CHAPTER 3

WATER POLICIES AND INSTITUTIONS IN INDIA: EMERGING PARTICIPATORY WATER MANAGEMENT MODELS

In this Chapter the focus is on the importance of water as a resource for human development in the context of developing countries like India and how the crisis of drinking water severely impacts women, particularly poor women. Water policies and institutions involved in governing water resource of India has been specifically studied in this wider context in order to understand what, if any, role has been assigned to participation of stakeholders, like, communities and user groups, especially women. In addition to the role of government, community models on water governance involving participation of non government organizations has also been looked at in this Chapter. This has been done by documenting some successful experiences and models of community-based water management systems in different states of India.

Changing Water Management Systems: Indian Context

Historically, water is considered very sacred in India. Over centuries it has been seen as the origin of all life and the element of corporeal and spiritual regeneration, the symbol of fertility. ‘Water is the prime source: all was water’ state the Hindu texts. Similarly people around the world have recognised its importance; ‘the vast waters do not have borders,’ says a Taoist text. ‘The water is Wuki’, say the Chinese, the ‘without summit’, the chaos, the foremost indistinction. (Beekman and Costin in Tortajata 2000). In India the system of water collection is ancient and was nurtured by religious edicts, prescription and social behaviour (Agarwal and Narain 1997). In Hindu mythology, water was regarded as one of the holiest of all things—a sustainer and purifier. Similarly, in Islam, water was considered a perfect, indispensable and priceless element from which every living being was created (Siddique 1992:224).

When we study the gradual evolution of water policies adopted by the state in India we find that construction and renovation of ponds was considered a religious activity. It was the duty of the king to protect and preserve such a system of water harvesting, for which people donated
land for tanks/ponds for common use (Jolly 1981:102). But with the Indian society being highly stratified along caste and communal lines, rules relating to the access and use of water were devised in favour of the higher strata of the social hierarchy. Eventually, the advent of British rule in India brought a new legal regime, which suited the colonial interest but was indifferent to the local customs and practices. This era marked the era of subjugation of rights. Most of the rights relating to resource management were customary rights. Under the colonial regime, the right over common lands and forest was derecognised and whatever was not recognised as private property belonged to the crown (Huq 1997). This had a negative impact on water resources, which were developed in community-owned areas. The Indian Easement Act of 1862 and various irrigation laws established the sole right of the state to regulate, collect, retain and distribute water (Ministry of Agriculture 1976). This Act limited rights only to those who owned the land, leading to the exclusion of landless from access to water. Similarly, the Land Acquisition Act of 1894 has been consistently used for acquiring land for a number of activities of entrepreneurial nature under the mask of ‘public purpose’. When the law favours the rich and the powerful, a large section of the people get marginalized. Marginalisation and exclusion, thus, can be seen both as a cause and effect for dislocation of the traditional resource management system. Neglect of the traditional water management system was the combined effect of all the above factors. (Bhattarai, in Agarwal and Narain 2001:334)

Post-Independent India

Clearly, the general policies and principles of management of natural resources are stated right ahead in the Preamble provisions of the Indian Constitution. The Constitution shuns any discrimination in the access to and distribution of water on the basis of caste, sex or religion. (The Constitution of India 1950). The developmental concerns are addressed by making it a duty of the state to ensure that the exploitation of natural resources sub-serves public good, and does not result in the concentration of wealth in a few hands. The Constitution tried to strike a balance between ecological and economic interests by making it a duty of the state and the citizen to protect and improve the environment. Article 39 of the Indian Constitution defines that 'the ownership of material resources of the community are distributed as best to subserve the common good' and to protection of the health and strength of workers, men, women and children. Clean drinking water is a fundamental right of all citizens under Article
21, which guarantees the right to life. The Supreme Court in the year 2000, ruled that this includes the right to safe water and the state is duty-bound to provide it. The apex court has asked the Ministry of Law to review existing environmental laws so that environment courts could be set up for enforcement. More importantly, the apex court has directed the Law Commission to explore the real possibility of involving environmental scientists and experts in green courts. Quoting the 1977 resolution of the UN Water Conference that pledges access to clean drinking water to everybody to which India is a signatory, the apex court said that 'environmental rights are described as ‘third generation’ rights the first and second generation being the social and economic rights respectively. The verdict was given by a division bench of Supreme Court that set aside the earlier order of the Andhra Pradesh High court on polluting industrial units near Hyderabad city’s two meter’s water reservoirs (Down to Earth 2001).

In general, several women and water related activities took place during the Water decade though these did not have much impact in India. In 1982, a ‘Task Force on Women & the IDWSSD’ was set up with United Nations Children’s Fund (UNICEF) and INSTRAW (International Research & Training Institute for the Advancement of Women) jointly being the secretariat. Later, this responsibility was taken up by UNDP/PROWWESS (Promotion of the Role of Women in Water and Environmental Sanitation Services) working in close collaboration with INSTRAW. In India, enhanced participation of women in the water sector has been supported through related development programmes for a long time.

Needless to say, during the last decade, significant action has been taken to ensure the availability of adequate formal channels for women so as to elicit more effective participation from them. Under the historic decentralization act called the Panchayat Raj Act, 1992, special provision was made to ensure gender balance and gender empowerment at the level of local government. A percentage of seats (approx. 33%) have been set aside for women nationally in all local government bodies dealing with water concerns. The 73rd constitutional amendment on Panchayati Raj also empowered the state to devolve powers local self-government, to enable it to perform its functions and implement schemes for economic development and social justice (The Constitution Act 1992). Further, the 73rd amendment has placed via Article 243 G, the following powers, authority and responsibilities with the Panchayats, related to water: Entry 3: Minor irrigation, water management and watershed development, Entry 11:
Drinking Water. Other areas indirectly related to water are land including soil conservation, social and farm forestry, fuel and fodder, health and sanitation and maintenance of community assets. Needless to say, these powers can be beneficially utilised by rural communities, provided they can suitably control and democratically direct their Panchayats. Obviously, since these powers flow from the Constitution of India, they cannot be interfered with either at the Union or States levels. However, only if the National Water Policy as well as the water policies of the different states graciously accept this constitutional position and harmoniously move towards its implementation, a lot of friction between union and state policies can be avoided in future. Another example of policies in keeping with this constitutional amendment is the one seen in the central Indian state of Madhya Pradesh (M.P.), where the Women's Policy, 1997 considers water as one of the significant interests of women. The policy goals are to be achieved only through women's empowerment and enhanced participation (Directorate of Women and Child Development 1997).

Existing System of Governance: State, District and Block Agencies

Until recently there were two basic models for implementing rural water supply programmes at state-level: the Public Health Engineering Department (PHED) under the direct control of the state government, or an autonomous board. Five states – Gujarat, Kerala, Maharashtra, Tamilnadu and Uttar Pradesh, constituted boards/authorities. The functional domain and the scope of services of various entities varies, form implementation of water supply projects, responsibility for supply of water, to the maintenance of service and collection of tariffs. For example, whereas the Kerala Water Authority is responsible for the entire range of services, the Punjab Water supply and Sewerage Board is responsible only for the implementation of project, with services being the responsibilities of local bodies. Typically, the role of a water supply and sewerage board is to implement projects, as well as provided services and collect tariffs. The governance and management of water resources and services have several aspects. They include management of water-related organisations, water bodies, and water supply systems. Their domain comprises diverse functions such as capturing and control of water sources, delivery of water to different use sectors, actual use and management of water, and disposal of used/waste water. Each of these functions involves a number of distinct activities such as construction, operation and maintenance of facilities, allocation of water,
conservation and management of water bodies, and resolution of conflicts among users and service providers.

With decentralization in progress in varying degrees in the different states, the trend is towards the transfer of rural water supply at district and block level and operation and maintenance responsibilities to the Panchayati Raj Institutions. However, for decentralisation to be successful requires the delegation of functional responsibilities accompanied by a devolution of requisite resources and capacity to the different levels of the responsible sector agency. All states have fallen short of this, though some states have more progress than others like Madhya Pradesh (Rehoej et al. 1997).

External Support Agencies

In terms of the financing, it needs to be pointed out that there are several external multi and bilateral agencies providing assistance to the rural water supply sector in India. These include the bilateral agencies of the Netherlands, Denmark, Germany and UK and multilateral such as UNICEF, UNDP, the World Bank and European Economic Commission (EEC). The external agency assistance took its real outset at the beginning of the International drinking Water and Sanitation Decade and it is estimated that approximately 6% of the sector investments during the period 1980-90 was provided by foreign donors. Today the foreign assistance constitutes about half of that level (Rehoej et al.1997). UNICEF has been and is the largest multilateral agency involved in the rural water supply sector with field-office representation in 10 states. UNICEF has been active in India since the late 1950s, assisting Government of India at policy level, as well as supporting actual demonstrating type programmes. It is also taking active role in community related activities and it has functioned as an intermediate between non-government organisations and the central and state governments. World Bank has also financed several projects in rural water supply. The basic objective for the Bank assisted projects has, by and large, been, "to make the local institutions and communities responsible for water supply in every aspect" by adopting an integrated approach with community participation and cost recovery as fundamental components.
Water Crisis in India

However, the fact that one billion people lack safe drinking water and two million children die each year from water-related diseases (many of them in Indian sub-continent) underlines the urgency of remedying this gross inequity (UNICEF 2000). The link between these threats and poverty is clear, for the poor are hit first and hardest. Poverty is closely linked to water scarcity, water pollution, environmental degradation, and flooding. Close to 900 million of the world’s poor (i.e., those who survive on less than $1 a day) live in the Asia-pacific region. Nearly one in three Asians is poor. More than 800 million people in the region do not have access to safe water supply. Asia has the lowest per capita availability of water resources among the world’s continents (Asian Development Report 2000). It is estimated that nearly 44 million people are affected by water quality problems such as excessive fluorides, iron, nitrates, salinity and arsenic (UNICEF 1997). The scarcity of safe drinking water causes mortality, morbidity and causes immiserisation (Agarwal 1997). The reason water has been taken so much for granted, and never explicitly treated, as a resource is that for most of history, and in most parts of the inhabited world, it was freely and plentifully available. By tradition, water has been an open access resource available freely and free. But, all of a sudden, it no longer is. Population growth and economic activity has, within the space of a few decades, taken it from worldwide abundance to local scarcity. This meant that it was used and misused, without concern for its intrinsic cost or its contribution to the value addition. And force, as it becomes increasingly scarce, it goes mainly to those who have the political power or economic capital to appropriate it by controlling the sources. The current water crisis is therefore, more a water governance crisis and inefficient management, which has compounded the problems in the water sector world-wide. The shortage of water has acquired the proportion of a crisis for our people, and most of all, for the poorest of or poor. The 43.5 million people living in 1.42 lakh habitations are facing health risks due to problems like excessive fluoride, arsenic salinity iron and chemical pesticide and insecticides in water, as per the survey conducted in 1994. Presently, there are 4.4-lakh non-covered and partially covered habitations in the country that is not having proper drinking water sources. Recently, the United Nations Population projections have indicated that India will be among those 34 countries of the world, which are likely to face severe water shortage problems by 2025. Here is a table produced by the ministry of rural employment, responsible for rural drinking water supply. The ministry has been conducting periodic surveys.
to assess the shortage of drinking water in rural areas. The surveys shown in the table below have been conducted in the years 1972, and the next in 1980, then in 1985, and in 1994 and finally in 1994. The table shows that even though a large number of villages are covered between two surveys, the number of problem villages keeps growing. For instance, in 1980, there should not have been more than 56,000 problem villages, but there were 231,000.

Table: 3.1

<table>
<thead>
<tr>
<th>Year of Survey</th>
<th>Number of problem village identified</th>
<th>Number of villages covered till the next survey</th>
<th>Number of villages not covered before the next survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>150,000</td>
<td>94,000</td>
<td>56,000</td>
</tr>
<tr>
<td>1980</td>
<td>231,000</td>
<td>192,000</td>
<td>39,000</td>
</tr>
<tr>
<td>1985</td>
<td>161,000</td>
<td>161,652</td>
<td>70</td>
</tr>
<tr>
<td>1994</td>
<td>140,975</td>
<td>110,371</td>
<td>30,604</td>
</tr>
<tr>
<td>1997</td>
<td>61,747</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: N C Saxena, Ministry of Rural Development, Government of India

The reason why there are so many problem villages at the start of each new survey are obviously that the money pumped in and the methods used were unsustainable. Corruption, lack of people’s interest in maintaining government schemes, land degradation leading to heavy runoff, heavy decrease in groundwater tables, neglect of traditional water harvesting systems and growing pollution, all are adding to the problem. (Agarwal, 2001). This study shows that this was not always the case, especially in the villages. Measures for augmenting groundwater recharge is therefore considered very essential. Replenishment of groundwater takes place through rainwater, tanks rivers and water harvesting structures and is known as ‘groundwater recharging.’ In sum, there are two major problems with the current strategy—one heavy reliance on surface water and groundwater alone, and two, dependence on the state.

An energy study conducted by the Indian Institute of Science, Bangalore, at Pura Village, Kunigal Taluka, Tumkur District, Karnataka in 1977 revealed that fetching water for domestic consumption also uses a great deal of human energy, an average of 1-5 hours and 1-6 km per day per household, to achieve an extremely low per capita water consumption of 17 litres per
day (Agarwal et al. 2001). This basic picture—women and children carrying water 1-5 hours per day and 1-6 km per day, as measured by scientists, is not likely to be very different in most of the dry parts of the country, which means most of the country for most part of the year. The breakdown of whatever residual unity there was in the villages, which operated and maintained local drinking water sources and used animal drawn vehicles for hauling water, has now converted women and children into beasts of burden. The reports suggest that it is no wonder that our politicians are afraid of frequent elections because in their heart of hearts they are afraid of facing up to the lies that they have continuously been feeding to these same women and children across the villages of India.

National Guidelines for Supply to Rural Areas

Specifically, let us direct our attention now once again towards the review of the government policies and programmes that have been enforced to solve the water crisis situation of the country. Basically, a national water supply and sanitation program was first introduced in the social welfare sector in 1954 as part of the government’s health programme. Subsequently, drinking water has continued to be with the state public health engineering departments or a water supply and sewerage board, both de-linked from the state irrigation departments. Neither the Central government nor any of the state governments have planned for integrated use of water resources. Taking into account the magnitude of the problems and to accelerate the impact of coverage of problem villages inhabited by tribal people, scheduled castes and backward classes, the Central Government introduced the Accelerated Rural Water Supply Program (ARWSP) in 1972-73 to assist the states and the union territories with 100% grant-in-aid to implement the schemes in such villages. Drinking water supply has been considered a state subject so the funds are allocated through state budgets. This program continued till 1973-74. Soon after, the 20-Point Minimum Needs Programme in 1975 was established to replace the ARWSP and give the highest priority to problem villages. It was, however, reintroduced in 1977-78 when the progress of supply of safe drinking water to the identified problem village under the Minimum Needs Program was not found to be satisfactory. Under the revised 20-point programme (1986), efficient use of water for irrigation, safe drinking water, and health for all were included. Supply of water for domestic purpose is among primary responsibilities now assigned to Panchayati Raj Institutions.
Women and Drinking Water: Five-Year Plans

Paradoxically, rural drinking water was not addressed even in our initial five-year plans. It first surfaced in the fifth five-year plan (1974-75), coinciding with the Minimum Needs Programme. Further, this became possible during the beginning of the Water Decade, which coincided with India's 6th and 7th five-year plan (1980-90). Interestingly, since India was a signatory of the UN and attended several international meetings, so this made several policy makers realise that local communities, particularly women, can play a leading role in managing their water supplies. But, unfortunately, this was governed by a welfare approach. Women were largely viewed as passive recipients of government programmes rather than as change agents and decision-takers. However, for the purpose of decentralisation, in the Seventh Plan (1985-90), the planning Commission recommended the adoption of decentralised planning stating that states such as West Bengal, Maharashtra, Gujarat and Karnataka had made some progress in this direction and recommended that further decentralisation be made through the setting up of district and block level planning. The eighth five-year plan specifically recommended adoption of an integrated approach to planning and implementation of water resources. This included provision of primary health care, potable water, women's welfare, immunization and sanitation facilities. It also envisaged collaboration with local administration and user communities and provision of technical support by the district administration. Despite recommendations for integrated planning, the lack of integration of water service stems from separate and distinct program funding.

National Water Policy, 1987

Interestingly, in 1987, a National Water Policy was drafted by the Ministry of Water Resources. It was intended that this policy would provide a basic framework to guide the uniform planning and development of water resources throughout the country. The draft National Water Policy described water as "a prime natural resource, a basic human need and a precious national asset". Nevertheless, the focus of the national policy was on water for irrigation and hydropower for a long time. Engineering aspects of water works dominated planning and community participation in planning, designing or managing water works was nil. Only a brief reference was made on participation of beneficiaries (with no clear mention of women) in the
National Water Policy that was adopted for the first time by the National Water Resources Council (NWRC) in 1987. The policy frame identified by the NWRC recommended:
- Drinking water a priority over other uses;
- A holistic and targeted basin oriented approach to water development;
- The promotion of conjunctive use of surface and ground waters, and conservation and appropriate technologies;
- Participation of beneficiaries in water management;
- Treating water as an economic good;
- Water pricing to cover cost of operations & maintenance and part of capital investment costs.

Significantly, the National Water Policy and its recommendations resulted in development of specific state water policy in several states such as Gujarat, Kerala, Maharashtra, Orissa, Punjab and Tamilnadu. What is important was the fact that since the national and the state water policies specifically identified drinking water priority over other uses, was an important step but this was still needed to be taken seriously in many other states.

The Rajiv Gandhi National Drinking Water Mission (RGNDWM)

Gradually, the ARWSP, after undergoing several transformations, was restructured and the Technology Mission on drinking water and related water management called the National Drinking water Mission was established in 1986 and the entire program was given a “Mission” approach. It was restructured and renamed as the Rajiv Gandhi National Drinking Water Mission (RGNDWM) in 1991, to play an important role at national level in policy formulation, setting standards, and providing funds and technical assistance to the states. Its mandate was to cover, in a cost-effective manner, villages that did not have their own source of safe drinking water. Its objectives were to:
- Cover residual problem village with safe drinking water
- Evolve an appropriate technology mix
- Improve performance and cost effectiveness of ongoing programs
- Create awareness on the use of safe drinking water
- Take conservation measures for the sustained supply of drinking water.
Notwithstanding the 'mission approach', the objectives of the program could not be attained for a variety of reason, including lack of sufficient funds and re-emergence of once covered habitation as "Not Covered" habitations. Later, revised Guidelines were issued and a major focus of the revised guidelines was on the aspects of control on over-extraction of ground water, and the need for more funds for repairs and rehabilitation. The objective was to ensure coverage of all rural habitations, and most especially to reach the uncovered village with access to safe drinking water. It also sought to ensure sustainability of the systems and sources and to preserve the quality of drinking water by institutionalising water quality monitoring and surveillance. These revised guidelines were envisaged as a tool to energise the system towards overcoming the barriers discussed earlier, and to achieve the goal of providing safe and sustainable drinking water to all rural habitations of the country during the Ninth Plan period by means of:
- Increasing people's participation,
- Reservation of 20% funds for state promoting sector reforms,
- Water to be treated as a socio-economic good with stronger links with watershed development programs.

Nevertheless, the Mission formulated the guidelines on women's role in water management only in April 1999 and these were stated as follows:
- Since women are the principal beneficiaries of drinking water programmes, it is of crucial importance that women are involved at all the stages of Rural Water Supply Schemes, particularly while making decisions on the location of the stand post/spot sources in the villages/habitations.
- The surveyors of the schemes should obtain information about sources of water from women.
- Women should also be involved in the following manner:
  - At least 30% of hand pump mistries under National Human Resource development programme (NHRD).
  - Training Rural Youth for Self Employment (TRYSEM) and other training schemes, should be women of the local areas/habitations as they can take
better care of the operation and maintenance of the hand pump schemes than others.

- There should be women caretakers for hand pumps in the habitations.
- Certificate about satisfactory completion of the schemes may be obtained from women groups in the habitations.
- Prominent women from the habitation should be represented on the village level water monitoring committees.

Above all, regarding participation of women in water development programme, the government finally officially agreed that the experience has shown that where women are involved in such consultation and in the maintenance of the spot sources, the performance of the water supply systems has been effective. The Mission clearly stated that the above aspects should be kept in view and ensured by the implementing agencies at the time of formulation, implementation and maintenance of the schemes. Principally, each scheme/project for Rural Water Supply is therefore supposed to mention the extent of the involvement of women. (GOI, 2000: 9).

Still, some of the constraints continued to confront the RGNDWM and these have been listed in the Eighth Five Year Plan. First, the RGNDWM formulates and recommends policies and strategies but the states are not compelled to follow them. Second, RGNDWM - by the very modalities of its funding – puts priority on coverage targets over and above considerations of sustainability, either in terms of installation or of source. This reflects both the problems inherent in pursuing a minimum needs coverage strategy without due consideration to replacement and Operation and Maintenance, and in the methodology adopted to determine 'no source' and 'partially covered' villages. This relates to the third aspect, which is the monitoring role played by RGNDWM. The methodology adopted for determining coverage by 'safe' water has been the source of many debates and has been questioned by the Mission itself. Fourth, staffing pose several constraints. Given the size of the country and diversity of issues that confront each state, a single professional covering several states can do little more than liaise sporadically with the state level engineering department. A fifth and unfortunate lacuna is the lack of intersectoral coordination at central level. That is why now, the RGNDWM is critically reviewing its “mission” role and attempting to reformulate its presence along the lines of a “centre of excellence” and sees itself evolving into an "applied research-cum-
information" establishment. This will enable it to pull out and disseminate technological and institutional best practices in India and the region, for the benefit of the states.

National Water Policy, 2002

Nevertheless, the National Water Policy (1987) was reviewed and updated in 2002, which makes for the first time a brief mention about the participatory approach to water resources management. It states that the management of the water resources for diverse uses should:
- Incorporate a participatory approach;
- By involving not only the various governmental agencies but also the users and other stakeholders.
- In an effective and decisive manner in various aspects of planning, design, development and management of the water resources schemes.
- Necessary legal and institutional changes should be made at various levels for the purpose, duly ensuring appropriate role for women.
- Water Users' Associations and the local bodies such as municipalities and gram panchayats should particularly be involved in the operation, maintenance and management of water infrastructures/facilities at appropriate levels progressively, with a view to eventually transfer the management of such facilities to the user groups / local bodies.


However, this recent water policy met with several criticisms soon after its adoption since it fell short of all expectations expressed from several quarters.

First is related to the focus on participatory approach to water management, which has raised several issues. One is that the lack of coordination among government departments that has still not been dealt with in the Policy paper. As discussed earlier, water governance at the government level, for administrative purposes has been divided into many departments and institutions. These have created great deal with problems at a micro level. In the process, a
global consensus, which is emerging towards abandoning of state economic dominance and dismantling of unnecessary and inefficient controls as it is seen as unshackling the forces of creativity and enterprise. Moreover, the present mode of private sector involvement is mainly related to supply of materials and construction of schemes and to a much lesser extent in maintenance activities. Operation functions are more or less exclusively performed by staff employed by the public sector agencies. It is noteworthy to mention that already the private sector sector’s involvement in the implementation of facilities constitutes a substantial part of the capital investments. In monetary terms it is estimated that the procurement of materials and construction services from private firms amounts to more than two-thirds of the present annual sector investments (Rehoej, et al. 1997).

Still, we must not lose sight of the crucial role of the state in constructing social safety nets for the poor who have to often bear the bunt of the reform process. So the state cannot abandon its crucial role in ensuring a sufficiently high level of investment in the social sector, since the market forces and private sector will not do this (Bhatt et al. 1995). From the international through the national and up to the state level, it is feared that by doing this the rural poor may lose control over its prime developmental resource- water, since private sector will include its profit motive, which is not best suited for rural poor.

Moreover, with reference to this issue, it is mentioned there were also contradictions between the newspaper statement made by the Prime Minister and the policy document clause regarding government’s policy on privatization of water. In his speech the Prime Minister while addressing the National Water Resources Council on May 31, 2002 said, ‘the policy should recognise that the community is the rightful custodian of water’.

Needless to say, the acceptance of the National Water Policy requires all states to frame their own policies within two years. Significantly, not only has the Central government introduced ‘privatisation of water’ into its agenda between the Water Policy declarations of 1987 and 2002, but also the Karnataka and Andhra Pradesh have also already begun processes leading to privatisation of water. The move of the Karnataka and Andhra Pradesh government to privatise drinking water supply has evoked loud protest. Water policies have been framed already in Orissa, Rajasthan, Madhya Pradesh and Kerala. Maharashtra is attempting to pass
several acts related to water regulatory commission, a single financial corporation for raising resources for the irrigation sector, a participatory irrigation management act and so on. Surprisingly, for the first time, the Government of Maharashtra has prepared a written draft of its State Water Policy, which also bears a similarly worded clause related to privatisation of water. In the discussion papers published by the India Water Partnership, ‘private sector participation and involvement of users was strongly emphasised’ (India Water Partnership 2000:71). One of the stated reform components is ‘reform of policies to make possible greater cost recovery and private sector participation. Further, the Framework For Action document, under the heading Strategic Long Term Framework has ‘privatisation of water supply and sanitation and services, where appropriate and feasible’ (India Water Partnership 2002:4).

Participatory Approach to Water Management in India

We will now direct our attention to the understanding of several models that have sporadically sprung and spread in different parts of India and have shown the strength of participatory water management approach that has found reference in water policy and documents of the Government of India. These are also particularly relevant in the context of Panchayati Raj in India. Examples from some states of India is being provided here based on the limited secondary literature available on these cases.

Rajasthan

Anil Kumar and Sunita Narain have point out the success in the Alwar district of Rajasthan where an award for outstanding water management work was given to the district by the then President of India, Mr. KR Narayanan (Agarwal et al. 2001). The condition of the district some years back was that it lay parched for a long time. Rivers had run dry and scores of water sources in the village lay dilapidated and disused. Villagers left in doves to cities to find a better life. However all that changed over the last 16 years since 1984 through the efforts of an Alwar-based organization called Tarun Bharat Sangh (TBS). TBS was able to mobilize people from more than 650 villages to rejuvenate about 3,000 traditional water-harvesting structures called johads. Johads are small earthen check dams that capture and conserve rainwater, improving percolation and groundwater recharge. The results are outstanding. There is a
general rise in the groundwater level by almost 6 meters and a 33 percent increase in the forest cover in the area. The most spectacular effect is on the five rivers that used to go dry immediately following the monsoon. These have now become perennial. As many as 250 villages located on the banks of these rivers have surplus water available right through the year. The perenniality of these rivers is the result of the 20 percent increase in groundwater recharge. According to an independent study conducted by G D Agarwal, former head of the department of civil engineering, Indian Institute of Technology, Kanpur, in 36 villages, a johad with a storage capacity of 10,000 -1,500 cubic meters per hectare has raised the annual average groundwater table by about 6 m. For example, water that could be found in the Bhaonta-Kolyala village at 17m depth in 1985 is now available at just 9.6m. Strikingly, in all the construction work-right from planning, site selection and design to execution-is undertaken by the villagers themselves and no qualified engineer is involved. The work is undertaken under the guidance of gadjhars- traditional rural engineers and they have constructed more than 3,000 structures and till date there has been no report of a structure collapsing.

It is interesting to note the process involved in this change. Basically, at the core of all the TBS activity is a village-level organization with a representative from each family called gram sabha (village assembly). The gram sabha has emerged as the most powerful institution in villages that looks after all the activities. Crucial decisions like site selection of a dam or tank, its size and the percentage and mode of community contribution towards building such a structure is decided by the gram sabha. Once a village feels the need and agrees to work with TBS for building or renovating a water harvesting structure, the gram sabha along with an elected head is formed, in a general meeting held in the village. The gram sabha meets once every month on the no-moon day, as traditionally villagers devote this day to community work. One of the unique features of the gram sabha is that villagers can recall any elected member for non-performance or misconduct. The gram sabha forms five sub-committees to look after various aspects of the work. The construction committee looks after all construction works and decides the mode and magnitude of villagers' participation. The forest committee enforces a ban on felling trees and monitors regeneration of forest in the catchment areas of the water structures. The grazing committee prevents stray grazing, particularly in protected areas like regenerating forests. The water committee manages the created water resources and looks after distribution of water between users as decided by the gram sabha. However, all final decisions
are the prerogative of the *gram sabha*, with the committees functioning as its implementing arms. Often there are conflicts around the ownership of common lands on which the *johads* were built, and the resources generated by these structures. When TBS began working inside the proposed Sariska National Park and the Tiger Reserve, the forest department opposed it, serving notice of demolition of a dam in the core of the reserve. Ironically, this dam revived the Ruparel river.

However, on the critical side of the experience, in one of the studies conducted by UNDP called 'Johad' in 1998, Ranjansamant Ray, pointed out that the organisation needed to focus on women's component which was taken for granted although women have played a great contribution in its success but were not able to share the benefits equally. (Johad, 2000). Therefore, there is a clear need and scope for addressing women's contribution and benefits in order to consider the experience a truly empowering one for the entire community.

While the experience of Alwar district has been widely reported, there are other examples that are worth mentioning but is it also difficult from the secondary information available to us about the impact such programmes have made on women. Some of these cases of the experiments with participatory approaches are discussed below.

Further, there is the example of Charu district in Rajasthan, which was facing acute drinking water scarcity due to poor groundwater quality and lack of water sources such as rivers and canals. To deal with this situation Bhoruka Charitable Trust (BCT) has been encouraging villagers to build and renovate *kundis* (tanks), *johads* (ponds), *talabs* (permanent ponds) and dug wells. It has used polymer technology to increase runoff from catchment into *kundis*. These polymers act as binders and reduce permeability and infiltration rate of the sandy soil. The cost of polymer treatment is about one quarter of the traditional catchment cost. Rainwater collected in *johads* and *kundis* improves the groundwater level and provides better recharge to wells situated close to these structures. Indeed, presently field and durability trials are in progress at five sites in Rajgarh block of Charu district. (Bisht, R.P. 2001).

Similarly in Rajsamand district in southern Rajasthan, Mewar Krishak Vikash Samiti (MKVS) has been trying to revive the village water harvesting structures along with some simple
interventions to resolve the acute water scarcity. As the name suggests MKVS has been working in Rajsamand district for the upliftment of local farmers. It has constructed 20-30 nadis with a command area in excess of 500 ha in ‘Lambodi’, ‘Gudlia’, ‘Kharassan’, ‘Hakiawas’ and ‘Bhairu Das ka Kheda’. The organization has added systems like spillways to the nadis, in the absence of which these structures were often damaged earlier. Since farmers construct these structures on their own fields using locally available materials, the cost of the construction ranges between Rs 2,500-10,000 and is thus affordable. To prevent nadis from silting up, the MKVS has promoted afforestation of the drainage basin and constructed silt traps. (Gurjar Ganeshlal, 2001). This case also shows the general role of farmers without any clear reference to women.

Another case is that of Laporia village in the Duddu block of Jaipur district in Rajasthan where the pastures were barren and degraded. In 1990, Gram vikas Navyuvak Mandal Laporia (GVNML), a non-governmental organisation of Laporia, mobilized the village community to undertake the revival of its ecology. They formed a gram sabha consisting of 11 village elders. Work was initiated on 50 hectares (ha) of pastures to integrate the denuded land into a single project unit. To complete the project, the villagers contributed labour in the form of shramdan (voluntary labour) and the result was a system of chaukas, which store rainwater in dyked pastures. When it rains, water is collected in the lower half of the chauka, which is dyked. As the amount of water stored in the enclosures rises, it flows into the neighbouring chauka, and so on, gradually spreading water over the entire pasture. At the same time, this process prevents the water from rising above the level that prevents the growth of natural grasses, which cannot survive in deep waters. After reaching the last chauka, the water flows into a monsoon drain. This system not only provides adequate water for the villagers, but also promotes the recharge of groundwater. Along with the restoration of the pastures, the old village tank, which was in a state of neglect due to siltation and breach of dykes, was also restored in 1994. As a result of this there was a bumper harvest in 1996. Due to the prosperity it brought to the village, the tank was named Ana Sagar (sea of food grain). Restoration of the Ana Sagar was followed by the construction of two percolation tanks, phool Sagar (sea of flowers), and Dev Sagar (sea of the gods), built to recharge groundwater and to meet all the other needs of the villagers and their livestock. When the monsoon failed yet again in 2000, it was for the third consecutive year, and grass and fodder was available and there was water in
the wells. (Singh Laxman & Jagbir Singh, 2001). In this case the role of panchayats is clearly evident although no specific role of women has been highlighted.

Maharashtra

The inspiration provided by the village Ralegan Siddhi under the leadership of Krishna Bhaurao hazare in Ahmednagar district of Maharashtra is one of the most outstanding examples of community water management. Also in Maharashtra's Pune district, the Pani Panchayat movement was launched in 1972 by the Gram Gourav Pratistan, which is an effort to create equitable system of water management. The idea being that no individual should be deprived of his rightful share of the limited water resources. Water is treated as a community resource not as private property. Water rights are based on the number of family members, not on the size of the land holding. While members of the panchayat are free to decide how to use their water allocation, sugarcane is banned because it is inconsistent with the principles of responsible resource use (Times of India April 30, 2000). In this village of Maharashtra local leadership had acted as a catalyst and actively participated in carrying out soil and water conservation programmes in an integrated manner. It is very important to understand the details and dynamics of the pani panchayats, its composition and powers and the impact they have on the overall efficiency of the water management schemes. So, in this study, we have probed into these issues in greater detail through the study in Gujarat since it is considered very crucial in the context of overall rural water management systems.

Madhya Pradesh

The regeneration of Jhabua-a poor tribal district of Madhya Pradesh, situated on the border of Gujarat- is another outstanding effort by a state government to involve the people on a large scale in integrated land and water management. The statewide programme was initiated by Digvijay Singh, chief minister of Madhya Pradesh, after he was inspired by the work of Anna Hazare in his village Ralegan Siddhi in Maharashtra. In 1985, Jhabua was just a moonscape. The programme entitled the Rajiv Gandhi Mission for Watershed Development (RGMWD) began in 1994 and already the satellite imagery is showing changes in the number of water bodies and extent of the green cover. Dug wells have water and are over-flowing. All this, in a
place that was chronically drought-prone in the 1980s. It is a result of political will combined with eager participation of local communities. Most striking difference in this programme is the mode of implementation. In the last 50 years, most programmes and schemes meant for the people have not included them. When the end-users are not involved, the system simply does not work. In this watershed mission, attempts were made to pull all the responsibility on the people, with the government working only as a facilitator. The people were involved in the concept, planning, implementation and maintenance of land and water conservation activities in their watershed areas. With the chief minister's secretary as the coordinator of the mission, RGMWD was given high executive status. At the district level, the collector is the mission leader, which again puts all the officials under the highest authority at the local level. So the mission introduced a single command system from the top, while giving flexible powers to the commanding authority at the operational level. It was the political will at the highest level that has made possible a single command structure at the government level, thus striking bureaucratic turf battles before bestowing power on the people. Serious effort has been made to give local communities powers of decision-making and control over resources.

Jhabua experience clearly shows the tremendously successful impact that the community driven water management initiatives can have in rural areas.

The programme also included village Guraiya, where women earlier had to walk to the river Bebas, three kilometers away, and carry back their drinking water. The women in this village now have been empowered and live in their own terms, something that would not perhaps be possible elsewhere, in any other village. The empowerment process has not been easy. The women ha never participated in any decision-making and even the village sarpanch was against their involvement. It was only after Smita Ghate, the then collector, stepped in that the women started opening up and participating. A committee of 12 women was formed for the work of RGMWD. With the help of government officials, these women took up the task of building check dams and cattle -proof trenches. The committee has set up a nursery, where 700,000 saplings have been planted and has started three savings and thrift groups, accounts of which are open to public scrutiny. There has been a startling behavioural change in the women. They have become more confident and are sure that they can handle the work even without government support. This shows how gender sensitive officials or the presence of
female officers in important roles can influence the constitution and working of water committees in rural areas.

Uttar Pradesh

In the state of Uttar Pradesh, the Swajal project enabled village communities to control all investments in water supply and sanitation infrastructure. As a result, all construction related funds were transferred by the Project Management Unit to the community-managed bank account. Thus, the community procures goods, works and services. Of the total project outlay of $71 million, about $50 millions is under community control. With communities controlling over 70% of the project funds, the Swajal project proved to be a front-runner in the concept of community contracting. The women also feel empowered enough to take all kinds of decisions all by themselves now. The village leader of an all-women Village Water and Sanitation Committee (VWSC) of Kamtoli village in Pithoragarh district, Shanti Maluda traveled all the way to New Delhi, along with the VWSC treasurer and an engineer from a NGO, to select pipes and fittings for the water supply scheme in her village. She wanted to ensure quality of procurement and investment, which is a responsibility entrusted to the VWSCs by the World Bank assisted UP Swajal project. Back at home; the women members of the committee carefully checked each item. Those products, which did not meet the ISI (Indian Standards Institute) specifications were sent for replacement (Jalvaani 2000.)

Assam

In the north-eastern state of India, Assam, the women mechanics have triggered a hand pump revolution in Kamrup district. The Assam public health Engineering Department (PHED) with the assistance from UNICEF launched village level Operation & Management (VLOM), a novel trial-cum-demonstration project with support, which trains women to maintain and repair handpumps installed in their village. It had been noticed that despite abundant annual rainfall of 2000 mm, drinking water is scarce in Assam. Even though, about 90,000 handpumps and suction type water lifting pumps were installed in the state during the historic water supply and sanitation decade (1980 - 1990), only 65% of these installed devices are in working condition. According to a recent baseline survey, nearly one-third (310 out of 907) public tube wells were non-functional in Kamalpur block, and 176 out of 507 do not work in Boko block of Kamrup
district. The main reasons cited for this state of affairs are bureaucratic delays in repairs and the lack of beneficiary involvement in planning and implementation. UNICEF's modification of the design of the Tara direct action hand pump has enabled easy servicing as well as reduced repair. Women are now trained to repair these pumps using only small tools. Under the VLOM SCHEME, two women caretakers are trained for each installed Tara pump, and are provided with a toolkit for regular repairs. Currently 2,500 pumps are looked after by women in the two blocks of Kamrup district and reports indicate that they enjoy their newfound status and take pride in their work. The success of the VLOM project has encouraged the PHED to extend the scope of the project. If this 'scaling up' works, drinking water may be as abundantly available to the people of Assam as rain water is (Jalvaani, 2000).

West Bengal and Bihar

In Purulia district of West Bengal the a team from Professional Assistance for Development Action (PRADAN), a New Delhi based NGO, has found a simple solution termed jaldhar to conserve rainwater and save paddy crops from frequent rain failures. The idea was basically to leave aside a portion of the farmland for rainwater harvesting, holding back rainwater in the field itself. This technology is also being used for land reclamation over 2,000 hectares and has found acceptance among farmers in the districts of Ranchi, Chatra, Godda, Dumka, West and East Singhbhum districts in Bihar, and Purulia and Bankura in West Bengal (Karmakar, Dinabandhu 2001). This case demonstrates the potential and willingness of rural communities for adopting and experimenting with innovative rainwater harvesting systems to improve water supply and availability. This aspect is also brought out through this study conducted in Gujarat.

Andhra Pradesh

In Andhra Pradesh, the chronic problem of water shortage has been compounded as a result of destruction of traditional tanks and overexploitation of wells in the Rayalaseema region. Over 40 percent of the wells are currently lying abandoned, leading to a decrease in agricultural income and animal husbandry. In 1990, 56 percent of the people were living below poverty line. Another example from Andhra Pradesh of bowing to the demands of local NGOs and various political parties is related to the irrigation and command area development to
create and restore minor irrigation and percolation tanks. To overcome the water scarcity large-scale watershed programme were taken up by a few local NGOs with the setting up of *Paryavarana Pariakshana Samithis* in the four districts of Rayelseema region comprising the population of 110 lakh in the four districts of Kurnool, Ananthapur, Cuddapah and Chittoor, out of the eight districts, which were declared as drought prone (Chetty 2001). It is interesting to note the presence of 'samitis' or water committees in these districts, however, its dynamics yet remain to be probed for a better understanding, which as already mentioned will be one of the important focus of the study undertaken in Gujarat.

**Karnataka**

Similarly, Bhartiya Agro-Industries Foundation (BAIF) Institute for Rural Development took up excavation of 330 farm ponds in Adihalli watershed, spread over an area of 700 hectares (ha) in Arasikere taluka of Hassan district in Karnataka. This approach was based on a traditional concept where structures were dug out in strategic locations, locally known as *kalyani*. (Reddy et al. 2001). No doubt the watershed approach is increasingly seen as very important and popular among rural committees and they are willing to understand and work towards better water availability in their region through this method. In this study also, we have looked into the watershed approach in more detail.

**Kerala**

In Kerala where springs constitute one of the safest and cheapest sources of drinking the paradox of drinking water shortage exists despite high annual rainfall. The terrain of the state allows easy runoff of the rainwater and aggravates the problem of drinking water scarcity. The Centre for Water Resources Development and Management (CWRDM), Kozhikode carried out a detailed investigation of the location, number, discharge characteristics, present utilization patterns and potential of springs in Kerala. With the objective of utilizing springs, CWRDM has developed six decentralized community drinking water supply schemes with a total capacity of 31,500 litres and developed at the cost of Rs 140,940 to serve 1,730 persons in Kasargod, Kannur, Palakkad, Kottayam and Thiruvananthapuram districts (Basak and Remani, 2001).
Another significant effort in Kerala towards gathering ground-level data has also been through the panchayat-level resource-mapping programme launched in 1990 to objectively assess the potential of traditional water harvesting systems. The programme was jointly undertaken by the Thiruvanthapuram-based Centre for Earth Studies in collaboration with the Kochi-based State Land Use Board and a voluntary organization called the Kerala Sasthra Sahitya Parishad (KSSP). Initially covering 25 panchayats, this programme has subsequently been taken up for the entire state. By mid-1998 all water structures such as ponds, wells, lakes, canals, rivers and springs in 168 panchayats had been documented. Task forces were constituted at panchayat level to look after water-related issues. The findings of the survey on ponds revealed a rampant decline (Chattopadhyay 2001).

Also in Kerala, Akathethara panchayat has been selected as a study model, under a water project being executed by the Centre for Development Studies, Thiruvananthapuram. The objective of the study was to prepare a scheme to provide 250 litres per capita per day (lpcds) water to all the 6,000 odd households within a distance of 50 metres. Some of the disturbing findings of the study are that as many as 60 percent households depend on outside sources like piped water, which increases by 8 percent during summers. Women have to walk more than 50 m while 20 families have to walk more than 500m to fetch water. In a programme proposed by the institute. All existing wells and tanks are to be improved and additional ones are to be built. Water users will be charged for the water supply and all facilities will eventually be owned and operated by the local community (Suja and Nayar 2001).

Another example of community action is in the context of panchayati raj institution in Kerala where the district panchayat of Kozhikode in Kerala has taken advantage of the opportunities that decentralization offers to revival of water sources in the villages. The district panchayat has been pulling out all stops. A 200-strong voluntary brigade called the Akashganga Brigade creates awareness amongst people to revive their traditional knowledge of water conservation and involve them in small conservation effort. The 360 mahila mandals (women’s groups) that exist in the district have also been involved in the project and are promoting small, cheap and low technology-oriented projects, which people can understand and undertake. During the first year of implementation of the plan, about 125 freshwater tanks, 100 new conservation
structures, and 3,500 rainwater pits were constructed. All this is done to hold the rainwater that flows into the Arabian Sea within 48 hours of falling (Preman 2001).

Finally, in Kerala again, the Alleppey Charitable and Social Welfare Society has constructed water rooftop rainwater harvesting and storage systems for 52 households of Pillithode village in the coastal district of Alleppy, Kerala (Yesudas 2001).

All these again provide interesting example of community initiated action.

Tamilnadu

Similarly, in the state of Tamilnadu, to arrest the decline of the tank system, a Madurai-based NGO, Development of Humane Action Foundation (DHAN) has successfully initiated extensive tank regeneration programme and set up a Tank Support Group with active community participation and facilitating exchange of ideas, opinions and experiences. Tanks are earthen-bunded reservoirs constructed across slopes by taking advantage of local depressions and mounds (Srinivasan, R., C R Shanmugham and M P Vasimalai, 2001).

Another Chennai-based NGO Center for Water Resources (CWR), Anna University in Tamilnadu has also been carrying out experiments to evolve alternative approaches through tank rehabilitation in rural areas with the participation of local communities. A field-based research scheme called 'Alternative approaches to tank rehabilitation and management-an experiment' was undertaken by CWR in March 1998 with the help of a Ford foundation research grant and state support. At the completion of the first phase, government of Tamilnadu agreed to more flexible project financing terms. It did away with the contract system and awarded contacts to local Farmer's Association extending loan advances at a nominal 12 percent interest rate. Donors like the European Union, supported by the government of Tamilnadu, agreed to include community wells, catchment treatment and creation of Farmers Associations into the programme. At least 9,000 percolation ponds have been constructed in the state. Studies conducted by CWR indicate that 70-90 percent of the water conserved in the ponds goes down as groundwater recharge. These ponds have lead to an increase of water level in wells by 1.75-3 meters. This has caught the attention of agencies like National Bank
for Agriculture and Rural Development (NABARD) who are planning to cover more tanks under similar schemes (Pundarikanthan 2001).

In village Kovalam in Tamilnadu, the pond waters were contaminated by open defecation, polluted runoff from neighbouring settlements, and an experimental prawn culture farm. Exnora International, a Chennai based NGO was approached for help and subsequently a youth group called Kovalam youth Exnora was formed to take remedial action. The pond was restored and the community is striving to keep the pond clean. Thus the people who once went to its bank to bathe now take water away from its bank.

Another initiative is in Madukulattur block of Ramanathapuram district in Tamilnadu where water supply had been either inadequate or highly saline. Therefore, Vivekanand Kendra, one of the NGOs working in Ramanathapuram district convinced villagers in Madukulattur block to participate in reviving ooranis and harvest rainwater by using rooftops. With the help of communities and the Council for Advancement of People's Action and Rural technology (CAPART), New Delhi, the Kendra succeeded in remodeling ooranis in several places. Villagers were motivated through film shows and weekly group discussions that debated issues related to the work (Vasudeo 2001).

All the above examples demonstrate the uniqueness of the community initiative based on local needs and conditions contributing to the success of these programmes.

**Gujarat**

In the western Indian state of Gujarat there are also several examples of collective community action. One of them is the Navinchandra Mafatal Sadguru Water and Development Foundation (in short: NMSWDF or Sadguru), which has been working on sustainable, participatory land and water management in the marginalized and poverty-stricken tribal areas in the Panchmahals region of eastern Gujarat, since 25 years. About 170 life-irrigation schemes and other technologies and practices have been introduced, that are self-managed by local institutions. Sadguru supports land and water management in multiple other ways, including the construction of checkdams, horticulture, social forestry, biogas, agricultural extension, and
credit and savings groups. In the past, this semi-arid region was characterized by low productivity rainfed farming, severe soil erosion in the undulating topography that caused degradation of land and forests, and heavy seasonal and permanent migration. Today, the availability of water for domestic uses has improved; agricultural production, food consumption and incomes have considerably increased; and migration has reduced.

N.M Sadguru Land Development Foundation pays much attention to an equitable participation of women and men in the design and implementation of all its programs. The organization seeks to reduce women’s domestic burdens and to provide women with access and control over financial, capital and natural resources that were previously exclusively male domain. Irrigation, social forestry and soil and water conservation programs facilitate access to fuel, fodder and water. Biogas plants contribute to the health of women and reduce the need for collecting firewood and purchasing fertilizer. Income-generating off-farm activities give women money, over which they themselves decide, thus augmenting their purchasing power. When wage labour projects undertaken, the organization pays equal wages to men and women. Women’s are empowered economically, but also socially. They are aware of their productive contribution to the household; women also interact more with outsiders and now even approach government officials and NGOs on behalf of their villages to negotiate assistance. Sadguru also stimulates women to take up unconventional jobs like site supervisors, nursery raisers, or village agricultural extension workers. More and more women are taking a seat as elected members of the Panchayats. In villages where women organized as a group and took up various activities, like milk dairy co-operatives, savings and credits, nursery raisers or horticulture groups, they also became more expressive with regard to processes of community development in which they formerly hardly participated. Irrigation management at the committee-level is an example of such male domain.

The case of Sadguru shows how women’s participation at different levels and activities related to their work leads to the empowerment and increase in the decision making capacity in Panchayati Raj Institutions as well.

Vivekanand Research and Training Institute (VRTI), a NGO, based in Mandavi in Kutch district, Gujarat has designed a number of innovative water recharging structures to harvest
the meager rainfall, most of which is often erratic and washed away as floodwaters into the sea. These structures permit repeated recharge of aquifers by utilization of the periodic floodwaters, made possible by rapid percolation of water. VRTI has been involved since 1988 in water development activities at the village level by utilizing every drop of rain available through construction of check dams, percolation ponds and sub-surface dykes. Around 64 storage tanks, 39 percolation tanks, five sub-surface dykes and 96 recharge tube wells have been constructed. Under the guidance of VRTI, a number of farmers have tapped floodwaters to recharge aquifers. Every abandoned well is used for recharge after diverting the floodwaters through a filter bed (Raju, K.C.B., 2001).

These community level initiatives are considered very encouraging for replication in surrounding areas as they demonstrate other technical alternatives that can be easily managed locally.

The 125 lakh population living in the Saurashtra- Kachch region of Gujarat suffers from acute water shortage. Effort by an NGO called Saurashtra Lok Manch (SLM) has been successful in motivating a large number of farmers to recharge wells using the monsoon rainfall. More than 300,000 wells and tube wells have been recharged to greatly improve the availability of water. This has been possible with the mass literacy drives coupled with the willingness of the people to help themselves. Jal yatra were organized by SLM and the state information department, which received widespread media attention. Villages in Rajkot district were visited where the importance of well recharging was explained and relevant literature distributed amongst the villagers. The movement spread quickly to the whole of Surashtra-Kachch region. Cooperatives, voluntary organizations, panchayats joined in the effort to educate and install water-harvesting systems (Antala, Shamjibhai, 2001).

This is a unique example in the state of Gujarat, which demonstrates the potential of community action for successful water management and how it spreads and impacts large populations in different districts as well.

Similarly, to explore the water management systems in India, the Institution of Engineers established a national Water Management Forum (WMF) at its headquarters in Ahmedabad.
The forum provides information about cost-effective methods for conservation and use of water to concerned organizations. It provides information about devices to recharge dug wells with appropriate filters; cheap methods to construct small farm ponds for protection of rain fed crops; and projects for watershed management. To involve users in the management of water sources, WMF and Saurashtra Lok Manch Trust jointly toured 101 villages over 10 days in the year 2000 to educate the rural people about the importance of water in all the districts of Saurashtra region. The techniques of diverting rainwater to recharge dug wells, tube wells and handpumps were explained to the villagers in gram sabhas with photographs, maps and videocassettes (Vasoya 2001). Needless to say, reaching out to men and women through gram sabhas is indeed considered one of the well established and a successful way of initiating community level action.

Another initiative for meeting water needs locally is of the Aga Khan Rural Support Programme, India (AKRSP-I), which initiated a rural drinking water programme in the salinity affected villages of Mangrol block in Junagadh district in 1995. The technical component included construction of underground structures to harvest water from rooftops for domestic consumption, sinking of community managed shallow wells with provisions for using runoff water as recharge, and manual withdrawal of water. Installation of wells and hand pump recharge structures were also part of the programme. Training was usually conducted in small groups, with emphasis being laid on water quality, efficient water shortage and use. The agriculture component of the programme promoted cultivation of low water consuming, saline-tolerant crops like chikoo -sapota Achras sapota. (Choudhary 2001). AKRSP-I initiative is also a successful example of NGO initiated community water management initiative.

An Ahmedabad-based NGO, Utthan's has also been attempting to meet drinking water shortages in parts of Ahmedabad and Bhavnagar districts and has met with success. It has constructed 21 lined ponds with the active involvement of local village communities. More than 300 families have participated in building rooftop water-harvesting structures. Village water and resource management committees have been formed in both Ahmedabad and Bhavnagar districts. Bhal Samitis have been formed in Ahmedabad district. Women’s participation and leadership has been exemplary in undertaking all these activities at the village level. In the villages of Minglapur and Bhangandh, women fought with the respective sarpanches and other
menfolk over the sites of the lined ponds (Barot and Mehta, 2001). The example of Utthan again demonstrates the importance of the presence of women in sensitizing gender issues among community members.

Kundla Taluka Gram Sewa Mandal (KTGSM) is another organisation that has been active in Savarkundla taluka of Amreli district in Gujarat for more than six decades. Here the villagers have built a number of small rainwater harvesting structures in the last decade to create additional water storage capacity of 3.5 million cubic meters in the area (Mehta 2001). Thus Gujarat is full of examples of participatory approaches to water management that have been initiated long time back although they may not necessarily have been reported widely but then their importance yet cannot be undermined.

Manav Kalyan Trust (MKT), a NGO based in Sabarkantha district since 1985, has been helping to promote traditional water management systems since 1993. To facilitate the process, MKT has conducted exposure tours for water harvesting in Ralegan Siddhi in Maharashtra, organized street meetings, training programmes, provided land-leveling facilities and partial funding for participatory community action (Vaidya 2001).

The Self Employed Women’s Association (SEWA) has initiated a Water Campaign by rural poor women members to press for their demand that within the overall framework of programmes on water, local communities, particularly women and their groups, should be given leadership, ownership rights and control over these resources as they can manage and preserve them better. The campaign, which is being carried out in eleven districts, moves from the village to taluka to district levels and to the state level where the issues are clustered around sectors and political constituencies and presented to the government. The results are encouraging. Unused wells are repaired, tanks are desilted, canals are lined and check dams are built. SEWA has also used satellite technology to reach out to all district level campaigns simultaneously. SEWA has facilitated many such initiatives covering 72 villages in the desert areas of Western Gujarat. The ‘Water as Regenerative Input’ Program includes augmenting existing traditional sources of water such as ponds and tanks. This done by community participation and contribution and through promoting democratically functioning Water User’ Co-operatives (Nanavaty, 1998). A recent study in Banaskantha concluded that the 40,000-
odd women organised by SEWA for various economic activities loose at least Rs. 20 lakh a month from non-farm work alone when their village piped water systems breakdown and they have to fetch water from outside their village. This figure does not include income from dairying, plantations and farming because the study was done in a drought year. The study reckoned that annually, the women could earn between Rs. 750 - 5520, and save 45-152 man-days if they spent just an hour on collecting water each day (SEWA, FPI, IRC and partners, 2000 and 2001). Clearly, SEWA is a unique example that demonstrates the social, political and economic impact that women's leadership can bring about in community water management initiative and this truly becomes an empowering process for them and the entire community.

The above examples from different parts of India are testimony to the fact that a great deal of community level action has been initiated and have led to success of water management programmes. Most of these cases however haven't really concentrated on stressing the need and importance of women's contribution in great detail. However, this does not mean that women have not made any contribution to or impact upon the success of these programmes but women's role and contribution is not yet made very visible, therefore this study seeks to look deeper into these issues. Interestingly, in all the above stated initiatives NGOs have been one of the important facilitators in the process of initiating people's action on water related movement and activities. In Gujarat, within the discourse on community participation in water management there is a growing recognition of gender equity concerns, partly because of the role played by NGOs comprising of women heads or gender sensitive male development professional. Thus in the following chapters an attempt has been made to study one of the illustrative examples from rural communities in SEWA, Gujarat, in India, which shows the tremendous will and capacity of women's collective action in water management initiatives as discussed above. The study goes to show that this is also impacting the governance of water in a more efficient and effective manner as it powerfully integrates the women's needs and participation with the state panchayati raj institutions and state water supply boards and offices. Therefore it is worth considering the specific role and contribution that such institutions make in people's empowerment in such types of community action. Therefore, the case study of SEWA has been documented and analysed in greater detail as a part of the indepth study in the chapters ahead.