water quality tests were carried out during the project. From previous project work 126 test results were available, mostly from existing bore wells and dugwells.

Problems with drinking water quality in the Ghogha region are caused by high TDS and maybe also by high nitrate contents. Fluoride only causes local problems restricted to a small number of villages.

Detailed information on water quality data can be found in Annex 31

❖ **Results per village**

For each village a judgement was made of the possibilities for local drinking water supply from groundwater.

2.8 Village Based Programme

The activities at the village level take place through a number of interlinked steps in a period spanning 12-18 months. While few of the activities are time bound, others are expected to continue in the following months after the WS facilities starts functioning. Most of the activities at the village level follow a similar pattern up to the particular stage of preparing Village Action Plan and then the activities diversify depending upon the specific situations in each village. The activities undertaken thereafter form a part of the village action plan, which are based on the water supply, sanitation and hygiene issues identified during the PRA exercise held earlier.

Community participation forms the mainstay of the project and efforts are made to ensure that the community participates fully in all the stages, leading to a sustainable and community managed water supply and sanitation system in the villages.

2.8.1 Preparatory Phase

This phase consists of the first interactions with the village, rapport building exercises and participatory village level studies.

Introduction about the project

The local Panchayat is contacted as the first step in the project cycle. During this initial period, they are briefed about the project and its objectives and their general opinion is known. This is followed by an introductory meeting in the village, which is attended by the people of the village. It is emphasized that women do attend these meetings. In these discussions, the people are briefed about the objectives of the project, coverage, the role of people is stressed upon and initial doubts of people cleared. Concepts of community participation, cost recovery, people's involvement in construction and monitoring activities is introduced.

Baseline Survey

Base line survey include a detailed process of information generation and intensive interaction in the village through HH survey and PRA, identification of various groups, and focused group discussion with the community to understand the personal hygiene behaviors and environmental sanitation situation. The BLS includes HH survey, PRA and focused group discussion.

OBJECTIVES OF BLS

- ❖ To understand the current situation for designing interventions- planning.
- ❖ To periodically monitor the progress of the project on the basis some key indicators and for making mid-course correction- monitoring.
- ❖ To assess project achievements by comparing data before and after intervention- evaluation.

Baseline Survey is a methodology adopted by the project to assess the achievement of the project through two different sets of information, one before and one after the intervention. Participatory Rural Appraisal (PRA), household survey, structured observation and focus group discussions are tools in conducting the baseline study. Preliminary information about the villages is organized in the form of Village Profile, prepared by the ISAs through existing

secondary sources. The village profile contains information on village population, occupation, and existing water supply and sanitation facilities. It is periodically updated. Please refer to the annex 32 for Village Profile format.

Participatory rural appraisal

PRA is a family of approaches and methods to enable local people to present, share and analyze their knowledge of life and conditions and to plan, to act and to monitor and evaluate processes. Through a sustained and intense interaction, this process helps people to understand their problems, set priorities and also generate solutions. The project uses PRA to understand the hygiene and sanitation situation in the village and this also sets the field for preparation of village action plan, which is the activity that soon follows. In villages with a large population, two PRA exercises are held, to ensure that no group is excluded. PRA is held once the ISA staff is sufficiently familiar with the village.

Each technique adopted in PRA has a specific purpose. Transect walks helps to get an introduction to the village and its inhabitants. ISA staff and villagers, do a transect in the village, identifying the available water sources, hygiene practices and sanitation conditions near water points and environmental conditions.

Timeline is done to develop an understanding of the historical background of a community and to place changes and problems that have occurred in the community in time. Village elders are mostly involved in the process. The history of water sources and the change in water use practices over time, their availability and change in quality is recorded through this.

Through village maps, the social status of the village is known; people identify the various social and economic groups, their distribution, and access of different sections of the society to village resources. The sources of water, individual sanitation facilities and who owns them, waste water disposal mechanisms if any, are all identified and known. Mapping exercise has been very helpful in identifying problems in the village related to water and sanitation. In an interactive discussion the project staff and people discuss the potential solutions to the problems.

A daily activity profile is a technique to collect and analyze the information on the daily patterns of tasks performed by men and women, usually combined with indications of the time spent on these tasks. This serves to highlight the role of men and women in water related activities and also helps to plan for meetings and other related activities in the village.

A comprehensive baseline study is required to analyze the social conditions at the household and the community level.



A village elder drawing a timeline of village Sarvadar



A separate PRA exercise being undertaken with a group of women

Venn Diagram are used to collect information about existing institutions in the villages and how different groups perceive the importance of the institutions to analyze the accessibility of the different groups to service.

An example of PRA done is highlighted in a report of village Bhandariya attached as an annexe 33 a and b.

Household survey

Unlike the PRA, HH survey is not used as a motivational or planning tool but more to generate information about key household and individual hygiene, sanitation and water use practices.

The objectives of the household survey are:

- ◆ To gather specific information which will be used for monitoring of the project.
- ◆ To study about hygiene practices in general and those of men, women and children in particular.

Please refer to the attached annex 34 HH survey form & annex 35 for results of findings of HH survey of Dharadi village

SAMPLING TECHNIQUE:

In order to get samples from each community and each sub-locality; stratified random sampling method was used. The sample consists of 10% of the total number of households in the village. Through HH following information is covered: Size of family, quantity of water used and time spent for collecting the water, hygiene practices etc. It is envisaged that once the water supply facilities are functioning, these HHs will be visited again to assess the change in these practices. This will help analyze the impact of the programme.

Focus group discussion

In a small group, discussions on specific issues related to the project, such as hygiene and sanitation, take place, to understand individual opinions, beliefs, and practices. This is a focused group discussion done mostly after the PRA and HH survey. It further reinforces the findings of the earlier exercises. Focus group is a carefully planned discussion designed to provide information about how certain people perceive a specific area of interest. It is held in a permissive, non-threatening environment. Focus group members are led to interact with each other so that they influence one other and respond to ideas and comments in the discussion.

Objectives:

- ◆ To discover what people do or think about a certain issue (Sanitation, hygiene practice etc.)
- ◆ To identify problems and generate ideas and discussion.
- ◆ Pretest communication materials.

The initial survey is followed by the process of institution building in the village. PRA also helps identify potential leaders in the village who may be willing to form a part of the Pani Samiti later on.

2.8.2 Institution development

In this crucial phase, the village level institution is developed, through which most of the work at the village level is carried out. Pani Samitis are formed after a prolonged process of discussions and negotiations and careful analysis. Women are encouraged to become members and also supported. In this phase the Pani Samiti plans for village development, does site selection of the water supply and other facilities and also initiates the process of cost recovery.

Pani Samiti formation

The village institution developed for the purpose of programme implementation at the village level is the Pani Samiti. Based on the field situations, ISAs have allowed flexibility in the timing of the formation of the Pani Samiti. In certain cases the Pani Samiti is formed after the site selection and VAP exercise. The idea that governs it, is that in these processes of site selection and VAP formation potential members of the PS could be identified. Whereas if formed earlier, the Pani Samiti members can play an effective role in the process. The note on Pani Samiti formation provides more details

Water supply

Activities specifically related to water supply now follow, after the formation of the Pani Samiti in the villages.

Site selection for water supply and other facilities

In one of the most important steps of the village cycle, the people are oriented, consulted and involved in the site selection of the facilities. They are specifically trained on the criteria and methodology adopted for siting of water points, wash facilities and cattle troughs. Women are especially involved in the process. Separate meetings are conducted with women and sites for stand posts etc. are decided based on the technical criteria and their convenience.



Site selection process in progress in village Bhandariya

Once decided, these sites are formally approved by the men and women, when they sign a specific format designed for the purpose. These locations are then discussed with the people and a common approval sought. People are told that they should avoid any changes further, once these are decided upon and a consensus built.

This is followed by preparation of site selection maps by the ISAs, explaining the location and number of the stand posts, number of people it will serve, and location of wash facilities and cattle trough. These maps are then submitted to NAPU for technical verification and follow up. Once submitted to NAPU, the engineers take it up for field verification and technical assessment. They are accompanied by ISA staff and villagers, especially those staying close to the standposts.

(Please refer to the annexure- Format for approval for sites).

Preparation of Village Action Plan

The Village Action Plan provides the basic framework for implementing the programme in the village. Though the programme follows a particular defined set of processes up to the formation of Village Action Plan, the implementation cycle in each village starts from the time of operationalizing the VAP. Therefore what is of critical importance is not only the timing of VAP formation but also the methodology followed in preparing it and its structure.

The purpose of preparing the VAP is to utilize it as a planning and monitoring tool, which provides a set of specific activities and measurable outputs. The larger goal of the VAP is to develop the capacities of the local people to identify issues, plan for their own development and sustain this process of development. The findings of the BLS are shared with the people in a meeting that is attended by a majority of the villagers. Issues related to water supply and sanitation of the particular village are identified, based on the BLS findings and prioritized for further action. Actions are proposed by the people. The action plan includes activities to be done for sanitation and hygiene promotion in the village, awareness raising, cost recovery, water supply etc. The role of different partners is highlighted and stressed upon and timings for such activities are decided upon. These proposed actions are organized in the form of a VAP, a copy of which is retained with the Pani Samiti. The VAP preparation phase also helps to identify potential men and women with leadership qualities who would at a later stage take up the initiative of implementing the VAP. Please refer to annex 36.

A Village Action Plan acts as both a planning and monitoring tool. Activities that are specific to each village is highlighted in the VAP and the implementation cycle in each village starts with the time of operationalising the VAP.

2.8.3 Designing phase

This is the phase where NAPU engineers are actively involved. This phase consists of designing and tendering of the schemes.

Designing of water supply system

Once the sites are verified, NAPU goes ahead with designing the water supply scheme. Each individual village scheme is then shared first with the consultants and then with the local people and a final consensus built upon. NAPU also estimates the cost of operation and maintenance of the water supply scheme and shares with the people. Please refer to the note on Water supply in 2.4.2.

Cost recovery

Meanwhile when NAPU is doing the site verification, the process for cost recovery starts. In a village meeting largely attended by all the people of the village the cost for operation and maintenance are shared with the people and the methodology decided upon. During a period that lasts approximately two months, the money is collected and deposited in a bank. Please refer to the details of cost recovery in 2.5.3.

Tendering process

One of the ways the project adopts to ensure that people are involved in the project is by including cost recovery as one of the major elements. It is made very clear that any village scheme will be tendered for only after the O&M cost for the first six months has been collected. Advertisements for the tenders are made in all leading local newspapers. Sealed

tenders are invited from prospective bidders and those short listed ones are invited for a pre-bid meeting. A tender committee is formed which gives the final approval.

(Please refer to the attached annex 37 for more details)

2.8.4 Construction phase

In this phase, physical constructions of the facilities start and are completed. This generally takes place in about six months. Meanwhile at the village level, activities that started earlier like hygiene promotion and implementation of VAP continue. A major development that takes place in this phase is the handing over of the scheme to the Panchayat who would eventually take responsibility of running the system sustainably. Right from the beginning, efforts are made to equip the Pani Samiti with skills, knowledge and aptitude to take up this task. But during this period, these are further reinforced and clear responsibilities of all partners drawn out.

Construction of the WS system

Construction work starts once the work orders are given out to the contractor. Pani Samiti members and the village men and women monitor the progress of the construction activities. Regular meetings between the contractor, PS members, NAPU and ISAs are held to assess the progress of work periodically. Pani Samiti members are trained on the maintenance and operation of the WS system. Prior to this they are also trained on various aspects of the construction so that they are actively involved in the construction monitoring activities.

Once the construction is complete, the contractor is expected to run and test the system for its quality, leakages etc. for some time, before the final payment is made to the contractor by NAPU. The Board then tests runs it for two months and finally the scheme is to be handed over to the Panchayat.

Stabilization period and handing over

For the purpose of this project, this period is defined by a set of processes that take place, leading to a successful handing over of the village-based scheme to the local Panchayat. At the time of writing this document, the modalities of handing over were being worked out. The Pani Samiti develops methodologies for operation and maintenance, appoints a caretaker for the purpose, the roles and responsibilities of the operator and other Pani Samiti members are defined. A minimum set of activities are to be done by the Pani Samiti before it is said to be finally ready to take up the management of the water supply system. The stabilization period is envisaged to be about six months ideally but this period may vary depending on site specific situations like the present capacity of the Pani Samiti, level of inputs further required etc.

The scheme is then to be handed over to the Panchayat. Certain essential documents are to be provided to the Panchayat. Pani Samiti proves the capacity to ensure equitable and timely supply of water and it is then that the ISAs make a gradual withdrawal from the village. Activities like hygiene promotion, sanitation programme like soak pit construction, school sanitation programme, cost recovery for operation and maintenance, regular meetings of the Pani Samiti and networking are expected to continue during and beyond the stabilization period.

2.8.5 Sanitation programme

The sanitation programme starts with the school sanitation activities in the villages. Children are oriented and trained about better hygiene practices. During the period when the activities like site selection for water supply facilities are carried out and the technical approval is awaited, the activities for sanitation programme continue. Sanitation activities form a part of the village action plan and this is one activity where the Pani Samiti is actively involved. Sanitation activities include relocation of wastes from the village, construction of soak pits, demonstration of drainage of water points. The soak pit programme started with the demonstration of the soak pits. Both men and women were actively involved in the activity, and today even men can be seen involved in the cleaning and maintenance activity.

The following activities were developed as pilot/studies by the project.

- ❖ implementation of improved soak pits
- ❖ study on feasibility of a sewer system for a village
- ❖ study of and implementation of a root zone technology waste water system in a village
- ❖ implementation of community composing pits
- ❖ implementation of improved drainage for public water points.

In village meetings, the sanitation activities are discussed and the need for specific activities are identified. These are highlighted in the village action plan and periodically the PS undertakes follow up action. Few villages have been taken up as pilot villages for few of these activities.

2.8.6 Hygiene promotion

This includes awareness creation for better hygiene practices amongst the community and the school sanitation programme.

School sanitation

From the beginning, soon after the introduction of the project, in the village, hygiene promotion programme is introduced in the community. This includes the school sanitation programme with the children and teachers. Orientation and awareness programmes for school children are conducted on safe hygiene practices. This helps to build rapport in the village and also reach out to the parents of these children. The school sanitation programme will continue even after the water supply facilities are in place and it is envisaged that the Pani Samiti and the schoolteachers will continue this activity. Therefore the schoolteachers are trained and oriented on improved hygiene practices amongst children.

Hygiene promotion with the community

Training programmes are periodically conducted for men and women of the villages on various aspects of personal and environmental hygiene. These trainings are conducted for the ISAs and CBOs to develop their capacities to promote safe hygiene practices amongst the target community.

2.8.7 Water resource management

It is envisaged that water resource management activities will be taken up in all villages to augment the ground water and also protect the drinking water source. The processes involved in water resource management like technical survey may start simultaneously with the water supply activities depending on the village need and demand. However the following activities form a part of the water resource management component.

Preparation of the WRM plan

A technical survey is carried out by ISAs, along with the people to assess the needs of the village regarding drinking water. Prior to this, during the PRA and HH survey exercises, the issues are identified and discussed partly. During the technical survey, all physical structures are decided upon and the cost estimates and designs are worked out. The draft WRM plan is prepared along with the details of training needs; institutional development plans, highlighting the role of local institutions, cost sharing mechanisms etc. These proposals are submitted to NAPU/ GWSSB for financial approval and sanction. ISAs have been trained and oriented on the use of Logical Framework Analysis for preparing proposals.

Implementation of WRM plan

(At the time of writing this document, WRM proposals were awaiting technical and financial sanction from the Govt. However the general modalities for implementing this component at the village level have been worked out. Operational systems will evolve once these plans are implemented.)

In villages where local village institutions like Pani Samitis have not been formed, they are initiated. Depending on the type of activity and the management functions, smaller user

groups are initiated. Community contributions are decided and mechanisms for cost collections are worked out through discussions and negotiations. Meetings are held with the people to prepare them for the activities. Trainings are designed for the purpose and these will be imparted over intervals. ISAs will be actively involved in the implementation of the WRM plans. It will call for adequate amount of networking with other agencies to mobilize financial resources. ISAs have recruited specialized staff for the WRM activities.

Please refer to the following table for the complete VBP Cycle

2.8.8 Typical village project cycle GRWSSP

The village preparation is numbered 1 – 5. In this model the activities A – D follow the preparation phase and start again with month 1. Not necessarily all the activities will immediately start after the village preparation is over.

S = Starting month

C = Completion month

Village Based Programme

No.	Process	Milestone	Agency	S	C
1	Village Contact Contacting village leaders, volunteers, Panchayat, Schools and Health Centre, etc. to understand an overall situation of the village and to let community get an impression about the project.	ISA decides to go for introductory meeting, in case villagers indicate their willingness to participate.	ISA	1	1
2	Introductory Meeting Formal introductory meeting is conducted by the project as organized by Panchayat and ISA to explain project details in a Gram Sabha.	The project is introduced to entire village covering all communities.	Panchayat assisted by ISA, NAPU/PSIU	1	1
2.1	Community is explained about the objectives, components and partners of the project.				
2.2	Basic approaches such as community management, village institution development, community contribution, gender approach and community capacity building are explained.				
2.3	Roles and responsibilities of partners in planning and implementation of various components are also explained.				
2.4	Villagers formally decide to or not to join the project.	MoU is signed, if decide to villagers join project	Panchayat and ISA		
3	Baseline Study		1	2	
3.1	◆ Preferable a log-frame analysis will be used to develop the Village Action Plans (VAP).	(i) Village maps prepared (ii) the various user	ISA		

No.	Process	Milestone	Agency	S	C
	<ul style="list-style-type: none"> ◆ Conduct PRA i.e. Develop maps, transect, seasonality, time line, daily schedule. ◆ Collect gender disaggregated data. ◆ Focus group discussion ◆ Define Problem Tree for WRM and identification of activities for WRM. This includes a sanitary survey. ◆ Status of school latrine and water storage and hygiene practices of children. 	groups within the village identified.			
3.2.	Conduct HH survey and house listing in the village, ensuring that all castes are represented in the survey; collect gender-specific data	Sanitation status known and risky hygiene behaviours identified.	ISA		
3.3.	Conduct focus group discussions with specific target groups and identify specific sanitation practices and problems related to water availability and use.	People's knowledge, practices, attitudes, and perceptions about water and sanitation related diseases known.	ISA		
3.4	Present the findings of BLS with the villages people, and develop consensus with them on the validity of the information generated and the issues identified.	BLS finding documented.	ISA		
4	Village Action Plan			3	4
4.1	Recapitulate issues identified in the BLS.	ISA/villagers			
4.2	Clarify policies and procedures of the project		ISA		
4.3	Clarify role of each partner, estimated time periods and the probable or desired status/ changes sought.		ISA		
4.4	Draw up a plan of action along the agreed format and procedures, defining the action to be taken.	First Village Action Plan prepared.	ISA/ Villagers		
4.5	Review VAP.		ISA		
5	Village Institution development		ISA	1	4
5.1	Initiate the process of formation of Pani-Samiti in the village.				
5.2	Identify and involve key persons of every <i>falia</i> and		ISA		

No.	Process	Milestone	Agency	S	C
	caste in the process.				
5.3	Finalise the office bearers of the Pani Samiti, who are acceptable to community and GR.	Pani Samiti formed consisting of 1/3 women representation	PS/ ISA		
A Water Supply					
A1 Site selection for water supply facilities				1	1
A1.1	Discuss with the village people criteria and process of site selection (<i>Falia</i> -wise)		ISA		
A1.2	Conduct separate meetings with women and take their opinions in identifying sites for water supply structures.		ISA		
A1.3	Select the sites and take views and opinions of women and men in all the process.	Site selected according to agreed to principals	ISA/ Village people		
A1.4	The selected sites to be approved by the people and signatures/ thumb impressions of women and men to be taken on the proposed format.	ISA/ Village	people/Pani Samiti		1
A1.5	PSIU (NAPU) to study the technical feasibility of the proposed sites.	NAPU approves the site selection maps and maps distributed to project partners. GP certifies that sites are not on private property.	NAPU GP	1	2
A2 Designing of water supply system				2	3
A2.1	Prepare the design for the water supply structures.	Designs prepared Consensus about the design	NAPU		
A2.2	Share the design with the consultants and mutually agreed upon.		NAPU		
A2.3	Share the design with the village people and the estimated expenditure made known to them.		NAPU/ISA		
A2.4	A copy of the water supply system design is made available to the Pani Samiti.	Pani Samiti obtains a copy of the design.	NAPU		
A3 O&M Cost				2	4
A3.1	Explain estimated contribution and prepare strategy that will cross subsidise.		ISA		
A3.2	Identify three persons to operate the bank-account	Bank account is opened	ISA/PS		
A3.3	Initiate & complete process of collecting people's contribution in the villages.	50 % of annual O & M will be deposited in the bank.	ISA and PS		

No.	Process	Milestone	Agency	S	C
A3.4	Continue the process of collection		ISA/PS	4	..
A4	Tendering process of water supply component			4	6
A4.1	Tenders will be invited from prospective bidders and will be assessed after the collection of 50% of the first years' O&M cost.		NAPU.		
A4.2	Selected parties will be invited for a pre bid meeting and tenders opened.		NAPU		
A4.3	The tender committee passes the tenders and the job assigned to a private contractor.	Tender passed.	GWSSB /NAPU		
A5	Construction of water supply system			6	12
A5.1	Train the Pani Samiti members and sub-committee on the design specifications and monitoring.		NAPU & ISA		
A5.2	Regular meeting between contractors, PS, NAPU, ISAs and PSIU for construction management.		PSIU(NAPU)		
A5.3	Construction work starts.		Contractor & NAPU		
A5.4	Pani Samiti and village leaders, including women will monitor the progress of work. Write to NAPU if the work is not satisfactory.		PS		
A5.5	Construction work completed.	Functional Water supply system.	Contractor.		
A5.6	Mechanical work is completed.		Mechanical division of GWSSB.		
A5.7	Post construction training on upkeep of water supply facility, optimal and sustained maintain use of water and environmental sanitation.		ISA/ NAPU		
A6	Handing Over	Trained Operator, Supply schedules and transparent account.		13	13
A6.1	Pani Samiti has developed methodologies for operation and maintenance and ensures that the programme runs on the agreed principles.		Pani Samiti		
A6.2	The water supply scheme is handed over to the Panchayat		GWSSB		

No.	Process	Milestone	Agency	S	C
A7	Stabilisation period			14	19
A7.1	The Pani Samiti will take full responsibility for the functioning of the WS system.		Pani Samiti		
A7.2	ISA will reduce frequency of visits.		ISA		
A7.3	The process of federating Pani Samitis for the purpose of increased learning and sharing information starts.		Pani Samiti/ PSIU(NAPU)/ ISA		
B	Water resource management			1	6
B1	Plan preparation			1	3
B1.1	Conduct technical survey to finalize physical activities to be taken up. Designs and estimates of proposed structures carried out.			1	1
B1.2	Presentation of draft development plan: identified physical activities and training needs, other institutional development proposal for activities, role of community in the implementation and future operations of the project, community contribution, roles and responsibility of partners, timeline	ISA receives community feedback to finalize draft WRM	ISA	1	2
B1.3	Community based WRM plan is submitted to NAPU/ PSIU for approval along with appropriate technical appraisal from competent authorities.	WRM proposal submitted to NAPU/ GWSSB.	ISA	3	3
B1.4	Proposals are examined and finally approved.	Finance is released to ISA.	GWSSB/ NAPU	2	3
B2	Implementation of demonstration activities			4	8
B2.1	Preparatory exercises carried out to ensure community managed implementation and operation.		Panchayat and ISA	4	
B2.2	Implementation and operation of WRM plan			4	5
B2.3	Pani Samiti and users groups formed		ISA and Panchayat		
B2.4	Entry point activities undertaken		ISA and Panchayat	4	5
B2.5	Community contribution decided and agreed		Pani Samiti	4	
B2.6	Implementation of demonstration activities		ISA	5	7
B2.7	Appraisal of demonstrations for extension		ISA/ NAPU	7	8

No.	Process	Milestone	Agency	S	C
B3	Implementation of extension plan			(4)	28
B3.1	Extension plan and implementation		ISA and Pani Samiti	9	28
B3.2	In-built monitoring system established to assess progress of the project and its impact within the community		ISA	4	28
C	Sanitation			1	..
C1.1	Study feasibility of soak pits/drainage		ISA		
C1.2	Detailed plan of activities specified in VAP		PS/ISA		
C1.3	Prepare estimates of costs and people's contribution		ISA/PS		
C1.4	Training of PS members members	Trained PS	ISA		
C1.5	Construction of soak pits/drainage	Waste water disposal system in place	Villagers /PS/ NAPU/ ISA		
C1.6	Maintenance of system		Villagers /PS		
D	Hygiene Promotion			1	..
D1	School Hygiene & Sanitation program			1	..
D1.1	Prepare a package for the school hygiene & sanitation programme based on the BLS.	Programme package is developed.	ISA		
D1.2	Conduct awareness program for the school children about safe hygiene behaviours.	School health club established	ISA School teachers		
D1.3	Study the effectiveness of the programme		ISA	1	..
D2	Creation of awareness				
D2.1	Training program conducted to develop capacity of members of pani-samiti/CBOs to promote safe hygiene behaviours among the target groups		ISA		
D2.2	Create awareness about risky hygiene behaviours by using participatory tools	Key persons take responsibility to promote safe hygiene behaviors among the people.	ISA		

2.9 Monitoring, planning and communication

2.9.1 Introduction

Monitoring the project and Management Information System (MIS) are the key issues in any project and are interrelated. The monitoring information is used in the project to plan, implement and evaluate the project. Those informations are gathered through MIS.

Monitoring as a tool is important for the successful implementation of the project and accomplishment of project objectives.

Section 2.9.2 describes monitoring process followed in the project and use of indicators to measure the effectiveness.

Section 2.9.3 describes the development of MIS in the project. This also includes the information required to different partners and flow of information.

2.9.2 Monitoring

Monitoring is termed as a watchdog of the progress and processes of the project. Monitoring as a system is still evolving in the project. Monitoring process is based upon the identified and developed indicators, which show the expected result/outcome within the specified time frame. The indicators have been developed on the basis of findings of the baseline study conducted in the project villages. The project implementation procedure in a single village is estimated to take 18 months. This includes software and hardware activities and is termed the village-based programme.

The ISAs are responsible for the implementation of software components whereas GWSSB (NAPU) is responsible for the hardware components. There are two types of monitoring- Efficiency and Effectiveness followed in the project.

Efficiency monitoring

Efficiency or progress monitoring deals with accomplishing tasks such as training programmes, construction or spend money at the intended times. Two systems/tools are followed for efficiency monitoring- (a) a tracking system and (b) use of some key forms.

❖ Tracking system:

The tracking system is meant to alert the whole team if something is off schedule. When this happens, the reasons behind this are sought. These reasons are often obstacles and are removed.

There is a wall chart for the PSIU office, which shows the progress in each village. When a village begins to lag behind, efforts are made to solve the problem, remove the blockage or alter the programme in the village. This wall chart is kept updated on a monthly basis. See Annex 39 (a) and (b)

❖ Monitoring forms:

Some forms are developed to monitor the process of site selection, Pani Samiti meetings, formal or important meetings in villages, training activities. These forms give a picture about the activities conducted in the villages. See Annex 40.

Effectiveness monitoring

Monitoring for effectiveness deals with checking the immediate results and the short-term impact of an activity or project component. The purpose is to improve a situation or solve problems over the short-term. Some monitoring for effectiveness activities are basically the application of common sense and observation in the field. For example, women users should be among those signing the site selection forms, which means that they approve and check the locations. Another example is checking the representativeness of the Pani Samitis by walking across a village and occasionally asking people if they know about the Pani Samiti and if all groups are represented in it. Monitoring for effectiveness is built up on the basis of experience.

The effectiveness and impact of different inputs especially on hygiene promotion, community

participation and gender provided during the process has been monitored through specified indicators shown as annex. These indicators show the difference in the behavioural change of the target population. At this stage only few indicators are used to study the effectiveness of the hygiene promotion, gender and community participation.

Indication for assessing community participation, hygiene promotion, gender and Pani Samiti functioning is given as annexe 41.

Monitoring at different levels

Monitoring of the progress, processes and effectiveness of the project is done at different levels. Accordingly the information flow has been developed to facilitate the monitoring. The levels at which the monitoring is followed are (1) Village levels; (2) ISA level; (3) PSIU/ CMSU level and (4) GWSSB.

In the village, the Pani Samiti is responsible to monitor the progress and process of the village based activities of their village. The indicators at this level are based on the village action plan prepared by the villagers under the guidance of ISA. The village action plan contains information regarding the activities to be performed in the village to address the issues related to water supply and sanitation.

As regards monitoring the construction activities of the water supply scheme in the village, the Pani Samiti members and other villagers are trained to monitor the construction activities related to the water supply scheme. A construction monitoring committee is formed in each village to monitor the quality of materials used, depth of excavation and conformity to designs. If they find something wrong they inform the ISA and NAPU officials.

All the project partners meet in the co-ordination committee meeting held monthly to assess the progress and resolve the related issues.

2.9.3 Management Information System for Ghogha Project

Introduction

An MIS assists managers in decision making and problem solving. They draw on data stored as a result of transaction processing, but they may also use other information. In any organisation, decisions must be made on many issues that recur regularly and require a certain set of information to make the decision. Each time information is needed, it is prepared in a pre-designed form in a predetermined format.

The information should be able to answer specifically for the recipient what, when, who, and how?

Information, its adequacy, timeliness and relevance thus forms the backbone of an organization and so is the Management Information System.

Key performance areas

For proper management of Ghogha Project regular information flow is required in the following key performance areas (KPA) which are related to the project-objectives. In other words, what were the areas in which a regular information flow was done to achieve the stated objectives, which in turn support the arenas of management control. In terms of the Ghogha Project, the KPAs identified are:

❖ *Augmentation of the per capita water availability.*

Is the standard of 55 lpcd of water with requisite quality norms available in the project area villages?

❖ *Institution building at the village level and capacity building at the village & ISA level.*

The formation, status and functioning of the Pani samitis in the project areas - the amount of training received, their book-keeping practices, the extent of their integration with other local / community based organisations. For e.g. linking up with any other Panchayat (govt.) or non-govt. scheme for sanitation.

- ❖ **Community participation with particular reference to women's' participation.**
The extent to which community has undertaken the responsibility of monitoring the construction work and in managing their water resources, provided solutions for harnessing local resources, efficiency in collecting/depositing the O&M money. The level of women's' participation in survey work, meetings and other activities being undertaken in the village.
- ❖ **Hygiene promotion**
Provision of the sanitation facilities (open, underground or low cost-systems like soak-pits) in the village. Improvement in the hygiene practices at the individual and community level. General cleanliness and reduction in water related diseases.
- ❖ **Quality and timeliness of the construction work to ensure sustainability**
Pre-set standards being met about the quality of materials being used for the construction work and work plan being followed. This is necessary to ensure the sustainability and suitability/utility of the structures being made in the villages.
- ❖ **Financial progress**
Expenditure as per the estimates for the period. There is a need to keep in mind the cost-effectiveness of the whole programme. Keeping the proper systems of checks and balances can only ensure this.
- ❖ **Reporting Systems**
 - ◆ Existing reporting relationships
 - ◆ NAPU(Division Office)@Circle office(Bhavnagar)-@Zone Office(Raikot)-@Head Office(Gandhinagar)
 - ◆ ISAs@-PSIU
 - ◆ Existing pattern of information flow
 - ◆ Community (Pani Samitis)@-ISAs-@PSIU
 - ◆ NAPU-@Head office
 - ◆ Within the PSIU i.e. between the consultants(software) and engineers(hardware)
 - ◆ Existing checks and balances provisions
 - ◆ Formats for Monitoring of software activities (between ISAs and Consultants)
 - ◆ Site visit
 - ◆ Scheme file
 - ◆ Tender provisions

Coordination between partners

A component of MIS is regular meetings at all levels. These meetings are used to disseminate information, discuss issues and exchange ideas and to solve problems.

- ❖ **Village meetings**
ISAs conduct these meetings to inform villagers about project concepts and procedures, to address problems and issues and to educate and train. These meetings are generally held on a monthly basis.
- ❖ **PSIU/ISA meetings**
These are held fortnightly and plan the work programme for the next period, address problems, set up training schedules and identify issues to be brought up at the joint meeting with NAPU engineers and PSIU.
- ❖ **PSIU Consultants meetings**
Consultants meet regularly to plan, assess the progress of project activities and ISAs and modify procedures when required.
- ❖ **PSIU/NAPU meetings**
These meetings follow the fortnightly PSIU/ISA meetings and discuss operational and technical problems faced in the field. Decisions are taken to solve these problems. Those problems

A meaningful community participation improves the chance that the users will accept the responsibility for developing and maintaining WS systems making these sustainable in the long run.

❖ Reporting schedules

To acquaint about the progress of the project progress reports were prepared and sent to the management at different intervals.

Monthly Reports:	ISAs	PSIU, NAPU	GWSSB, PSIU	IWACO
Quarterly Reports:	NAPU	GWSSB		
Half –Yearly Reports:	ISAs	PSIU, NAPU	GWSSB, PSIU	IWACO,PSIU RNE

2.9.4 Conclusion

The Ghogha Project has tried to establish a workable management information system. This system helps to develop a common understanding among various partners from different backgrounds about project policies, approaches and methodologies to be implemented at the village level. Regular meetings are held among the project partners and these meetings are useful in assessing the status of field activities, identifying issues related to the implementation of the programme and developing common understanding to work on those issues and resources required to address those issues.

The monitoring system is at an evolving stage in the project. The concept of the project was new to all the project partners. This delayed the design and implementation of systems. However, the system, when introduced, helped to monitor the activities of the project and to bring about necessary changes as and when required.

2.10 Documentation and communication

2.10.1 Process documentation

The Ghogha Regional Water Supply and Sanitation Project is experimenting with the relatively new concepts like Community management and its institutionalization, cost recovery, integration of hygiene promotion activities and sanitation with water supply programme etc. Each context, each approach and each experience is unique in its value. It was felt that the lessons learnt from each should not be lost. One way to address this need was to do documentation of the process in the field and apply the findings and understand these to develop methodologies in the field.

It was envisaged that through this initiative, new insights will be gained and will help develop real field based understanding of the processes involved that lead to a sustainable management of water supply system, and which will be shared with a larger audience for mutual sharing and learning. The project identified two major areas for documentation – Cost Recovery and Formation of Pani Samitis.

The objectives of process documentation are:

- ❖ to develop an understanding of the processes involved in cost recovery and the community's response to such an effort of integrating cost recovery with water supply project.
- ❖ help strengthen the formation of Pani Samitis.

It involves a systematic account of activities and concerns of various partners of the project. Participatory approaches are adopted, which is done through meetings, observations and interviews of stakeholders, informal discussions and interpersonal communication.

The focus of process documentation is to follow the processes happening at the field level, related to the formation and evolution of the people's institutions. This would include, instances like the number of meetings that are conducted before the Pani Samiti comes into existence, the type of issues that are discussed in the Pani Samiti meetings and during its formation, conflicting interests, profile of the members of the institution, women's involvement etc. This would also help assess the complexities at the field and monitor the developments, help develop strategies for institutional strengthening and capacity building of the members, provide guidance to determine the institutional needs, design inputs, help expand the scope of intervention by these institutions etc. Development of realistic cost recovery strategies, developing an understanding of how communities respond to cost recovery, fine tune the existing systems, are some of the likely important outcomes of process documentation.

Three villages – Chhaya, Bapada and Vavdi were selected for the purpose. An external consultant was appointed for the purpose. The strategies adopted were small group meetings, monthly Pani Samiti meetings, individual interactions with Pani Samiti members including women and others. Interactions were also held with PSIU and NAPU staff.

What eventually was aimed at, is a narrative accompanied by a description of key problems and issues that emerged from the entire process. This process is supported by periodic development of case studies and anecdotes. Process documentation of the project is a continuous process and will help integrate the learning from it, consolidate and articulate issues and prepare a strong case for integrating concepts of cost recovery and people's participation in water supply and sanitation project. This effort needs to continue at intervals. There will be likely two sets of information. The first might be the existing social science knowledge on the characteristic of an effective Pani Samiti of village level institutions and second may be the policies and procedures that are the underpinnings of the community management system. The interlinkages of such institutions with generating people's contributions and understanding of whether the current methodologies are adequate, along with the type of inputs for institutional growth was the envisaged outcome of the process documentation process.

At the time of writing this document, a few reports were prepared. These field reports throw light on the events happening at the field.

Community participation is not just limited to getting decisions made elsewhere endorsed by the people or involving them in labour work, but giving them the scope and opportunity to meaningfully participate through decision making and hands-on management

It may be added here that the objectives of process documentation process was not achieved in the stipulated time period and this would lead us to reflect some crucial aspects. However, the next time such a documentation process is taken up, the project needs look into all these aspects carefully to derive a more effective outcome.

What needs to be done

One of the major gaps that still remains is how to utilize the available information and learnings from the process documentation activity. The PD activity so far has done well to document only the events at the field level, based on the feedback of the field staff and few observations, but moving a bit forward, these learnings should actually be utilized to strengthen the programme. Documenting these events should however ideally also give insights into the process of evolution of the Pani Samitis, their functioning, how democratic are the processes and the type of inputs required to strengthen it further.

What is still required and was envisaged earlier, was to develop a deeper understanding of the interlinkage of the Pani Samitis with relatively newer concepts of cost recovery, women's involvement in community affairs, conflict resolution mechanisms etc. To fill the existing gaps, probably PD will require some more reflection.

2.10.2 Video documentation

Video documentation has been identified as one of the major tools for the documentation of the project process. The project recognized that video documentation is an important tool for awareness generation, training, and promotion. The video documentation process started in January 2000 and is still continuing. It was decided that there would be four modules in all, one of which is for 30 minutes while the three remaining would be of 10 minutes each.

The four different modules are:

❖ Community participation in the project activities:

Ensuring community participation at every stage is the major thrust of the project. Unlike other projects the villagers are involved in all stages of the project cycle. Video documentation of this element of the project proved to be important.

This module will serve to introduce the fundamental concepts of the project, its philosophy and the various components. It is aimed at different target groups, including the local people, to develop a basic understanding of how the project is implemented.

❖ Pani Samiti - need; structure; responsibilities etc.

The second module deals with different aspects of Pani Samiti. The formation of these village institutions, their role and responsibilities, structure, administrative and procedural aspects etc. are the various issues that has been covered.

This will serve as a training tool for the ISAs to orient the new members of the Pani Samiti. This will also serve as an educational tool for the agencies, which need to know the details about the Pani Samitis and their functions.

❖ Cost recovery:

Recovery of operation and maintenance cost from the community was felt necessary to ensure sustainability of the project. The capital cost is borne by the project and the post commissioning operation and maintenance has to be taken care of by the community. This being the unique feature of the project, it was covered in the video documentation process. This module will serve the purpose of training cum educational material for the villagers and other agencies to replicate the concept.

❖ Democratic representation:

This module builds on the concepts introduced in the first module that deals with community participation. This module will document the processes that were undertaken to ensure participation of all sections of the society irrespective of gender, class or caste.

Usage

Apart from its usage in the project implementation these will serve as a training tool, educational and motivational tool, as well as reference material for NGOs who wish to work on the same principles. These modules can also be utilized in the workshops to initiate the process of discussion. The policy makers and project formulators will also be interested to use these modules as these will be useful reference materials for them. Most of the events in the field have been video documented widely for future use. Depending on the needs in the next phase, these will be used for preparing similar training modules.

2.10.3 Development of Information, Education and Communication materials:

The project recognized that Information, Education and Communication materials are important tools for awareness generation, education and training. The Information, Education and Communication materials are the participatory tools for bringing about behavioral and attitudinal change in the people. With these materials people understood and realized the positive changes, which helped them to improve their hygiene and sanitary practices. Hence, the project decided to produce various materials for awareness generation, training and education.

These materials were prepared by a professional agency with prior experience in the field of water supply and rural development. Centre for Environment Education, Ahmedabad was contracted for the production and development of these materials.

Before being finalized, the draft materials were field-tested. Field-testing was done in three stages; first with the NGOs, second with the target community and third with PSIU subject matter specialist. After receiving feedback, the materials are finally developed. PSIU supported the agency in providing texts and technical inputs.

List of materials prepared

Item 1	:	Folder
Theme/Content	:	Highlighting main messages related to the scheme, safe drinking water, personal hygiene health and sanitation.
Target Group	:	Villagers
Language	:	Gujarati
Item 2	:	Booklet
Theme/ Content	:	Water Supply Scheme GRWSSP- scheme, components, facilities, Pani Samiti structure and role.
Target Group	:	Pani Samiti Members
Language	:	Gujarati
Item 3	:	Picture Cards' Set
Theme/ Contents	:	Gender Awareness Daily routine of rural women, task wise duration.
Target Group	:	Rural Women and Men.
Item 4	:	Manual on Operation and Maintenance of the Water Supply Scheme. (Book)
Theme/ Content	:	Operation and Maintenance The scheme, its components, structure, operation, guidelines, minor repairs, troubleshooting, monitoring etc.
Target Group	:	Pani Samiti Members
Language	:	Gujarati

Item 5	:	Flip Chart
Theme/ Content	:	Safe Hygiene Behaviours Comparison of hygienic and unhygienic practices.
Target Group	:	Villagers
Language	:	Gujarati

2.11 Capacity building

Introduction

Participatory development requires major institutional orientation and development of the concerned partners to ensure responsiveness to local demands and to empower communities to act and make informed choices. From the start of the project, attention was paid to ensure that the project partners acquire new skills and knowledge to implement the programme and be able to address the evolving requirements of the project in different stages. The need for these new skills and knowledge was identified through a training need assessment exercise done at the initial stage of the project, involving ISAs and PSIUs. Based on this, training and communication strategy was developed for the project.

Investing in the capacity of ISAs, NAPU and Pani Samiti members unleashed significant new energies for the project.

Capacity building of ISAs, NAPU and Pani Samitis involved building of internal strengths of organisations mainly targeted towards:

- ❖ Achieving conceptual clarity about the project objectives, approach and strategies.
- ❖ Orienting them about the programme and the methodology of implementation
- ❖ Clarifying the role of each partner.

To initiate the process, orientation on project approach and strategies was organized to familiarize participants with the underlining concepts of Demand Based approach; cost sharing principles to be adopted; ownership patterns, tariff structures; account management and participatory monitoring. Training, workshops, meetings and interpersonal communication helped in capacity building of the different partners.

Trainings

Trainings were conducted for the field staff of ISAs and community groups participating in the project. Initially there were centralized Training of Trainers for ISA field staff. These trained trainers subsequently trained the community. Training of ISA staff was related to technical issues for O&M, village improvement programs; PRA techniques for data collection and planning with community; Village action plan preparation, formation and strengthening of Pani Samitis and rules and regulations of functioning; sanitation-related activities and hygiene promotion. The approach was to train them for enhancing community self-management and long-term sustainability.

The training sessions were differently designed to include print and graphic media to accommodate the needs of semi literate and illiterate people. Specific considerations were given to tailoring community level training programs to the needs of women in terms of timing, venue, duration etc. Types of training included skills up gradation, developing new skills, awareness building, exposure to successful projects etc.

Training for effective interventions in the villages was given to the ISA staff in the following areas:

- ❖ Participatory Rural Appraisal
- ❖ Formation and strengthening of Pani Samiti
- ❖ Strengthening village based institutions/CBOs/Pani Samiti to plan for Cost Recovery, O&M, environmental sanitation, hygiene promotion etc.
- ❖ Enabling community to consider and select among options for technology and design inputs.
- ❖ Hygiene promotion.
- ❖ Help organize community/household for sanitation, construction, site selection etc.

The skills and capacities developed increase the community's capability to take on other issues affecting their lives.

A high degree of motivation is brought about through involvement, and ownership, education and capacity building

- ◆ Identifying training needs of village groups and institutions.
- ◆ Production of training materials.
- ◆ Construction monitoring
- ◆ Introduction to WRM
- ◆ Participatory training and evaluation
- ◆ Gender sensitization.

Methodology

Participatory methods were followed in all the training programmes. The methods used encouraged participants design their own solutions. Group exercises were the major method used in the training programmes. The use of audio/visual aids was considered to be more significant in awareness generating programmes

Meetings, Training and Workshops Conducted

	Date	Duration (days)	Details
In 1998			
1.	22/04/98 - 23/04/98	2	Introductory workshop for all stakeholders.
2.	20/07/98	1	Orientation meeting for ISAs.
3.	23/11/98	1	Start - up meeting with ISAs.
In 1999			
1.	11/01/99 - 12/01/99	2	Orientation Programme & workshop for Planning for Baseline Study.
2.	9/2/99	1	Identification of training needs.
3.	04/03/99 - 06/03/99	3	Project Planning Workshop.
4.	23/03/99 - 26/03/99	4	Gender and Hygiene Promotion.
5.	10/6/99	1	Workshop on Baseline study and Cost recovery .
6.	2/8/99	1	Allotment of second batch of villages to ISAs. WRM, Problems faced by them in the Villages.
7.	9/8/99 21/08/99 (CEE)	1	Design of water supply scheme Sharing of field experiences and orientation about
	22/08/99 (Utthan) 24/08/99 (Medhavi)	1 each	Monitoring formats to the ISAs (Third CP mission.)
8.	15/09/99	1	Water Resources Management.
9.	23/09/99	1	Allotment of third batch of project area Villages to ISAs.
10.	30/09/99	1	Water Resources Management.
11.	9/10/99	1	PRA and Hygiene Promotion
12.	10/10/99	1	Role and responsibility of members of pani-Samitis of pilot villages
13.	15/10/99		Cost Recovery
14.	23/10/99 - 24/10/99	2	Water Quality monitoring
15.	17/11/99	1	Workshop on Community Participation
16.	25/11/99	1	Workshop on Hygiene Promotion
17.	22/12/99	1	Training on Water Supply System
In 2000			
1.	4/1/00	1	Training on Geohydrology & Drilling
2.	4/2/00	1	Pre construction Training(Bapada,

	Date	Duration (days)	Details
3.	11/2/00	1	Mathavada, Garibpara Pre- Construction Training (Chhaya)
4.	29/02/00	1	Workshop on Hygiene Promotion
	14/03/00	1	Training on Construction Monitoring
5.	16/03/00	1	Soakpit Demonstration
6.	27/03/00	1	Workshop on Water Resource Management
7.	4/6/00	1	Orientation of Female Sarpanches/PS Members
8.	22-23/05/00	2	Training on School Hygiene.
9.	13-14/06/00	2	Workshop on Logical Framework Analysis on WRM
10.	4/7/00	1	Training for Pani Samiti on administrative Matters.
11.	10-11/07/00	2	Arc View Training.
12.	28/08/00	1	Workshop on hygiene promotion.
13.	20-25/11/00	5	Masons' training for school latrines

Conclusion

Trainings and workshops undertaken in the last two years have significantly contributed to building the capacities of the ISAs. Though the initial phase focused on strengthening the ISAs for programme implementation, gradually, the ISAs concentrated on trainings for the Pani Samitis, which were being formed. Mean while PSIU also continued to undertake workshops for ISAs in concepts like WRM and post construction, as the need for these evolved as the project progressed. Training for Pani Samitis are still continuing in the project.

2.12. Support missions

2.12.1. Purpose of missions

The project document envisaged that support missions would enhance the inputs of the PSIU staff. Each mission had specific objectives and terms of reference were developed for these missions.

Few of these missions focused on technical studies in order to help provide the project with the required technical data for the programme, like ground water availability, etc., while others attempted to strengthen and devise strategies of the project through periodic inputs.

External consultants made extensive field visits and also discussed their options and findings with ISA Head Office and field staff before making their recommendations. The missions thus also enhanced the capacity of ISAs.

Meanwhile there were three programme review and support missions, which aimed primarily at assessing the progress of the project, while also identifying the need for further inputs.

The summary report of each mission is in the following annexes

- ❖ Hydrology of Shetrunji Catchment and Reservoir (see annex 43)
- ❖ Feasibility of Piped Water Supply System (see annex 44)
- ❖ Ghogha Group Village Water Supply System (see annex 45)
- ❖ Economists' Mission (see annex 46)
- ❖ Hygiene Promotion Mission I,ii,III (see annex 47)
- ❖ Community Participation and Organisation Mission I,II,III (see annex48)
- ❖ Groundwater Potential Assessment (see annex 49)
- ❖ Cost Recovery (see annex 50)
- ❖ Demand Assessment Study (see annex 51)
- ❖ Water Resource Planner (see annex 52)
- ❖ Institutional Development Mission (see annex)

Section: 3

3.1 Introduction

This section will make an attempt to trace the history of the project and also highlight the evolution of the project. It may be reiterated here that the many studies, discussions and negotiations that took place during the inception phase led to the decisions regarding key strategies of the project. An attempt has been made to trace out these various stages the project has passed through.

It also analyzes the processes involved and the subsequent changes brought about and document some of the learning in the process of implementing the project. The institutional and other related issues that have surfaced from time to time and have affected the project to varying degrees have been mentioned in the section that follows. This section draws from the experience gained in the field over the last three years and has tried to consolidate few of these learning that one feels need to be shared with people working with a similar approach and under similar situations.

3.2 Developments in the Approach

3.2.1 Introduction

This section will make an attempt to trace the history of the project, and also highlight the evolution of the project, analyse the processes involved and the subsequent changes brought about and document some of the learning in the process of implementing it.

The GoG first proposed the project for financing by the GON in the year 1994-95. Since then the project has shifted focus from being a regional comprehensive piped water scheme to a community owned and managed water supply and sanitation project. This was the result of the findings and discussions during the Inception Phase, which started in 1997. The implementation phase was then expected to begin in 1999. As the project was implemented, different developments took both at the policy and operational level. Most of these developments were a response to the changing requirements of the project. These developments have been traced out in this chapter, which deals with the different situations the project has passed through.

3.2.2 Chronology of major events in the project

The GoG first proposed the project for financing by the GON in the year 1994-95. Since then the project has shifted focus from being a regional comprehensive piped water scheme to a community owned and managed water supply and sanitation project. This was the result of the findings and discussions during the Inception Phase, which started in 1997. The implementation phase was then expected to begin in 1999.

November 97	Team Leader Consultants starts office in Bhavnagar
January 98	First interaction with the villages
June 98	NAPU joined office
June 98	Pilot villages were selected
September 98	IRA activities started
January 99	ISA joined the project
January 99	First orientation training for ISAs
March 99	First Hygiene Promotion activities start
May 99	First Pani Samiti formed in the project
May 99	Well development Programme started
October 99	IRA was abandoned
October 99	Tenders WS floated
November 99	PSIU obtains office accommodation
January 00	CMSU starts in Gandhinagar
February 00	Construction WS started in first villages
February 00	WRM activities (surveys) started
April 00	Sanitation programme started with soak pits
May 00	CMSU obtains office accommodation
May 00	Well Development Programme completed
October 00	Discussion starts on future CMSU and Ghogha Project
November 00	Works for Water Supply allocated to Nesvad Panchayat directly
March 01	Decision taken to create WASMO and bring Ghogha Project under WASMO, away from GWSSB

3.2.2 Project preparation

The project was planned in a manner that emphasized more on a process-oriented approach right from the beginning because of anticipated complexities at the implementation level, rather than to achieve predetermined targets. Though this has no direct relation to the slow pace of the project, yet participatory approaches adopted at the field to address issues, resolve conflicts and test methodologies have taken good amount of project time. There was a great emphasis on community participation and institutional development but the strategies were not clearly spelt out in the project plan.

It was planned that the project would be financed by the Government of Netherlands (GON) and the GoG jointly. For the activities covered under the Financial Assistance, which includes mainly the implementation of hardware activities, the GON will contribute 85% and the GoG will share the remaining 15%. The Technical Assistance was planned for a period that was half way through the financial assistance period. This created a sense of uncertainty about the continuation and sustenance of software activities even though ISAs were anticipated to be equipped for the role. Also doubts were raised about the potential and aptitude of NAPU to handle newer concepts and approaches in the absence of the consultants.

3.2.3 Project planning

The two clients RNE and GoG had conflicting views regarding the approach of the project. To the government, Shetrunji appeared to be the only option while the GON emphasised on decentralization, and suggested that using local ground water source with adequate water augmentation measures and greater user involvement would be sustainable. It was agreed that the proposed Shetrunji scheme would be examined and that a further review would decide the technical options for the project. After the completion of the comparative feasibility study on the technical options, which was completed in January 1999, the inception report was finalised in May 1999.

GoG and GON agreed upon the Inception Report in July 1999. The delay in the production of this report by over 6 months was apparently due to delay in completion of the decision making process which was necessary because of the complexity and risks involved in technology selection i.e. local ground water source for individual village based schemes.

The initial period of the project suffered from inadequate institutional infrastructure and lack of staff. NAPU, the owner of the project, came into establishment in the second week of June 98, eight months after the scheduled beginning of the project. Even though the team of consultants was working in full capacity in this period, they felt handicapped by the absence of a full-fledged and fully equipped NAPU. Planning and subsequent implementation of some of the project components, such as Review of the Shetrunji option and selection of ISAs was delayed and affected. Meanwhile the conflicting opinions of the two major partners regarding the approach of the project created uncertainties and ambiguity, which resulted in unusually, delayed decisions at the project level.

3.2.4 Socio- economic Unit

This unit was set up within GWSSB to assist the project team in implementing the activities. The task of this team was to help design strategies, plan and guide the implementation of the programme. Specifically, it was to co-ordinate activities with PSIU and ISAs and improve the awareness and knowledge of GWSSB engineers on non-technical aspects of rural W&S projects. However this unit could not get the intended support from the GWSSB, chiefly in staffing, and finally was dissolved.

3.2.5 Drilling programme

During the pilot phase, in nine villages, 30 wells in four villages were drilled with a DTH rig, out of which only 6 were found successful. In one village Nagdhaniba, 11 bores were drilled without success. In village Nesvad, three wells were found to have sufficient yield but unfortunately had to be rejected for having high fluoride level.

Hereafter the batch approach was abandoned for practical reasons and the second drilling included all the remaining villages. One-DTH and one DR rig was put to action by October

99. In October 1999, GWSSB had agreed that more equipment would be mobilized for the project. Two DTH rigs, two DR rigs and two pump test units were to be made available for the project to make up for the delays and to back up break down of available units. However their availability and functioning was extremely erratic and this came as a greatest hindrance to an efficient drilling campaign. There were instances when bores would be drilled but these bores could not be tested for quantity due to non-availability of the pump test machine.

The final results of the drilling programme revealed that 28% of villages had a point source with an assured 55-lpcd capacity and another 37% had a supply of 15 lpcd. 84% villages had a potential for drinking water from ground water sources if over exploitation of these sources were curtailed. 16% villages, mainly in the coastal belt, had no potential for local drinking water and would require alternative sources. The project realized that locating local point sources was more difficult than anticipated. It was recognised that the introduction of WRM measures, such as check dams and pollution control, along with the water supply activities would help villages where the local source was inadequate or was found to be contaminated with nitrates or fluoride.

3.2.6 Water Supply

The project was initially conceived as a regional programme with water supplied from the Shetrunji Dam and canal system. Subsequent studies (See Section 2.2) showed that this technical option had only a limited reliability. The focus then shifted to individual village schemes based on ground water available within the pan.chayat boundaries. The figures of the drilling programme, however, were subject to yearly fluctuations depending on the monsoon rainfall and success of WRM measures. It was thus decided that the project could be introduced even in those villages which did not meet the criterion of 55lpcd but which had a minimum of 15lpcd. The water source in these villages would be improved through WRM activities and the villages would also be connected to the Mahi-pipeline in the future.

The limited rainfall in 1999 and 2000 resulted in increased efforts of the GoG to transport water from other basins to water scarce areas. The rapid progress in the Mahi-pipeline resulted in the projected connection of all project villages by end 2001. Hence project activities were introduced phase-wise in all villages so they would be ready to avail of this water when it arrived.

3.2.7 Selection of pilot villages

In a number of villages it had to be verified whether potential well sites could be developed or artificial recharge structures are a feasible solution. To develop strategies for this, 9 pilot villages were selected. Also these pilot villages were selected to help develop methodologies, test approaches, and provide a means to gain experience of working in villages with varying resource conditions. IRA was also one of the primary considerations to work in pilot villages. The focus of pilot intervention was on provision of safe water, hygiene promotion and strengthening and developing community institutions. Strategies for working and expanding to the remaining villages were to be drawn from the pilot villages, which would eventually help development of community-based programs.

The nine pilot villages were selected from three talukas and having different conditions. One of these was envisaged to have poor ground water potential while the remaining eight were estimated to have potential for 12-month water supply. In those villages with poor resource conditions, water resource management was planned to be taken up to augment the ground water table. Pilot villages were selected in June 1998 while drilling took place in May 1999, about a year after pilot villages were decided upon. It was revealed only after the drilling programme that of the nine pilot villages, only five villages had reliable water. One of the ISAs-Medhavi had no water in any of the villages they were working and this came as a setback in the process of their learning from the pilot phase. Besides as envisaged in the pilot phase, alternative technologies and WRM activities were not taken up simultaneously for various reasons. These could have helped in developing a comprehensive plan for the villages while maintaining the enthusiasm and spirit of the local institutions and also the ISAs. It appears that the selection of the pilot villages was probably more of an academic

exercise, governed principally by assumptions of availability of water. It would have been worthwhile to select pilot villages with assured water source to facilitate a better learning by minimizing uncertainties and complications.

3.2.8 Start up of VBP

Initially activities were started in pilot villages even before reliable water source was found. This led to problems once people were organized and project information was shared with them. Consequently, to offset some of these problems, it was decided not to initiate any activities in later villages until water source was established. However, in all the nine villages, Pani Samitis were formed, but work continued in those four villages with assured water. In the remaining five, ISAs maintained their presence as hygiene promotion activities and school sanitation programme continued for some time, but with the falling enthusiasm and disappointment of people, not much of interaction sustained. These villages were later proposed for water resource management activity, which is discussed later on.

In the following months, only those villages with an assured 55 lpcd of water were allocated to the ISAs. This was done simultaneously with the drilling activity, whose results were periodically used for planning the allocation. This process continued till about August 2000. The villages with 15 lpcd were then decided to be taken up for WRM activities.

The ISAs were allotted two to three villages at a time. In each village ISAs would facilitate processes upto site selection and then NAPU would take up the responsibility of doing design and tendering. Meanwhile activities to strengthen the Pani Samitis would continue in the villages through training, defining strategies for cost recovery, collection of funds, regular meetings, conflict resolution, preparation of village action plans and other related activities.

3.2.9 Integration with Mahi pipeline

It was planned that by March 2001 all villages of the project would be integrated with the Mahi pipeline. But there were delays in arrival of this project as well. However in November 2000, the govt. demonstrated a sudden urgency to complete the village-based infrastructure because of the incoming Mahi pipeline. Therefore all efforts then were focussed on completing the activities in the village that were to be included under the Budhel and the Tansa Zone. Site selection was an immediate priority and ISAs were given new targets, to be completed by Dec. 31. As additional pressure was built up, the ISAs had to compromise on some of the processes followed, in order to meet the deadline.

3.2.10 Water Resource Management

The well development programme revealed that ground water resources in the project area were greatly depleted and that the water table was declining steadily. Further, seawater ingress was a serious problem. Added to this, the area had poor monsoons in both 1999 and 2000. The main cause for the rapid declining availability of groundwater was the overdraft of water for agricultural use. Another aspect of concern was the risk of pollution of the aquifers in the basalt by latrines; soak pits and abandoned open wells. The project decided to introduce WRM measures in all villages to make an attempt to tackle both the quantity and the quality issues. WRM would become integrated with the other project components, right from the beginning of the project cycle. Thus the BLS in all new villages addressed WRM issues and WRM mapping was prepared to understand the issues and propose corrective measures.

The consultants undertook a series of meetings and workshops with ISAs to understand the concepts and scope of activities to be undertaken in WRM. It was decided to engage the services of AFPRO, an organisation with a successful track record in this field, as a consultant for training ISAs.

The ISAs, assisted by AFPRO, surveyed project villages and prepared WRM proposals using PRA and participative tools. These proposals were submitted to GWSSB for approval and funding.

3.3 Institutional issues

3.3.1 Introduction

The purpose of this section is to look at some of the organizational and institutional issues that have come up during the implementation of the project. It may have become clear that the Ghogha Project has an experimental character and is dealing with a lot of organizational uncertainties. The problems the project is struggling with partly reflect the larger set of the problems the sector has to come to terms with. Not needed to say that the observations made with regards to the role and functioning of the involved project partners should in no way be read as a judgment of any of the partners or as criticism to anybody in particular. Also not necessarily all the partners will agree on all observations. Finally the Ghogha Project is in the middle of a process of evolvement, whose outcome is still not sure. The learning from mistakes and successes apply to all partners.

3.3.2 Organisational set up

The present management structure for implementation of the Ghogha Project can be summarized as follows.

- ◆ GWSSB is the owner of the project and is responsible for management and implementation. PSIU is responsible for day-to-day implementation. PSIU consists of NAPU, a group of engineers from GWSSB- and Consultants (IWACO + Y&S) contracted by RNE, financed through TA. Engineers from NAPU mainly plan and execute hardware related activities of the project. Consultants provide input for both hardware and software activities.
- ◆ NAPU is headed by EE and supervised by office of the SE, Bhavnagar Circle and Office of the Chief Engineer, Zonal office at Rajkot. Consultants are headed by the Team Leader (TL), who reports to RNE on behalf of IWACO.
- ◆ To facilitate people's participation in the project activities three NGOs (CEE, Medhavi and Utthan) are recruited and contracted by the Consultants. They are called ISAs.

3.3.3 Integration of new approach in GWSSB

The project started with the assumption that the new, community-based approach would be adopted and incorporated by the GWSSB structure and system. At least at NAPU level. Therefore it was also foreseen that the consultants could gradually retreat when NAPU staff had taken over all the tasks. After three years it is concluded by the project partners, including GWSSB and the department WS, that this strategy of incorporating so-called software activities in the GWSSB structure has failed. Based on discussions with the different project stakeholders, the following observations have been made.



CMSU organised a workshop for sharing of experiences in the water sector

- ❖ GWSSB only reluctantly accepted the ownership of the project after it was decided to review the proposed Shetrunji-based Regional Scheme.
- ❖ The interaction of the consultants with the villages started in November 1997. NAPU started in June 1998 and regarded the interaction with the villages as the job of consultants and not that of NAPU.
- ❖ Some of the NAPU staff took and takes serious interest in the new project approach. However, Bhavnagar is regarded as a punishment posting at GWSSB and therefore all staff not originating from Bhavnagar tries to get transferred to another location as soon as possible.
- ❖ This, and the unfavorable image of the Ghogha project in GWSSB, led to many transfers of NAPU staff, which made incorporating the approach very difficult.
- ❖ The unfavorable image is mainly related to the fact that the project has hardly delivered any hardware so far. In the opinion of the engineers there is a lot of talking going on but nobody produces in the Ghogha project. Therefore the job satisfaction and benefits may not match with the expectations of the average GWSSB engineer.
- ❖ The culture of GWSSB is very much dominated by the engineering culture. There is very little appreciation of the work of more 'softer' disciplines. This was most clearly demonstrated at CMSU. The three IRMA graduates resigned all within a few months after taking up the job, because they felt not understood and not appreciated by GWSSB. An earlier experience with the SEU, with staff on deputation from other departments, led to similar frustrations.
- ❖ There is still a clear tendency within GWSSB to look at the villagers as passive target group or beneficiaries instead of active partners.
- ❖ The focus of GWSSB is almost exclusively oriented towards water supply. It has taken up a few schemes for roof water collection and water recharge structures but it has not developed specific arrangements of systems to deal with these schemes. Also their staff has not received any training for handling these schemes. The responsibility for rural sanitation recently was transferred to the department of Rural Development.
- ❖ Within water supply GWSSB is concentrating on Regional Schemes. Individual schemes form only a minor part of their work and don't get the same attention at higher levels.
- ❖ The Ghogha Project with its strategy to integrate water supply, WRM, Environmental Sanitation and Hygiene Promotion has a much wider scope than GWSSB. Systems and staff of GWSSB have continuously shown difficulties with handling the works related to these other areas.
- ❖ GWSSB handles guidelines for water consumption and technical design as norms and prescribed standards. The project therefore is often not able to respond with flexibility to the demands from the communities.

All in all the conclusion of the experiences with the Ghogha Project have resulted in the conclusion that GWSSB is not the ideal vehicle for implementing Water and Sanitation projects which:

- ❖ are demand-responsive and have a strategy of community management,
- ❖ integrate WRM, water supply, environmental sanitation and hygiene promotion.

At the same time, however, it should be noted that since the Department Water Supply decided that the districts Bhavnagar and Amreli would receive water from the Mahi-pipeline before the monsoon of 2001, the activities of NAPU have accelerated. Interestingly, not only the pace of work has changes but also the response to the dynamics of the project seems to have substantially been improved. This may well be related to the direct interest the management of GWSSB has taken in the project during this period.

3.3.4 ISAs as agents for institutionalising community management of W&S services

The ISAs are involved in the programme since January 1999. The first contract was for one year in which the ISAs were responsible for community mobilization, awareness raising and capacity building activities in 9 pilot villages. This contract was extended for continuing the

3.2.11 Immediate Relief Assistance

IRA was conceived as an entry-point activity that would make minor repairs to the existing water facilities in villages and would establish a rapport between the villagers and the project personnel, especially GWSSB personnel. However, IRA could not achieve much, primarily because of complex GWSSB procedures and because engineers did not have sufficient time for the activity.

It was decided that the contractor while constructing the water supply system would take up such activities. It has also been felt that these repairs could be undertaken by the *pani samiti*, using funds collected for O&M of the water supply system. The IRA activity was not very widely accepted and appreciated in the villages. As a concept, the local people did agree to it and have even supported it initially, but the extensive and often cumbersome procedural bottlenecks of GWSSB have negatively affected the pace and output of the IRA. While people's expectations have been raised, failure to comply with actions proposed or promised as a part of IRA has set a wrong precedence. Thus in many villages IRA have proved to be counter productive and had to be finally abandoned in November '99, after a review in September '99.

3.2.12 Sanitation

The project approach to sanitation was constrained by two factors: the unavailability of water in project villages and the high risk of aquifer pollution due to the highly fissured hard rock formation. These factors meant that the project had no option but to accept the option of promoting pour flush latrines on a large scale, a technology that is widely accepted in the state. Instead, the focus shifted to construction of school latrines (through trained masons) by supporting the existing government programme of the Health Department. It was felt that school latrines would have an added benefit of encouraging girls to attend and remain enrolled in school. The project strategy is also looking for innovations of and introduction of new technologies. The potential of (dry) composting latrines for areas with high pollution risk is looked into. A pilot has been prepared to carry out a complete up gradation of the village infrastructure (sewerage, drainage, roads) for villages that face serious problems with their drainage, can afford considerable contributions and have a strong demand for such interventions.

The project also shifted to introducing improved soak pits to reduce water logging of village streets due to wastewater. Villagers were skeptical about the technique, having used older versions of soak pits that tended to clog after some time. Proper orientation on maintenance and careful monitoring of construction led to a situation where villagers were eager to use the technique. The project has also experimented with root zone technology in one village. This technique is expected to handle the wastewater for the entire village.

3.2.13 Hygiene Promotion

Absence of water was the determining factor for changes in the hygiene promotion programme. The objectives were adjusted according to the prevailing situation. In the beginning HP aimed to concentrate on hygiene practices such as regular bathing and washing of clothes and collecting water from safe sources only. However in the absence of water the emphasis shifted to protection of existing water sources and safe handling of drinking water. More stress was also placed on the school sanitation programme, as children were more receptive and perceived to be good change agents.

3.2.14 Conclusion

The project began with a lack of clarity among the consultants and GWSSB on the approach, direction and methodologies to be used. The owner of the project, GWSSB, was reluctant to take any action on the project as the project differed considerably from the proposal initially submitted by them. Discussions to clarify concepts and strategy were not held prior to the start of the project, and subsequent talks between RNE and GoG took 8 months. RNE and the Secretary, Water Supply did not take enough steps to solve the problems; references were made and notes exchanged, but neither side took a definitive stand. The learning here

is that conflict should not be avoided. Positions should be explicitly stated and final decision should be taken.

The inception period took a year longer than planned. Many issues that later hampered progress could have been brought up during the implementation phase, but there was no forum to discuss these issues, as GWSSB had no personnel in place. Also the implementation of the village level plans and the search of groundwater sources as well the progress in the drilling programme was below the earlier expectations. These 'delays' were partly because of optimistic planning, based on the hope that the situation would improve and start to move. There was a lack of commitment to the planning from GWSSB. Delays in the VBP were also due to the fact that the complexities in the villages were more than were anticipated. The project had not realised the degree of politicisation existing in the area, which caused delays and physical stoppage of work. A big hindrance came from not having enough information about the available water situation in the project area. It was necessary to have a correct appraisal of the resource condition of the area before the start of the project. This data could have been made available from the existing records of the other departments, for which interdepartmental co-ordination and sharing of relevant data is a precondition.

An over all observation is that if one is to implement a demand driven approach, the project should be designed to meet this objective. Hence the project design should be flexible to accommodate contingencies that arise in the field. The project should be viewed as process driven, not target driven. Thus all planning, even financial planning should recognise this fact and incorporate these aspects.

work in these villages and to expand to the other project villages. The contracts of the ISAs have the following Terms of Reference:

The ISA are responsible, among other things, for the working in communities:

- ❖ to involve all households and particularly women;
- ❖ to stimulate improved personal, household and community hygiene practices;
- ❖ to work with the effective formal and non formal community groups;
- ❖ to mobilise community members (and particularly women in communities) who will help plan, implement and maintain their water and sanitation facilities including stimulating payment (in money, kind and labour);
- ❖ take part in surveys, research and monitoring as needed;
- ❖ participate in materials development activities as needed;
- ❖ ensure efficient and transparent communication and reporting to the project;
- ❖ It will be important to ensure that all groups in the communities, and particularly the poor, benefit from the project.

Apart from these activities in the fields of participation and IEC, the ISAs may get involved as implementers (in partnership with the Panchayats or Pani Samitis) of hardware for Environmental Sanitation and WRM components. A set of indicators, which forms part of the ToR of the ISAs is also added. They form a universe of possibilities, but, however, not all of these will be developed equally in all the villages. Thus the priorities drawn from this universe may vary in different communities. However, the priorities selected should be appropriate, seeking to address the key local issues that lead to achieving the project's immediate objective. Also the list of indicators is not exclusive, others could be added but it is important, however, not to add too many indicators and activities. The most successful programmes focus on fewer indicators.

A mid-term evaluation is planned to be carried out in the third year of ISA's involvement. All the ISA's should have at least finalized a complete project cycle in one village for the Water Supply component.

Some observations can be made based on the first two years of involvement of the ISA's.

- ❖ All the ISAs had a background in water and/or natural resource management but none had specific experience in a water supply and sanitation project like the Ghogha project. Especially not in a project that integrates WRM, water supply, sanitation and hygiene promotion. Each ISAs had specific strengths and weaknesses.
- ❖ As a result of this the consultants have provided extensive and intensive support to the field staff of the ISAs for planning and implementation of many of the activities.
- ❖ The ISAs suffer from a high turnover of staff, which implicates that training programmes have been repeatedly carried out by the Consultants.
- ❖ The close cooperation between contracting and implementing agency may be typical for a pilot situation. It is not a replicable model for large scale implementation.
- ❖ Mainly due to the very different focus of the ISAs and NAPU, no real partnership has evolved between the two. The ISAs are very much development oriented and work on the side of the villages. NAPU is oriented towards physical targets and not towards the development process.
- ❖ The fact that the ISAs were contracted by the Consultants and not by NAPU had basically two consequences. The first is that the Consultants function as kind of a buffer between these two major implementing agencies and keep the process going. At the same time both ISAs and NAPU were not forced to step out their role and work towards a better understanding of each other and a more professional partnership.

3.3.5 Technical assistance and the Ghogha Project

According to the Project Document of 1995 and the Project Support Document of 1996 Technical Assistance (TA) in the Ghogha Project was made available for community involvement, health promotion, human resource development, institutional development, financial/cost recovery improvement etc. Additional funds were available for technical and non-technical consultancy services, including short-term missions and backstopping to GWSSB. It was decided that the TA funds would be disbursed through the Team Leader (TL) of the PSU (Project Support Unit), following GON TA procedures.

The project holder of GRWSSP is the GWSSB. GWSSB will be assisted by consultants, made available with GON assistance through the PSU, and working as counterparts to GWSSB staff, both at Gandhinagar (HQ of GWSSB) level and Bhavnagar (GWSSB division) level. Each PSU consultant will have one or more counterparts from GWSSB, who will take an active lead role in the activity. GWSSB will preferably appoint qualified staff as counterparts, with training and an interest in integrated project development. The counterpart staff will also have well developed communication skills and learning abilities. Counterpart staff will be appointed by the Member Secretary with the consent of the Team Leader.

The PSU will be composed of GWSSB technical and non-technical staff and their counterpart consultant advisors to plan, prepare, manage and monitor project activities.

(Project Support Document, June 1996).

From the above it may have become clear that the TA was primarily meant to build local capacity for solving future problems; not simply to apply a technology but to transfer the technology; not simply to provide skills but to build skills (See box on TA by WASH). It was assumed that through the assistance of consultants the integration of water supply, sanitation and health activities and the internalization of the community management approach in GWSSB would be realized.

For various reasons, as has been spelt out earlier, the adaptation of new approach by GWSSB has hardly taken place. The main development took place only at the level of acknowledgement of the need for changes in the approach and strategies towards a bigger role for communities, NGOs and private sector in the W&S sector. This illustrated by the concept note for a new organization for the sector, which at present is being setup by the GoG. (see note WSMO, Annex 53).

At field level in the Ghogha Project the new role was not taken up by NAPU/GWSSB, with the consequence that the Consultants played more a leading than an advisory role. The consultants almost became de facto managers of the project, without having the mandate or the power. The main lesson learned here is that the willingness and ability by the recipient party, GWSSB, to accommodate the project with its new approach was too optimistically assessed. The capacity building of ISAs has been successful, of NAPU/GWSSB, however, has largely failed. The higher objective to replicate the model of the Ghogha Project has therefore not been reached (yet).

3.3.6 The role of Pani Samitis and Panchayats

Pani Samitis formed at the village level have been the vehicle for community participation in the project, within whose activities members participate to varying extents. The Pani Samitis formed so far are at various stages of performance but based on the experience gained over the last two years of the project some observations can conclusively be made. These village level institutions are formed as a result of detailed planning, negotiations and interactions amongst the people. Training and other inputs have contributed significantly to increase their management capacity and have resulted in PS taking up newer roles. Currently they are involved in various activities of the project, like site selection of WS structures, cost recovery, preparation of village action plan, construction monitoring. A major involvement will be operation and maintenance and upkeep of the physical infrastructure while continuing with the other activities of hygiene promotion, sanitation, cost recovery etc. Some observations are:

- ❖ At the village level, the only available guideline for forming Pani Samitis is the GR issued in 1995. The GR in its existing format and structure is inadequate to meet the changing demands and emerging needs of such differentially planned projects in terms of membership, constitution, tenure of Pani Samitis etc. This GR leaves little scope for innovation and experimentation and has to be tailored and modified accordingly.
- ❖ Pani Samitis are working in various capacities. In some villages they have just been formed while in some, they are way ahead into actually dealing with issues related to construction, cost recovery etc. While their enthusiasm to undertake newer responsibilities have prompted them to participate in activities like monitoring construction, these have manifested in unwanted conflicts with the contractor and NAPU.
- ❖ Trainings, orientations and exposure of PS members have developed their capacities and they are showing willingness and skill in taking up new activities and responsibilities.
- ❖ The stage has not yet been developed where PS initiates activities on their own. The presence of ISAs in the field is still strong and the need for their continued presence is still strongly felt.
- ❖ The delay in responding to the immediate demands of the people has resulted in dampening of the enthusiasm initially evident. In the absence of a tangible result in the form of a fully functional WS system, the initial vigour is difficult to seek sustained interest.
- ❖ The project has not been able to respond, though lately one village has been made an exception to the people's demand that the local govt. i.e the Panchayat be given the contract for construction. However there is a general hesitation on the part of the Board to get people involved in the construction activity. Panchayats have often indicated a desire to take up construction activities.
- ❖ Since no village has been able to complete one full village cycle, some of the procedures and methodologies involving people at the field are yet to be tried and tested out at the field level.
- ❖ The Pani Samitis shared a very cordial and encouraging relationship with the ISAs, which helped in undertaking many activities with the active involvement of the people, but the same relationship was not established with NAPU often leading to situations of conflict and misunderstanding.
- ❖ Involvement of women in managing community affairs has been a major development and the PS has acted as a means to achieve it.
- ❖ Even though the project has been designed in a manner to elicit people's involvement in a number of project activities, yet to reach to a stage of a meaningful community management would mean expanding their scope of participation.

Recently, an important decision was taken, namely to allow the Panchayat to implement the whole water supply component. NAPU in this case plays the role of facilitator and the Panchayat is the contractor. It is an experiment, started in one village, Nesvad that may be followed by many others. Many of the communities are coming forward to take up the same responsibility because they believe they will do a better and faster job. If this is true is still to be seen: do they have sufficient technical, administrative and financial capacity; how transparent is the Panchayat for the villagers? But in principle it is the right direction: decentralization and ownership at village level.

3.3.7 CPC - CMSU - WASMO

At present the process of the creation of a new organisation for the W&S sector in Gujarat is ongoing. This organization, WASMO (Water And Sanitation Management Organisation), will be the result of two processes. First, a process within the Ghogha RWSS Project and, secondly, because of developments in the sector which took place during the same period. Here the focus is on the first process. The concept note on WASMO, and was prepared by CMSU, was accepted in principle by the GoG in January 2001 and can be found in Annex 53.

A task for GRWSSP at headquarter level of GRWSSB was in some form already foreseen in the original Project Document. At the beginning of the project it was decided, however, to start with the field project only and to have the Team Leader (TL) also positioned at the field level.

The Inception Report (May 1999) proposes the Coordination and Planning Cell (CPC) to become operational from 01.01.2000 onwards. CPC had a focus on coordination and planning for the sector, to start with one district and functioning under the Member Secretary of GWSSB. A mission was carried out in the second half of October 1999 to assist the GWSSB and the TL with the drafting of an operational plan for the CPC. After this mission it became CMSU, where the change of name reflects the shift in orientation taking place at present in the sector.

The positioning of CMSU within GWSSB was briefly discussed but it was found to be logical because CMSU is part of GRWSSP, and GWSSB together with GSDWICL are the only operational institutes under the Secretary, Water Supply. It was concluded that when the need would rise and depending on how CMSU was going to evolve, its position in the sector could be reassessed.

After 10 month of functioning and little progress, the question was raised on how much support CMSU actually received from GWSSB and if it was a viable set up at all. Therefore an Institutional Development mission was organised, which made the following recommendations:

- ❖ There was no reason for substantial change in the organizational set up of the Ghogha project.
- ❖ The project being a pilot for change in the sector should get a higher profile in GWSSB and the Department.
- ❖ NAPU and PSIU should come under CMSU, where a Chief Engineer should be given the task of sanctioning the proposals and activities.
- ❖ NAPU and PSIU should gradually merge, where NAPU gradually takes over programming and management from PSIU.
- ❖ More coordination with other departments should take place at District level.
- ❖ More possibility should be created for local communities to enter directly in contract with private actors.

Following discussions on the future of both the Ghogha Project, CMSU and most important the future role of GWSSB in the sector, the Department Water Supply decided to create a new organisation aiming at facilitation of the villages for W&S improvements, carried out by the villages themselves. Some of the observations discussed earlier in this section have played an important role in this decision.

3.3.8 Conclusion

A first conclusion may be that the Ghogha Project has only been recognized to be a pilot for the sector when it was well under way. It was designed as an implementation project to which some innovative elements were added. Had the innovative role been recognized more prominently during the appraisal phase, more attention would probably have been paid to the so-called enabling environment for the project.

This leads to the next conclusion, that the absence of such an environment has been the biggest bottleneck for the project so far. This however has been recognized already and steps are taken to change and improve the environment of the project. The GoG has decided to create WASMO, which will take over management and monitoring of the Ghogha Project. WASMO is visualized as the motor for sector reform, in which process also a new role for GWSSB is foreseen.

Within this context the Pani Samitis and Panchayats will start to play a more important and central role. The NGOS have played so far a major role in the project when it comes to organizing and facilitating the people for the project. It should, however, also be realized that their intensive role may be needed in the context of a pilot, but cannot be replicated at a statewide scale. The challenges ahead for the Ghogha Project are still many, for all the partners, new and old. The project enters now its final phase, where it will strive to realize the integration of all the components at village level to reach sustainable results.

TECHNICAL ASSISTANCE

Government-to-government development assistance is essentially a post-World War II innovation. The idea that it might be in the interest of one country to help another develop its economy and society first gained acceptability in the reconstruction of Europe and Asia and then became prevailing doctrine as part of the revolution against colonialism that swept the world in subsequent decades. In the 1990s, with the demise of the Cold War, which itself had provided a framework for development assistance, the rationale for assistance has shifted to emphasize the promotion of market-based democracies and trading partners.

At first, most assistance took the form of loans and grants for building or rebuilding physical infrastructure—"capital investment." The American Marshall Plan for Europe was the prototype for such assistance. As new nations began to emerge throughout Asia and Africa, however, it was clear they faced a far costlier and longer-lasting development challenge. Yet no nation was willing to underwrite all of the tremendous cash outlay that would be required for development in this "third world." Thus, beginning with the famous Point Four program in 1948, developed nations began to commit people, in addition to capital, as a type of development assistance. This cost money but was easier to sell at home than cash outlays. Such help was called "technical assistance" to distinguish it from direct financial transfers.

Early technical assistance took the form of "expert advice." The expatriate engineer designing bridges or even holding down a government post in a developing nation was the quintessential technical assistant. This type of assistance can still be found in developing countries today. However, there has been increasing recognition that, no matter how well-intentioned, doing things for other people does not lead to development.

Both bilateral and multilateral aid programs have become prominent features of international relations, and they consist of infusions of both capital and technical assistance. Technical assistance today still means people offering help, but the intent of the help generally is not simply to solve a short-term problem but to build local capacity for solving future problems; not simply to apply a technology but to transfer the technology; not simply to provide skills but to build skills. WASH regards this as a fundamental principle: Technical assistance is most successful when it helps people learn to do things for themselves.

From: Lessons Learned In Water, Sanitation and Health, WASH 1993

3.4 Observations and learnings from the Ghogha Project

The GRWSSP started in November 1997. By March 2001 the project was introduced in 66 villages where the location for WS facilities had been selected. Pani Samitis have been formed in about 40 villages, while the sanitation programme started in 28 villages and the hygiene promotion programme was conducted in 30 villages. At the same time NAPU completed technical surveys in 43 villages, completed 18 scheme designs and 7 tender notices were issued, while construction has started in 5 villages. No water supply scheme has so far been commissioned at the time of writing of this document.

During the process of implementation of the project, a number of issues have come up, a few of which the project tried to tackle, and these contributed to a better understanding of pitfalls and consequently of ways to address some of the complexities in the implementation of such projects. At this stage it can conclusively be said that the success or failure of such projects depend on a large number of factors ranging from availability of water to institutional commitment to projects which aim to promote decentralised decision making and management. The Ghogha project, since it became operational three years ago, has provided a unique learning opportunity to all those involved. The attempt to try out new methodologies and approaches leading to a community owned and operated WS system, provided a learning ground for all, which can be used in similarly designed interventions.

The discussion that follows is not a result of any planned study but purely based on field experiences and observations.

Water sourcing

- ❖ The initial stage of the project suffered from conflicting opinions about the choice of a sustainable. While the Gujarat government believed that using Shetrunji reservoir for a piped water supply was the only feasible option, GON emphasized on decentralization and greater user involvement by using local sources, for improved sustainability.
- ❖ The fact that the process of decision-making has been so extensive reflects the ongoing discussion between different parties involved in the project at various levels about the most suitable long-term strategy for rural water supply in Gujarat. Simplified it is the discussion between supply-driven and demand-responsive strategies, between centralization and decentralization and between local versus regional water sources.
- ❖ The final outcome of this extensive review of the different possibilities for sustainable water supply in the project area has been a strategy of multiple sourcing. Local sources strengthened by a Water Resources Management plan with additional water from the Mahi-based pipeline should safeguard the domestic water needs of the communities.
- ❖ An important learning is that the availability of data could speed up the process of decision-making considerable. Some types of data (like the actual status of the existing facilities) need more accurate data collection and processing. Other types of data (like groundwater monitoring) need more transparency to improve the accessibility.
- ❖ It may not always be advisable to predefine the exact project area and villages. To meet the needs and demand of the rural population more and more a diversity of strategies with regard to technology options and management models will be required. Tailor made solutions will be necessary, which may result in different service levels between neighbouring villages. Projects and programmes therefore should become more process and less target oriented.
- ❖ The availability and functioning of equipments for the drilling programme was extremely erratic and uncertain which led to disruptions and delays in this activity. The allotment of the villages to ISAs for the VBP suffered because of this. Added to this, the less than expected result of the drilling campaign further complicated things. While it shows how important it is to have easy access to all resources, by the project authorities, it also reflects the lack of commitment and coordination on the part of the Board, to respond timely to the operational demands of the project.
- ❖ The project experience also prompts us to reconsider the basic premise on which the village is selected for water supply. While it may sound logical to start the VBP in those villages with

an assured source, to eliminate the chances of failure and also to set a successful example, the starting point for the other villages should be water resource management. It is of course likely that these villages will take more than usual time to get the intended benefits.

Water supply:

- ❖ At the time of writing this document, only in seven villages, was the construction of WS facilities, carried out. A number of reasons have contributed to the dismal scene on the hardware front. Firstly the identification of source for the project villages has shifted from piped supply from Shetrunji reservoir to a combination of local sources and Mahi pipeline scheme. The effect of the confusion, however, has been that GWSSB was reluctant in progressing with the implementation using ground water as a source.
- ❖ GWSSB being a traditional engineering organisation has not been able to internalise full involvement of the communities in planning and implementation. This is reflected by low motivation of staff in participating in the process and little adaptation and evolution of systems to facilitate the participatory process. Also the lack of faith and trust between ISAs and GWSSB staff led to operational problems, as ISAs were often seen by the Board staff as trouble mongers, while GWSSB was accused of non performance on field.
- ❖ Procedures and strict norms of GWSSB left little scope for community's involvement in designing their WS structures, determining the service levels they require and also choosing the technology most appropriate for them.
- ❖ People's involvement in construction monitoring and also in actual construction of the WS system has not been well accepted by the Board. Frequent conflicts between the contractor and the people were result of the lack of faith between both parties and also the fact that NAPU had an image of being hands-in-glove with the contractor.
- ❖ Also while the Mahi pipeline is fast approaching the project villages, the construction of distribution network within the villages is yet to start in most cases. This is creating uncertainties in the minds of people and they are yet to find ways to respond to the situation.
- ❖ Involvement of people in location of the facilities is likely to have a favourable impact on how these are being located and managed, and also reduced conflicts later on, besides ensuring that no particular group is excluded for the benefits.

Water Resource Management

- ❖ Water resource management though conceived to augment the available ground water resource could not take off till date because the proposals have so far not been sanctioned. The major reason why GWSSB has not been able to do this is because WRM activities were not budgeted for in the original '94 GRWSEP project document. This has also led to a lot of dis-satisfaction amongst the ISAs.
- ❖ Water resource management planning in co-operation with the community to improve the quality and quantity of local water sources has proven to have positive effects on the other components of the project. For instance, men have started to take more interest in hygiene activities after specifying technical activities to improve the quality of the water sources.
- ❖ The approach of WRM in the Ghogha project differs from traditional watershed management as it focuses on drinking water instead of irrigation water. However, water for irrigation is taken into account during the WRM assessment in order to safeguard and increase the amount made available for drinking water. This integrated assessment has generated more awareness among villagers on the over extraction of groundwater for irrigation.
- ❖ Although the village WRM plans originally included the provision of roof water harvesting (RWH) structures, it was decided not to take up these structures in the project. This was done because of several reasons:
 - ✦ RWH is primarily seen as an additional water source to provide a back up for periods when the local sources have dried up. As per decision of the WS department, the project will already provide all project villages Mahi/Narmada waters as a back up.

- ◆ In the WRM cost estimates for the entire project area it was estimated that with coverage of 25% of the households with RWH it would take a 40% share of the total WRM-budget. Hereby the current guidelines for GWSSB subsidy for RWH were followed. As the project focuses primarily on community water supply rather than on water supply to individual households, the justification for consuming such a large share of the WRM plans was questionable.
- ◆ The use of the RWH structures appears to be more as a general water storage facility at household level than as a buffer or reservation for the scarcity months.
- ❖ It would help to include aspects like WRM right from the beginning, in the project document to avoid confusions and delays in decision-making.

Hygiene promotion and Sanitation

- ❖ *Technical aspects and educational inputs* together create conditions for improving and sustaining the community health. Hygiene promotion aims to be instrumental in this process as it promotes an optimum use of water supply and sanitation facilities and care, for their continuous functioning through proper operation and maintenance. Reaching the objectives of the hygiene promotion programme has however been constrained by a delay in the implementation of improved water supply facilities in the project villages. Therefore, the focus of the programme has been changed from what it initially was planned to be. It has also been observed that *children will have a greater impact on future hygiene practices and hence the school hygiene programme should be emphasized to bring about lasting changes in the villages.*
- ❖ The options on environmental sanitation improvement that were piloted were mainly in the field of improved wastewater and solid waste disposal, as demanded by villagers. In part of the project area demand for appropriate wastewater disposal was even higher than for improved water supply.
- ❖ The project did not see scope to develop a large-scale latrine programme independently from the existing government programmes. This was largely motivated by the inflexibility of the programme and the non-appropriateness of the technology in the majority of the project area.
- ❖ It is expected that if the level of water supply will increase in the area, the implementation of pour-flush latrines will increase. Villagers have also stated that they will construct latrines if an appropriate disposal option such as an underground sewer system becomes available to them.
- ❖ The project however feels that the government should promote a wider range of environmental sanitation technologies apart from only the twin pit pour flush latrine. Improvements in drinking water supply should go hand in hand with provisions for appropriate wastewater disposal. In villages where the water supply is not going to increase in future and a demand for latrines exists, the project sees potential for testing out the acceptability of composting latrines.

Community participation and management

- ❖ Although the project envisaged community participation, it was constrained by the lack of a fully committed government system. The policy of cost recovery, although was existing, the ability and willingness of the system to enforce the charges was weak. Also the areas to be served, the technologies to be employed and the service levels to be offered decided externally and the designs based on certain specific standard norms. The room left for communities to take decisions was thus not very large, and it was within this room that community participation was sought.
- ❖ One major learning is that, where the implementing agency is a government agency, like the GWSSB, community participation aspects tends to get reduced or overlooked, unless mechanisms are created to give complementing inputs to generate CP and involve community members.

- ❖ The ultimate beneficiaries of any water supply and sanitation project are the communities where the systems are constructed. And the participation of the communities is critical for long-term sustainability of the project. The project has provided the means and ways for communities to be involved in the various stages. However, the shift from community participation to community management in real terms is yet to be established. The project has not completed one full cycle, and it is difficult at this stage to ascertain for sure, the level of involvement of people once the project withdraws. However going by the current level of involvement of the people, it is felt that, with the timely support from the Government, people will manage their own water supply systems.
- ❖ At the villages, the local leadership plays an important role. For eg. In village Bapada, it was the *Sarpanch* who motivated the people despite delays, and was always eager to actively participate in all activities, including the pilot sanitation projects. In villages with a good leadership, the results of cost recovery were encouraging, attendance in meetings was good and also meetings would be held regularly.
- ❖ It has been observed that those who are in influential positions already and are accustomed to leadership roles tend to participate eagerly, given the opportunity. Those who have traditionally not taken over these roles, including women, need special encouragement and support. It is therefore important that these groups or individuals need to be identified and groomed accordingly, or else they might run the risk of being exempted from the benefits, very easily. The community's informal leadership should be identified at a very early stage of intervention in the village. It may differ significantly from the formal leadership, but is a valuable input to the process of forming village institutions like the *pani samiti*.
- ❖ In the Ghogha Project the software activities have proceeded as desired, while there were serious lags in the hardware activities or the engineering components, reasons of which have been discussed elsewhere. Firstly and not surprisingly, such disparity and delay lead to the disruption of activities, for eg. between hygiene promotion and water supply and is most often a cause of tension between different partners. Secondly, the efficiency and effectiveness of one of the activities, in this case the software component, suffers severely.
- ❖ The inability of the hardware activities to keep pace with the software activities is also reflected in the diminishing enthusiasm of the people. In the new villages examples were quoted from the pilot villages, where the period between that of collection of money and the actual start of implementation, ran into months. People were reluctant to contribute for O&M upfront, for the fear of delay. The failure to deliver on time further eroded people's confidence in the government system. Therefore when the Nesvad Panchayat undertook the physical construction activity, hopes and expectations were raised amongst the people. There was a belief that work will not only be of better quality but also be on time. It is therefore important that both the community development and engineering interventions match in pace.
- ❖ Frequent conflicts between the contractor and PS members in the initial period were a result of the contractor's inability to appreciate and acknowledge people's role in the project. It would help to ensure that the roles are clarified right at the beginning. The tender document should lay down clear guidelines as to how the contractor should deal with the PS as an institution and other members of the village.
- ❖ There are conflicting opinions on whether the community actually needs to be 'constructing' a WS system to have a sense of belongingness in the project. But nevertheless, Nesvad, the first village where the people are involved in construction, proves that if the community is involved in the construction of the system, it actually gives them a sense of responsibility and empowerment, besides other tangible benefits like cash wages. However, a real shift towards self-reliance will take place when the community will also have financial control over such projects. Problems like delays in payments etc. are then expected to be resolved.

Cost recovery

- ❖ The state government has an existing policy regarding cost recovery for regional schemes. In practice, however, this policy is not implemented and therefore the situation where water traditionally is subsidized and provided free of cost, continues. Even though, the response of

the people towards cost recovery for operation and maintenance has been encouraging. This has been largely because of:

- ◆ past history of government's inability to provide timely response to maintenance needs, and people's failing faith in the providing system of the government.
 - ◆ the community's belief that the money, on the bank account of the Pani Samiti, will now be 'readily' available for repairs and maintenance
 - ◆ sustained efforts of the NGOs to instill a sense of responsibility and also a sense of ownership towards the new interventions
 - ◆ and the increased awareness amongst the community regarding their role.
 - ◆ the generated amount was retained in the pani samiti's account, and did not 'go' to the government.
- ❖ There were initial problems in the pilot villages to generate the estimated amounts, on one hand because both, ISAs and community were relatively new to the idea. But these problems notwithstanding, the amount of money collected was encouraging. However, issues like how the PS continues to generate the amount in times to come is yet to be seen. It has to be ensured that the community does not believe that the only payment is the initial one, made to acquire the system.
 - ❖ The differing costs associated with different service levels (for eg. the demand for household connections was predominant in *Durbar* dominated villages or clusters, where women normally do not go to public places to fetch water) and the various alternatives available have not been discussed with the people in enough detail. Also, these different models of cost recovery for different service levels are yet to be made operational at the field because the level of service currently provided is uniform. The project was constrained by the non-availability of ground water and also the attempt to reach out to as many people as possible, due to which improved services like household connections could not be provided. Also, how the community will respond to these changing demands is yet to be seen.

Involvement of NGOs

- ❖ The involvement of ISAs has ensured that aspects like community participation, gender and equity are looked into. Their continued presence in the field, more intensive interaction with the people and credibility, all have contributed to ensuring that the software activities carry on well. The project conducted a number of workshops and training sessions for ISAs to develop their capacities. However the turnover of ISA staff was high, and this resulted in lack of consistency and continuity of the effort. There was duplication of training modules leading to a loss of time and resources.
- ❖ It can be said that community participation generated is influenced by the orientation of the implementing organization. NGOs, which have the necessary commitment to community participation, can mobilize people effectively. Also they serve as an effective interface between the government, consultants and people, for negotiations and discussions, problem solving and as a channel of communication.

Involving women

- ❖ The project has succeeded in applying a gender sensitive approach to all activities in the village-based programme. Pani Samitis now have 30% to 50% women. There are specific instances when women have moved from their traditional roles and participated in community affairs. Caste played an important role at times. Specific instances could be seen where *Durbar* men did not allow a woman *Sarpanch*, also belonging to the same community, to become Chairperson of the Pani Samiti. But women do participate in meetings and training programmes with tremendous enthusiasm. Hygiene promotion activities have also been taken well by women. The NGOs, because of their women staff, have proven to have easy access to women members of the community.
- ❖ Persistent efforts with men have helped changing their mind set about women and they have started appreciating the need to involve women in the project activities. It is important

to have women in key decision-making processes like construction monitoring or as a signatory to bank accounts etc. to ensure their greater sense of involvement.

- ❖ Involving women in the site selection activity has not only boosted their morale and self-confidence but also ensured that the project is responding to the genuine needs of the users.
- ❖ The school sanitation programme gives a good start in the villages. Children are generally more receptive and enthusiastic, and they serve as a good means to reach out to the adults in the village.

Demand responsive approach

- ❖ The project may not be following exactly a demand responsive approach. The community hardly had any choice of being 'in' or 'out' of the project, as these were pre determined. However in specific cases where we felt that the villages were not 'ready' for different reasons, they were allowed time to decide. This was the case with village Vavdi, where the Sarpanch, due to political reasons, vehemently opposed the scheme. The village community although willing, found it difficult on their part to over rule the decision of the village leader, who was politically very influential. However, the project decided not to withdraw from the village but to allow space, opportunity and time for people to act, while motivating other village leaders also. Finally the people came forward with renewed enthusiasm, and good progress has already been made.
- ❖ In a truly demand responsive project, the community should also have a say in eg. the level of service (including management responsibilities) it desires. In the Ghogha Project, funds are available only for the option of stand post. A house/yard connection or roof rainwater harvesting is not part of the package. The observations we can make are:
- ❖ It is important that the community understands the background, need and importance of the project and does not feel that it is imposed from planners and implementers.
- ❖ During the preparation/design phase of a demand responsive project, the flexibility of the providing mechanisms must be clearly identified and ensured in order to let the supply side being able to respond to the raised demand.

Institutional support

- ❖ Experience shows that what is needed most is the institutional support and commitment for such projects, especially from the government. The rate of success of the project- largely depends on whether the water supply and sanitation sector is conducive to the concept of community management and decentralization. In a highly centralised sector, with agencies like GWSSB, which only 'delivers' hardware, the policy makers and officials with all the administrative procedures find it difficult to respond to the community needs and priorities
- ❖ A project organization to give software inputs to complement the technological inputs of the engineers is essential to generate community participation at appropriate stages and in suitable ways. This organization is required, to facilitate the process of cost recovery, institution building, ensure that gender and equity concerns are incorporated into the project implementation, for training inputs and other similar activities.
- ❖ For GWSSB, to internalize the concept of a community owned and operated water supply and sanitation system was seemingly difficult. The culture of the institute more often suppresses than encourages innovations. Going by the experience during the construction of the WS system, it was evident that the local community is often seen as 'trouble makers' and not as partners in the development process. The tendency to consider that people's participation is not 'their responsibility' and is not 'required', indicates the gaps that still exist in practice, and unless community management is institutionalized, field level problems like the ones of the Ghogha Project is likely to continue to exist.

The GRWSSP started in November 1997. By March 2001 the project had been introduced in 66 villages and sites had been selected therein, 36 pani samitis had been formed, sanitation programmes had started in 28 villages and HP training had been conducted in 30 villages. At the same time, NAPU had completed technical surveys in 43 villages, 18 scheme designs

had been completed, 7 tender notices were issued and construction started in 5 villages. No water supply scheme has been commissioned at the time of writing.

Integrated Approach

The project has tried to integrate activities so that various components would complement each other. Hence gender and social equality issues were integrated into pani samiti formation and site selection. Similarly peoples' involvement was solicited in approval of schemes and modalities of fund collection. The improved supply of water was also planned to impact on hygiene and sanitation issues and the pani samiti was to be strengthened by actually operating the water supply system.

Our experience shows that while 'software' elements have proceeded on par, there were lags between 'software' and 'hardware' or the engineering components. The reasons, such as GWSSB procedures, have been discussed elsewhere. The important lesson learned is that such lags lead to disruptions (e.g. between HP and water supply) and give rise to tensions between the clients and the project. It is important that all components proceed apace.

Demand Driven Approach

The project documents speak of a demand driven approach. The reality was a little different. From an engineering point of view, all systems comprised a bore well with submersible pump connected to water points through underground pipe lines. The design (and the quantities of water found) did not allow for house connections, although particular castes and groups demanded such connections. Nor did the designs allow for alternative technologies such as hand pumps. These may have been preferred due to the lower O & M costs. The project did give due importance to people's wishes on such matters as siting, and within the norms on providing taps to groups who may have been ignored by the larger village community. The project could thus be said to have been demand sensitive rather than demand driven.

In order to be truly demand driven it is necessary not to have pre-designed water systems and delivery mechanisms, and wherever technically feasible, to include genuine demands in the final design.

Immediate Relief Assistance

IRA work started in September 1998 with the objective to quickly improve the existing village water supply system by repairing hand pumps, platforms and drains. Work was done in only four villages. NAPU found the procedures very time consuming and the component was dropped even though there was a demand from the villages.

In future Panchayats and CBOs should be oriented and trained in IRA to make this programme a success.

Capacity Building for ISAs

The project conducted a series of workshops and training sessions for ISAs to develop their capacity. However the turnover of ISA personnel was high, and many sessions had to be repeated. This led to a duplication of efforts and less than optimal allocation of time and resources.

To avoid this, priority should be given to develop the capacity of pani samiti members and village-based CBOs.

Mainstreaming Gender

The project has succeeded in applying a gender-sensitive approach to all activities in the village-based programme. 20 to 50% of pani samiti members are women. Women and men of all castes have started to participate in the introductory meetings, PRA exercises, site selection and WRM. Men and women of all castes participate in decision making.

ISAs need to document their experiences so that the methods used and successes can be replicated.



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