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RECLAIMING THE BHAL: WOMEN AND THE POLITICS OF WATER IN RURAL GUJARAT

by

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M.A., Jawaharlal Nehru University, New Delhi, 1989

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Abstract

This thesis examines how a network of women's groups in the coastal villages of the "Bhal", a drought-prone region in the province of Gujarat in North-western India, are mobilising to secure and sustain the natural, material and social conditions necessary for the survival of their communities. In particular this thesis highlights the struggles around drinking water.

The efforts of the womens' groups are situated in the larger context of the political economy of water where the demands of capitalist agriculture, industrialisation and urban needs dominate and supersede the needs of people, particularly the rural poor, for drinking water.

This political economy, which is an inheritance of the colonial rule changed the earlier patterns of water use in India and laid the basis for a new hierarchy of needs whereby the interests of the state for revenue displaced the earlier priorities of water use. Water which was essentially used for sustenance of human life was being used for generation of power and capital. Indigenous systems of water were replaced by large centralised mega-projects which focused on harnessing rivers and controlling nature.

The efforts of women's groups in the Bhal to revive traditional rain water harvesting systems and to use traditional sources of water such as rain can be interpreted as an attempt to restore the priorities of water for drinking and community systems of management, which were lost in the concern for economic growth.

Thus "reclaiming the Bhal" symbolises reclaiming not only control over the natural resources like land and water but also control over the community and their daily lives.

Drawing on contemporary variations for four related theoretical perspectives: ecological Marxist, ecofeminist, Marxist-Feminist and Gandhian perspectives, this thesis explores the relations between women, water, wealth and power and places the collective action of the women'groups in the Bhal within the larger context of the politics of water.

Ethnographic research for a period of three months in the villages of the Bhal forms the basis for this thesis. The field work also included travel along the Ingoli pipeline which is the chief source of water supply to the region and a trip to the Sardar Sarovar (Narmada) dam.

DEDICATION

To

Manju, Gauri and Devuben
and all the other women and children
whose future lies in the Bhal.

ACKNOWLEDGEMENTS

When I started writing this thesis three months ago, I thought I needed a miracle to accomplish this task. That I could write this thesis in such a short time is a testimony to the support I received from my friends and family both in India and in Canada, many of whom I cannot even name here. The motivation to write this thesis stems out of a need to recount the struggles of the women in the Bhal. My sincere thanks to Nafisa Barot for introducing me to the Bhal and its women. Having gone to the Bhal I possibly could never have survived there long enough or learnt anything to write this thesis if it had not been for the warmth and affection and the insights I received from Devuben, Narubhai, Laddhubhai, Rambhai and the others at Mahiti. I am particularly grateful to Neeru and Gauri for their companionship during my stay in Kamatalav. My thanks to Bela Bhatia for the many useful discussions I had with her. In Vancouver my senior supervisor, Pat Howard standing by me throughout this ordeal with patient support and also meticulously corrected my tenses. My thanks to Celia Hague-Brown for introducing me to ethnography and to Bob Anderson for introducing me to environmental issues and to Neena Shahani in the school of Communication. I am grateful to Uncle Rao, Dorothy and Pilar for painstakingly going through my earlier drafts and for encouraging me throughout the writing process. My deepest appreciation for the support and love of my extended family and friends in Vancouver - Suseela aunty & Ramchandra Reddy uncle - for providing me a home away from home and for keeping me well-fed. Thanks to my cousins -

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Preface

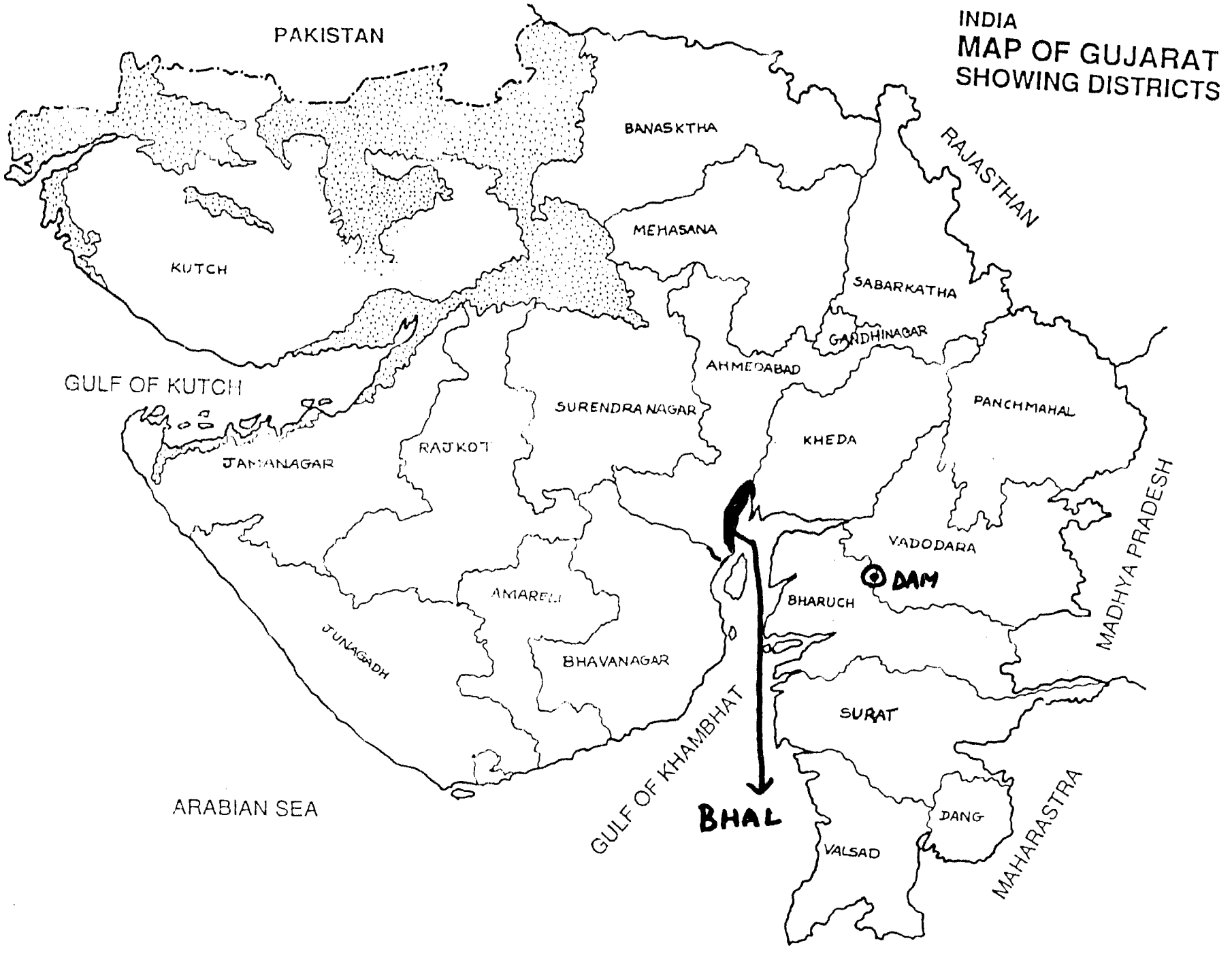
I first heard of the Bhal in the middle of 1991 at a conference in Vancouver on Women and Environment through Nafisa. Nafisa is a co-founder of Utthan-Mahiti, the Non-Governmental Organisation which has been supporting womens' groups in the Bhal since the 1980's. At that time, I was writing a paper on the Narmada dam and the alternatives that these womens' groups were posing to the dam, by developing indigenous rainwater harvesting systems seemed intriguing. The questions that arose then were why do mega-projects get the support they do and why indigenous small-scale systems don't.

When Nafisa and I met again soon after at another conference, she shared more stories about the women in the Bhal. All these fuelled my desire to go there. So, I wrote to Nafisa asking if I could come and live with them for a few months and perhaps formulate a thesis out of their work. She agreed. Being a student, belonging to the academia allowed me "to choose" the Bhal as a research topic; opting for ethnography as a methodology entailed my "going to the field." So I went to "the field," to India, in the fall of 1992.

While it was my friendship with Nafisa and a vague idea of formulating a thesis which drew me there, once I was there all academic interests faded into the background. And when it was time to leave I came away with a heightened sense of responsibility towards the people I worked with.

What struck me most from the beginning and even now as I write this is the sheer determination of life to survive in the Bhal. To survive is an act of resistance in an oppressive natural environment and an exploitative socio-economic system which dooms life to marginality and invisibility. To outsiders, to the world of the bureaucracy, the Bhal exists as a drought-prone "backward area." Seventy percent of the land is unfit for cultivation because of sea water ingression. The region is marked by very high levels of poverty and high rates of migration. In fact the "Bhal" in the local language means forehead or the land where nothing grows. But not only did some communities dare to survive, they decided to grow. This is evident from the activities of the womens' groups which are emerging in the area; part of which are reflected in this thesis.

The question that emerged as most important was not why small-scale systems do not get the support they should from the state, but rather what institutions and practices are siphoning off resources (land, labor, water) from the villages and how can communities gain or regain control over their resources, their conditions and their lives. In order to appreciate the historical importance of this question, one should know that in most parts in India, resources such as land, water and forests were once in the control of the village commons. With this in the background, I focussed my attention on systems which developed around the distribution of water and the politics which surrounds water.


INDIA
MAP OF GUJARAT
SHOWING DISTRICTS
PAKISTAN
BANASKTHA
RAJASTHAN
MEHASANA
KUTCH
SABARKATHA
GANDHINAGAR
AHMEDABAD
GULF OF KUTCH
SURENDRANAGAR
PANCHMAHAL
KHEDA
JAMNAGAR
RAJKOT
VADODARA
DAM
AMARELI
BHARUCH
MADHYA PRADESH
JUNAGADH
BHAVANAGAR
SURAT
GULF OF KHAMBHAT
BHAL
ARABIAN SEA
DANG
VALSAD
MAHARASTRA

Chapter One

Introduction

On the east coast of the Gulf of Cambay (also called the Gulf of Khambat) in the district of Bharuch in the Indian state of Gujarat, efforts to construct one of the largest projects in the world, the Sardar Sarovar Project, to harness the waters of the river Narmada are under way. The state claims that this project will transform rural Gujarat not only by irrigating thousands of acres of land but also by providing drinking water to drought-prone villages in Gujarat.

On the west coast of the Gulf of Cambay in the district of Ahmedabad, efforts of a different kind are under way. A network of womens' groups (Mahila Mandals) in the coastal villages of the "Bhal", a drought-prone, marine-ingressed region, with the help of a Non-Governmental Organisation (NGO) called Utthan-Mahiti have begun mobilising to secure drinking water for their communities by reviving indigenous techniques of rainwater harvesting.

This thesis deals with the politics of water in India: the struggles between different uses of water by different users of water, struggles over different systems of water, and the different conceptions of water on which these differing systems are based. Every year millions of dollars are spent on drought relief by the government of India. In spite of this, drought conditions continue to persist, and the intensity and frequency of water scarcity continues to increase.

Building on the few recent studies that examine drought as a

political issue (Bhatia, 1992; Omvedt, 1993), this thesis argues that the fundamental cause of drought is located in the political economy of water use, in the expropriation and privatisation of water resources, which prioritise industrial and commercial irrigation needs over drinking water needs of village communities. It reviews the history of indigenous, colonial and post-independence systems which govern the use of water. The thesis points out the changes in the political-economic and legal systems during the colonial regime which facilitated the transfer of the ownership (stewardship) of the village commons to the state and traces the implications of these changes into the post-independence period and the more recent emphasis on using water for hydro-electric power generation and for commercial agriculture.

While the Indian state has emphasised the use of water for irrigation and power generation, women and peasants have been at the forefront of struggles against drought. The efforts of women's groups in the Bhal to revive traditional rainwater harvesting can be interpreted as an attempt to restore not only the priorities of water for drinking and community systems of management which were lost in the concern for economic growth, but also the social systems on which these systems are based. Thus "reclaiming the Bhal" symbolises reclaiming not only control over the natural resources like land and water but also control over the community and their daily lives. The thesis shows the historical continuity between these recent attempts to establish communal control of water with the earlier village common systems of water

management. Drawing from contemporary versions of four related theoretical perspectives: ecological Marxist, ecofeminist, Marxist-Feminist and Gandhian perspectives, this thesis explores the relations between women, water, wealth, and power and places the collective action of the womens' groups in the Bhal within the larger context of the politics of water.

Ethnographic research for a period of three months in the villages of the Bhal first in September 1992 followed by another brief visit in January 1994 forms the basis for this thesis. The primary sources for the research include field notes at Mandal meetings, interviews with founding members of Utthan-Mahiti and village women as well as interviews with engineers and bureaucrats at the Gujarat Water Supply Board.

Methodology: Dropping from a balloon into the "field"

> Kamatalav. Night around 10'o clock. Neeru and I went to the Mahila mandal meeting. She introduced me to the women and explained that I was studying in a faraway place and had come to work with Utthan for a few days. One old woman immediately asked how far away this place was, where I was studying. Neeru explained it was thousands of miles away, across the seas, in another country... She looked at me with a puzzled expression on her face and asked, "Did you come in a balloon?"
>
> Field notes, October 1992.

> Mine is the thought of him who is lost in his own country, of the alien in his own nation, of the solitary among his own kinsfolk and friends.
>
> Kahlil Gibran, 1962

> ... it is not enough to supplement the epistemological question (How do we know?) only by the social contextual question (What are the origins of knowledge?). We must also ask the political, ethical, and activist questions: Why do we know what we know and why don't we know what we don't know? What should we know and what shouldn't we know? How might we know differently?
>
> Proctor, 1991:13

This section briefly traces my travels in the field in an attempt to explain not only what I found and how I found it, but to throw light on why certain questions became central to the research. Not all the "field work" was restricted to travels in the Bhal; the other locations visited are also sketched in this section. I begin this representation with my travels in the Bhal - to Dholera and the villages where Mahiti, the rural group, is based and then move out of the Bhal to Ahmedabad city, where the urban group Utthan is based. In addition, I also highlight our journey to the site of the Narmada dam and the interactions with

other women's groups outside the Bhal.[1]

In the Bhal

> My first journey to the Bhal was with Naishad, a member of Utthan. We took the early morning bus to Dholera, which is about a three-hour bus ride from Ahmedabad. When we got off the bus at the Dholera chowki, it was mid-day. I waited as Naishad tried to phone the centre to ask Rambhai to pick us up on his motorcycle, but he couldn't get through. The phone, which is their only link to the outside world, was quite erratic in its moods, he said. Well, this meant we had to walk. I got my first taste of the heat, and as I trudged along the heat and the burden of my books made those three kilometres seem like thirty.
>
> Field notes, October 1992

I was in the Bhal between mid September to early December of 1992. At the time of my visit, Utthan-Mahiti had established a presence in about twenty villages, but the villages I visited most were the ones in which it first began its work and where the organisation and the village womens' groups had established a strong relationship.[2] The routine I followed was such that I usually spent four days a week in Dholera and the rest of the week in Ahmedabad city. In Dholera I lived along with the members of Utthan-Mahiti team at their base in the People's Learning Centre and accompanied them during their visits to the villages . It is through them that I was introduced to the work of the village womens' groups and they, to me. Because I did not speak the local

---

[1] The methods I ended up using and the questions that became dominant evolved in large part as a result of unplanned incidents and informal conversations.

[2] These included Bhangadh, Mingalpur, Kamatalav, Gandhipur, Khun, Mahadevpura and Raisangadh.

language, Gujarati, my own direct interaction with the village women was limited. Most of the field research involved observations of Mandal meetings and the interactions between Mahiti and the Mahila Mandals. In all I attended four Mandal meetings in the villages of Bhangadh, Mingalpur and Kamatalav. For the village women, I was someone from "bahar gaam" (which means from "outside the village").[3] They soon identified me as a friend of Devuben's [4] and Utthan and started reserving a place for me in the bus. Towards the end of my three month stay, there were also moments when I crossed the boundaries of my "outsider" status [5]. There were moments when I was allowed in, when because of my gender, I crossed boundaries of language, urban upbringing and class, and shared in the women's experiences.[6]

After our visits to the villages we usually returned to the centre at night or sometimes stayed in the villages after the

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[3] To the women, outsiders were a source of interest and often amusement. In Navagam Karna, Maju ben made up a song about urban, 'educated' women which goes something like this "they cannot fetch water, cannot cut grass, neither can they cook, all they can do is read and write."

[4] Devuben is the leader of Mahiti. She lives in a village called Bhangadh but is well-known and respected among the women in the villages where Mahiti is working.

[5] Because of my association with Nafisa Barot, a founder member of Utthan, Mahiti members saw me as working with Utthan. Later as my association with Devubehn grew, as far as the women's groups were concerned I was seen as an associate of Mahiti rather than a researcher/student from the city.

[6] These were the times when for example Neeru and I stayed up late at night after the Mandal meeting in Kamatalav to talk to Gauri and Kamu. Many times, these late night conversations revealed more intimate details of their lives than the daytime "interviews."

Mahila Mandal meetings.[7] I relied on mainly Mahiti members, who knew the most key women in the community. While Mahiti was helping me gain understanding of the various activities of the women's groups in the villages, in turn I found myself occasionally in a position to act as their translator in relating to funding agencies and other "outsiders."

My interviews in the Bhal also included a variety of other actors who have a presence in the Bhal area. I spoke to members of other NGOs active in the Bhal area such as the Behavioral Science Centre [8] and Jesuit missionaries, who have established a presence in the Dhandhuka area for the last sixteen years with their school in Dhandhuka. [9] The questions that run through this thesis emerged

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[7] For most of my stay in the villages, I depended on fieldnotes which were usually written after we returned to the People's Learning Centre in Dholera.

[8] To my knowledge there are only two voluntary organisations working in the Bhal area of the Ahmedabad and Kheda districts. This itself says something about the harsh environment, which make it difficult to work in this region. In Utthan, Nafisa Barot, Ravi, Mahendra bhai and Manju and in Mahiti, Devuben, Neeru, Narubhai, Rambhai, Chetana, Bindu and Laddhu bhai helped me understand the issues and made up for my inability to communicate with the women in the villages. In the Behavioral Science Centre, Vijay Sherry Chand, Ustad Pastakia and others were also helpful. I visited these agencies during my retreats to Ahmedabad.
In the villages Jasoda ben (Bhangadh); Gauri, Kamu, Ratna in Kamatalav and Ujiben in Khun provided insights into their experiences.

[9] Father Gorus, a Jesuit Priest, has been running a boarding school in Dandhuka for the last sixteen years. He has important insights about the people and the conditions in the region.

out of these experiences and conversations with many individuals.[10]

Having read literature on oral histories, I entered the field with the idea of constructing a detailed history of the women's group through oral histories of the key people involved. I soon realised this would be impossible since I lacked the language skills. I started exploring other questions that would meet the most immediate needs of the women.

Living in the Bhal, it was impossible not to notice the centrality of water in the lives of women. But which story of water was I best equipped to tell? Even before I went to the Bhal the group had had some experience with outsiders such as international development managment trainees, sponsored by the Aga Khan foundation in Canada. Most of their reports as well as that of the urban based NGO Utthan were confined to the various activities that the women's groups were involved in. It was important then for me to determine what other kinds of information was important for the group to know. For Devuben constantly reminded me that they didn't need to know what they were already doing. I could have chosen to write about the groups themselves in greater depth but

---

[10] I was so much a part of the 'inner group' by then that I remember having intense discussions with Devuben, Laddoo bhai about students who come to "study" the group. She was concerned about the implications of these studies on the people in the village. It was my turn one day when Devuben asked me "what are you studying? " I said something about doing oral histories. In her typical earnest way she said, hamare zindagi me kuch upyogi ban sake iska abyas karo study something which will be useful to our lives.

realised there was little or no documentation of the larger context in which the groups was operating in. Given the women's groups' concern with drinking water, the contemporary politics of water and its historical situation, I felt would be was an important issue to address in terms of facilitating their understanding of their problems.[11] So I chose to gather information about the bureaucracy and the institutions to situate their actions within the wider context of the politics of water. The key question in my research became who controls the taps?

With this as the basic question I went on to pose questions about the nature of state intervention and the perspectives of the bureaucracies. To understand why there was no water in the Bhal, I decided to trace the Ingoli pipeline to its origins in the offices of the Gujarat Water Supply Board (GWSSB) in Ahmedabad. I interviewed bureaucrats and engineers in charge of the state and district water supply in the capital city of Gandhinagar [12]. I also analyzed how these piped water systems differ from the systems that women's groups were trying to develop.

Travelling back and forth from Dholera to Ahmedabad allowed me to report some of the comments of local officials at GWSSB to

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[11] Much of what I was investigating was not documented. By collecting information on the bureaucracy I have tried in a way to respond to Devuben's suggestion that I write about something that they didn't know.

[12] I used a tape-recorder to interview engineers at the GWSSB and a video to record the interviews with the bureaucrats. Most of the bureaucrats spoke English. Where some engineers did not feel comfortable going on record, I used hand notes.

Mahiti, and through Mahiti to the women. This reporting back and subsequent discussions helped me reshape my own questions to the officials.[13] This interaction became less possible once I left the field. However since I was concerned that information that was generated out of this research be accessible to the group I left the tapes of the recorded interviews with the group for their use.

There was very little documentation on the local history of the region, so I relied on both documentation and videos [14] produced by Utthan-Mahiti.

Outside the Bhal

Outside the Bhal too, I explored multiple sources of information and different perspectives, especially those of the social activists such as Bela Bhatia and Medha Patkar who raised the question of why drinking water will not be provided by major

---

[13] As a student, studying in Canada, many times I had far easier access to the corridors of power than groups that had been working in the area for more than an decade. Hierarchy governed bureaucratic treatment.. We figured out a way to use the bureaucracy's differential treatment to the advantage of the group. Since the presence of outsiders ironically drew more attention (and added to the strength) of the group in the eyes of the state I accompanied Nafisa and Devuben to Gandhinagar when they visited the ministers. Since I also carried a video camera, this in a small way forced the politicians to be more respectful, cautious and supportive of the Devuben's presentations.

[14] Utthan has a modest resource centre in Ahmedabad and is trying to establish an alternative system of communication for distribution and exhibition of its videos. Raju Barot, Nafisa's husband who is a local artist and film-maker produced two videos on the lined ponds which are being used by the groups in the villages.

irrigation projects [15].

For official perspectives, I relied on visits to various water bureaucracies and interviews with officials such as those at the Central Water Commission. For an understanding of the history of bodies such as the Central Ground Water Board, I interviewed one founding member of the Board and in addition some hydrologists and engineers. Among the organisations I visited in Delhi were the Central Water Commission, the Central Ground Water Board, the Water Technology Centre, and the Central Drinking Water Mission. By attending their conferences I derived insights into the future direction that these bodies planned to take.

The Journey together

In the first week of December 1992, at the end of my field work, I travelled with the womens' groups from ten different villages in the Bhal on a four-day Pravas (pilgrimage) from Dholera to the site of the Narmada dam. The pravas (pilgrimage) was the first trip of its kind organised by Mahiti since its inception. A group of one hundred women participated in this pilgrimage.

Ostensibly designed as a pilgrimage, the idea behind this trip was to connect these groups to other women's groups such as those funded by the Agha Khan Foundation in Netrang, and also the Narmada Bachao Andolan, the movement against the Narmada dam. This other

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[15] Bela Bhatia is the author of the book, "Lush Fields and Parched Throats: The Political Economy of Ground Water in Gujarat". Medha Patkar is the leader of the Narmada Bachao Andolan, the movement against the Narmada dam in Gujarat.

agenda of the trip was underplayed so that the men in the village would not object. For the women themselves the religious and political could not be divorced from each other. This fact is recognised in the actions and the language of Mahiti's members. Many times during the pilgrimage, Devuben used the idiom and language of religion to convey a message of empowerment

When the issue of documenting the trip was raised, Devuben said they couldn't have a camera "man" follow the women around. My identity as a woman, an urban woman who could handle a camera, made me an acceptable choice. I went along and documented the pilgrimage for them [16]. We never visited the valley where the movement against the dam is active. However, the video documents some of the concerns and issues pertaining to their struggles that women raised in their conversations with each other and in the skits they enacted during the journey.[17]

Limitations

There were a number of important limitations to my field

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[16] It was only at the end of my stay when the women became accustomed to my presence that I travelled with them and recorded their conversations during the pilgrimage as well as the meetings with the ministers on video. Most of these conversations were in Gujarati which I later translated with the help of a Gujarati friend in Vancouver.

[17] The pravas was the most important experience of the three months of field research. During the pravas I not only had opportunities to talk to women from the villages I had not visited but I also had more extended conversations with women during the trip than in the village. I was able to observe the interactions of the women with each other and with other women outside the Bhal.

research and the scope of this study. Firstly, since I did not speak the language, I had to depend on members of the NGO to be my interpreters. I spent more time watching them and often missed the nuances of the conversations. Secondly, my field work was done between September and December, when the drinking water shortage was not as acute so I learned about the severity of summer shortages second hand. Thirdly this study does not deal with the internal relations of caste, class and gender divisions within the village community of women or organisational relations within the Non-Governmental Organisation. This study deals with relations between state, village communities and water systems within particular villages in the Bhal where the NGO, Utthan-Mahiti has concentrated its work in.[18] Unlike most other rural areas of Gujarat or India where caste and class is a major source of polarisation, the social and economic composition of these villages is relatively more homogenous. The majority of the women belonged to the lower peasant caste families called the Kohli Patel. There were no upper castes (Darbars) within these villages and only a few Harijans. In terms of class most of the people in the Bhal were small farmers or agricultural labourers. These characteristics make the problems and the solutions of this area unique. To that extent this experience cannot be generalised or replicated in other areas.

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[18] Before I went a second time to the field in January 1994, I read literature on social movements which led me to look at the relations between state, and village communities rather than focus on internal relations within the organisation or within the village community.

Chapter Summaries

Chapter one introduces the problem of the politics of water in the Bhal and the field work. Chapter Two is a review of different theoretical perspectives that inform this thesis - the ecological Marxist, the eco-feminist, the Marxist-feminist and the Gandhian perspectives. Chapter Three provides a historical background that analyses the transformation of water from a commons into a commodity, a source of capital and power. Chapter Four examines the historical and socio-political context of the Bhal area, the colonial legacy and the growth of merchant capital, the post-independence era and marginalisation of coastal areas in mainstream development, and how these areas were stripped of their labour power as people migrated to industrial and urban centres of power. Chapter Five details the efforts of women's groups to reclaim their natural and human resources and control over their commons which includes: land, water, labour and territory. The last chapter provides the conclusions.

Chapter Two

Acknowledging the "gurus": Theoretical Framework

> The format in which you operate, the journals in which you publish, the language in which you express yourself, the people to whom you feel responsible all make you a part of a bourgeois academic community - which distanced itself from the real communities. In terms of scholarly apparatus, it is not just the fact of footnoting but whom you footnote. You must start with so and so and come down and pay your deference to these through your work.
>
> -Walter Rodney

This chapter is an attempt to place the social and collective actions of the rural women's groups in the Bhal within a broader theoretical framework. To carry out this task, I will be using the help of contemporary versions of four related theoretical perspectives: Marxist, Feminist, Ecological and Gandhian perspectives.

At first glance this task is monumental as these perspectives cover a wide range of views and also are often overlapping. However, my purpose is not to delineate these theories but to draw out the main concepts that help to explain the nature of ecological degradation in India and its impact on the living condition of rural women. While the womens' groups that are the focus of this study have not been directly influenced by these perspectives, the theories can help situate the womens' groups' practices and particularly their consciousness and resistance to class and gender domination within the wider Indian political and economic context.

This chapter discusses the four variants of these perspectives in turn, beginning with the ecological Marxist viewpoints, secondly

the ecofeminist, thirdly the Marxist feminist and finally the Gandhian legacy (critical especially because the case study is set in the rural areas of Gujarat, the birthplace of Gandhi). All four theoretical perspectives share a common interest in analysing the conditions of daily life and domination. However these perspectives vary in their emphasis of the sources of domination and the agents for change.

The central question I am seeking to address through an examination of these perspectives is how do they explain the nature of the linkages between women, water, wealth and power. These perspectives roughly correspond to explanations which connect: water and wealth (ecological Marxist); women and water (ecofeminist); women and wealth (Marxist feminist) and women (in village communities) and power (Gandhian).

Ecological Marxist viewpoint

The ecological Marxist position is a recently evolved strand of Marxism which stresses that under capitalism, exploitation of labour and of nature are inextricably related. The origins of this idea can be traced to Marx himself, who in his critique of the Gotha Programme said nature is as much a source of wealth as labour (quoted in Dietrich 1988:15). Further development of this idea occurs in the reinterpretation of Marx's analysis of capitalism by ecological Marxist James O'Connor.

According to the ecological Marxists, Marx's analysis of capitalism can be extended to explain contemporary ecological

crises and conflicts over nature. The struggle under capitalism they contend, is not just one between capital and labour but between capital and "new social movements" over the conditions of production which include nature, labour and community space.

Conditions of Production

> "According to Marx, there are three conditions of production: The first is natural conditions of production or nature; the second is personal conditions of production or human labour power and the third is communal conditions or general conditions of social production for example, means of communication - public space" (O'Connor, 1991: 17).

While the ecological Marxists accepted the overall Marxist perspective that capitalism is a crisis-ridden system, their analysis represents major departures from the traditional Marxist account. Firstly, the ecological Marxists expand the typically narrow focus of orthodox Marxist theory and widen the analysis of class struggle to draw attention to struggles over a broader set of conditions of production, which include nature, labour and public space. Under capitalism, these conditions of production are turned into commodities and become the basis for capital accumulation. It is this capitalization and commodification of nature and labour that social movements are opposed to (O'Connor, 1991 :34).

Marx in his pre-occupation with exploitation of labour did not pay enough attention to exploitation of nature. Orthodox Marxism, in fact, by endorsing the role of industrialism did not give adequate attention to the implications of industrialisation. It is

this inadequacy that ecological Marxists seek to redress. Secondly, the demand for socialism is redefined by ecological Marxists as a demand for radical democracy .

Radical Democracy

The ecological Marxists state that the struggle over conditions of production, whether between capital and labour or capital and social movements, is mediated by the state.

> Every state agency may be regarded as an "interface" between capital and production conditions - nature, labour power and space. Thus whether the crisis is resolved in favour of or against capital are political and ideological questions.
> (O'Connor 1991: 24)

For the ecological Marxists, the struggle between capital and social movements is on two fronts, "two moments" as they would have it: the first being "the popular and nearly universal struggle to protect the conditions of production or means of life from further destruction." The second is a "struggle over the programs and policies of capital and state to restructure the production conditions" (O'Connor 1991). Both "moments" of struggle occur outside the state as well as within and against the state. In other words, the new social struggles could be described as demands to democratise the state. Thus the goal of social movements was "not to capture state power through violent revolution but to transform the nature of politics itself." (Parajuli, 1990:176).

Indian Perspectives

Parallels can be found between this goal of radical democracy advocated by the ecological Marxists at the University of

California, Berkeley (US) and the works of Rajni Kothari, Vandana Shiva and Gail Omvedt in their analyses of social movements and the state in India.

In "Colonisation and Counter-Culture," Rajni Kothari acknowledging that critique of the state in India came from both the left and the corporate right, contends that it is the former (the radical democrats) who argue that state intervention increases the gaps between the rich and the poor (Kothari, 1991:5). Consequently, their strategy for political action includes the "need to recapture the real basis of self-reliance and the basic needs perspective" that is the focus of the new social movements . In this perspective, tribal revolts, regional movements, womens movements, peasant movements, NGOs [19] all are regarded as manifestations of "non-party political formations" (Kothari, 1984). The state, unable to control these political formations is becoming more autocratic and anti-democratic. However, for Kothari, the hope for liberation and "humane governance" lies in the formation of linkages between these movements such that the state will be compelled to accommodate the demands of the social movements (Kothari, 1988). Further, the linkages between social movements is predicated on the role of communication among these movements.

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[19] According to Gail Omvedt, NGOs cannot fulfill the goal by negotiating with the state which historically protected the interests of the dominant class.

> The role of communication is to be part of struggle for human liberation, freedom and justice, strengthening the struggles of communities, cultures and of the marginalised and to make their voices heard. Communication should be a process that contains the forces of backlash and the forces of transformation and survival. (Kothari 1990:72)

While Kothari provides the general context in which the dynamics of state and social movements can be understood, more specific analyses of conflicts over nature are provided by Gail Omvedt and Vandana Shiva. [20]

The causes of ecological crisis, particularly drought, which has been attributed to natural causes (lack of rainfall) in mainstream literature, have been located in political economic analysis in the recent works of Gail Omvedt (1993) Michael Goldman (1994); Brinda Rao (1992) Bela Bhatia (1992) and Bandyopadhyay (1987). These studies argue that the water scarcity of contemporary times is very different from earlier times. It is not lack of water but the overconsumption of water and its appropriation for industry and commercial agriculture and for urban consumerist needs that has resulted in the lack of water for maintenance of life.

Gail Omvedt's work focuses on anti-drought struggles in rural areas of Maharashtra. Examining the changes brought by capitalization of agriculture, she argues that this created a pattern of increased consumption of water. This pattern of water use by the commercial farmers and the industrial and urban elite

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[20] They have been included in this category of ecological Marxists because they use a Marxist analyses to examine the structural causes of ecological disasters and crisis.

reduced the sources of water for the poor and increased the intensity and frequency of drought (Omvedt, 1993).

Analysing the history of the women's movement and the ecology movement and their relationship with the traditional left in India in her recent book, Reinventing Revolution, Gail Omvedt notes that while the left in India is best placed to provide an organisational base to the new social movements, their preoccupation with orthodox Marxist demands prevented them from pursuing those crucial linkages.

For example, one of the central concerns of the traditional left in India was land reform and providing access to land ownership for the poor. In this quest the larger ecological questions regarding what is to be done to the land once it had been won by the poor was left out of consideration by the left. (Omvedt 1993:234).

Citing an article in the Times of India (December 9th, 1990), Omvedt notes that in the southern state of Andhra Pradesh the radical leftist group, the People's War Group, promised pumpsets to the poor along with its program to redistribute the land. In this respect its solutions were no different from that of the state itself, as both the anti-state insurrectionary group and the state endorsed the overexploitation of water by offering the same solution - installation of pumpsets, which from the ecological point of view was the very cause of drought.

The ecology movement meanwhile argues that it is not enough to acquire land; real redistribution of wealth can only occur when

linkages between land and conservation of water are understood. For that matter, according to Gail Omvedt, it is not even conceptually adequate to talk about "drought-relief," as entirely new conceptual terminology is needed to understand ecological realities. This kind of conceptual and ecological sensitivity is being emphasised by some groups. Omvedt cites examples of groups that have combined both Marxist (red) and ecological(green) perspectives (Omvedt 1993:240) in efforts to eradicate drought. [21]

Market economy, nature's economy and people's economy

O'Connor's thesis that capitalism should be viewed as a process where labour, space and nature are all exploited by capital and that for capital accumulation to occur these have to be brought into the sphere of a market economy is very similar to Vandana Shiva's and Maria Mies's critique of capitalist economies. Vandana Shiva argues for a reconceptualisation of three kinds fo economy - nature's economy, people's economy and market economy (Shiva & Bandyopadhyay 1989:115).

Nature's economy is based on the production and regeneration of nature. People's economy is based on production to meet basic needs related to the survival and sustenance of life and the

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[21] Guha's categorisation of the Indian ecological Marxists includes "a variety of groups who arrived at environmentalism after an engagement with Marxism." He includes strands from the Naxalite movement and radical Christian groups such as the Peoples Science movements and the Kerala Sahitya Parishad (KSSP). While they view economic change as a priority and the basis for ecological stability, they lack a critical analysis of the role of science (Guha, Economic and Political Weekly December 3 1988: 2580).

livelihoods of people. (One example of a people's survival economy is demonstrated by studies which show that during the drought in Ethiopia, those who survived longest were those who had enduring family ties (Rosena, Miami, 1991). In the market economy, on the other hand, it is the production of capital (profit) which is the predominant concern. In pre-capitalist society, nature's economy and people's economy had a more harmonious interdependent relationship and were the dominant forms of economy. In capitalist society the market economy gains predominance. The growth of the capitalist market economy is dependent on the exploitation and destruction of the other two economies (Shiva & Bandyopadhyay, 1989:118).

In continuation of her thesis she further states,

> "In the context of the market economy, the indicators of technological efficiency and productivity make no differentiation between the satisfaction of basic needs and the satisfaction of luxury requirements....".
>
> (Shiva & Bandyopadhyay, 1989: 116)

Moreover,

> economic growth (under market economy) depends on the production and consumption of non-vital products, thus leading to further diversion of vital natural resources. For example, the water intensive production of flowers or fruits for the lucrative export market often results in water scarcity in low rainfall areas. The high powered purchasing capacity of the rich of the world can extract resources at the expense of resource scarcity and resulting conflicts for the poor"
>
> (Bandyopadhyay and Shiva 1989: 116)

Maria Mies, in her work, complements Shiva's thesis. Reiterating Shiva's general viewpoint on the commodification of

labour and nature and the conflict (antithesis) between production for life and production for profit under capitalism, Mies states that the capitalist conception of productivity appropriates nature and people's labour to produce profit (Dietrich, 1988:13). It is particularly exploitative of women's labour and that of the peasants and other marginalised groups. Maria Mies focuses mainly on patriarchy and the exploitation of women's labour under world capitalism (Mies, 1986).

The feminist perspective thus emphasises the concept of patriarchy to distinguish women as a particular group subordinated by patriarchy from the working class in general, which was identified as the principal category of exploitation by Marx. According to this perspective, it is not enough to wipe out class domination as the conventional Marxist theory argues, for it is just as essential to end gender subordination.

In the traditional Marxist formulation, patriarchy belongs to the superstructure; once women enter public production and start earning independent income, subordination of women (patriarchy) will automatically disappear. Feminists argue that this analysis is inadequate because patriarchy exists as an integral component of the very foundations of society (capitalist and others as well) and unless this component too is rooted out, no real transformation can occur.

In recent years eco-feminism has emerged with a perspective that argues that modern science and technology, which provide the material and philosophical foundations of contemporary capitalist

economies, itself is patriarchal and contributes to the exploitation of nature and women. The following section discusses the ecofeminist critiques of science relevant to womens' struggles in the Bhal that are the focus of this thesis.

Ecofeminism

Ecofeminism is a strand of feminism that stresses that domination of women and nature are interconnected. It examines the nature of correlations between the exploitation of women and degradation of nature.

In India ecofeminism has been influenced by a wide range of perspectives, from the feminist and ecological movements in India to western eco-feminism as well as by the Gandhian and Marxist traditions. [22] Within ecofeminism there are different strands, but all share a basic vision. Some of the main components of ecofeminist vision include an emphasis on non-hierarchical systems, decentralised, democratic political structures, small technologies and rural subsistence economy (Kuletz 1992:65).

An ecofeminist perspective Mary Mellor stresses, will "create a society in which political and economic decisions will be local and accountable." (Mellor 1992: 59). Ecofeminism also rejects

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[22] In the west, eco-feminist theory can be traced to the radical feminist, anti-nuclear and environmental movements of the early 1970's (Kuletz 1992: 63). Carolyn Merchant and Sherry Ortner's writings are among the first formulations of eco-feminist theory. The works of Ariel Salleh (Australia), Barbara Holland-Cunz, Elvira Scheich (Germany); Susan Griffin and Mary Daly (US) and Vandana Shiva (India) are considered to have laid the foundations of ecofeminism.

the superiority of modern science over indigenous knowledge systems, of city over village, of intellectual over manual work. Further, the idea of nature as a subject is central to the eco-feminist discourse (Kuletz 1992:71).

These ecological perspectives, however, as Holland-Cunz observes were not new. They were present within feminist perspectives long before they came to be designated as eco-feminist. To her, at the heart of feminist vision is the idea that "it is not wealth in production and commodities, in material things, and in leisure, that is important, but the richness of connections between people, emotional "wealth" and friendships and ways of communicating and building a community" (Kuletz, 1992:66). In the process of envisioning a society which was not based on material wealth, ecological concerns were introduced.

The socialist strand of eco-feminist analysis which draws a connection between ecological degradation and capitalism, patriarchy, and modern science comes closest to the ecofeminist perspective emerging in India.

Indian perspectives

Vandana Shiva, who is among the most articulate theoreticians of the ecofeminist position in India, argues that modern science, which forms the epistemological basis for capitalist economies, is essentially reductionist. Modern science, she contends is a "patriarchal project, which excluded women as experts, and simultaneously excluded ecology and holistic ways of knowing which

understand and respect nature's processes and interconnectedness as science." (Shiva 1988 :14-15). Science introduces an instrumental view of nature and destroys diversity in knowledge systems and replaces it with "monocultures of the mind."

Women in India have a knowledge of nature, which was marginalised with the interventions of modern science. In the restoration of respect for indigenous knowledge, Indian ecofeminists were similar to the Gandhians. But what distinguishes them from the Gandhians is their emphasis on women as the authentic carriers of indigenous knowledge regarding how to nurture nature's regenerative capacities. It is this which needs to be revived.

Ecofeminism's characterisation of women's knowledge as being distinct and its thesis that women have a unique relationship with nature when compared to men have been criticised as being essentialist by the Marxist-feminists. [23]

Marxist-feminism

Marxist-feminists attempt to use Marxist analysis of capitalism to explain subordination of women (Delphy 1984: 158). In India in this category one could include among many others the works of Gail Omvedt, Maria Mies, Chaya Dattar and Bina Agarwal. We can take the latter's views as an example relevant for

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[23] Theoretical connections and differences between ecofeminism and ecological Marxists are the source of numerous debates in the journal Capitalism Nature and Socialism.

our discussion.

In her critique of the ecofeminist position, Bina Agarwal rejects the ecofeminist emphasis on the uniqueness of the "feminine principle" to explain the relationship between women and nature. To accept the ecofeminist thesis Agarwal argues would be to ignore the class differences among women and the material basis of the relationship between women and nature. A more useful understanding of the differences in relationship and attitudes between men and women towards nature in India requires a political economy analysis (Agarwal, 1992).

Bina Agarwal's critique of ecofeminism advances on two fronts. Firstly, ecofeminism ignores differences of class and caste and sees women as a unified category and hence it is essentialist. Secondly, ecofeminism as developed for example by Shiva incorrectly attributes exploitation of women and nature exclusively to the colonial context and its corollary the dominance of Western science alone, ignoring the existence of inequalities in pre-colonial times. For example, there are several instances where social hierarchies in rural communities are enforced through differential access to water based on caste. [24] By locating the problem in the confrontation with the West, Shiva leaves out the local sources of power.

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[24]. One article points out how in a village called Munai in Gujarat dalit women are denied access to wells of the upper caste. They could not even cross the land of the upper caste Patels to reach other wells. When they were allowed to take water from the wells of the upper castes, they had to collect the water which spills from the buckets of upper caste women (Trivedi, 1988).

Is there a Feminist Green Socialism [25] in India which recognises the multiple experiences which mediate women's relationship with nature and the state? The works of Bina Agarwal and Brinda Rao (1992) seem to combine considerations of class, gender and state in their analysis of ecological degradation in India. Their work belongs to the same category of writers who have engaged in recent debates over common property resources (Seabrook and Pereira 1992; Gadgil 1988; Kaul, 1993; Gupta 1992; Chopra, 1992). They all emphasise that the alienation of communities from their resources was the beginning of deterioration of all these sources. Transfer of ownership of village commons - water, land and forests from the community to the state led to the undermining of local knowledge which were the basis for survival of communities and their ecologies.

Among the main factors which contributed to environmental degradation in India, Agarwal (following the Marxist emphasis) gives predominance to the role of the Indian state. Establishment of state control over village commons through colonial policies restricted local people's access to common property resources. Privatisation of the commons further contributed to this trend. Colonial law was used to legitimise private property and individual (male) ownership. Thus the state policy of privatisation acted to benefit certain groups (Agarwal 1992: 131).

Decline of community management is another major factor in

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[25] Term used by Mary Mellor (1992) in her article in Capitalism, Nature and Socialism.

Agarwal's analysis. When ownership was transferred to state or private hands, local institutions and systems of resource use and controls disappeared. This subsequently led to the decline of community management systems and further contributed to the degradation of the commons.

Exposing the negative consequences of the introduction of agricultural technologies and the monopoly of reductionist "science" is yet another component of the Feminist Green Socialist thesis. In the confrontation of "knowledge" between modern western science and indigenous knowledge systems, a hierarchy of knowledge was established where traditional forms of knowledge were regarded as inferior to western forms and those who represented the former knowledge system were marginalised and excluded from the mainstream of 'knowers' (Agarwal 1992:136).

Agarwal adds a gender analysis when she attributes the subjugation of women to the privatisation of the commons. In general, women did not receive ownership of land but men did. The growth of commercial agriculture benefits the owners of land who are predominantly male. Further, because securing the basic needs of the household using the commons is the primary responsibility of women, the degradation and depletion of the commons affects women more than men. Women who have limited access to land and technology share this deprivation with other subordinate groups forcing them to be more dependent on the commons. For example, it is the rural poor who are more dependent on rivers, streams and ponds (surface water sources) for their drinking water and

agricultural needs (Agarwal 1992:129), while the rich can tap underground reserves.

> Given their limited rights in private property resources such as agricultural land, village commons have always provided rural women and children (especially those of tribal, landless, or marginal peasant households) a source of subsistence, unmediated by dependency relationships on adult males (Agarwal 1992:137).

The depletion of communal water resources in particular affects women more. Since women are the main carriers of water, depletion of water sources means that they have to walk longer distances and thus it is "their (women's) working day that is lengthened" (Agarwal 1992:138).

Brinda Rao reinforces Agarwal's thesis in her analysis of the role of the modern state in the water crisis in the state of Maharashtra. In her article "Struggling for Production Conditions, Producing Conditions for Emancipation: Women and Water in Rural Maharashtra (1990)," she highlights the patriarchal nature of the state in prioritising use of water for economic growth over drinking water for domestic consumption. She contends that this privileging of irrigation and industrial uses of water is the product of a patriarchal mindset. Supply of drinking water, because it is based on exploitation of poor women's labour, assumes low priority in a male-dominated economic planning which focuses on external oriented growth.

The following instance is a good example of how women are correcting these misplaced priorities and in the process challenging the structures of patriarchy. In Janli Tanda, a remote

village in Gujarat, women protested when they discovered that water from a new well to be dug in their village would be utilised by their men for irrigation. The women revolted and protested in the village panchayat and in front of government officials, finally winning their demand that the water first be used for supply of drinking water (Trivedi, 1988:21). Such examples, which have been particularly common in recent years demonstrate how women are protecting their gendered interests.

Another example is provided by Michael Goldman (1992) who notes that the introduction of chilli peppers - a water thirsty cash crop in the Jodhpur district of Rajasthan - led to dramatic restructuring of social and economic life and the increased exploitation of women.

The legacy of Gandhi is particularly relevant for our case-study not only because it is set in rural Gujarat but also because agrarian problems were central to Gandhian concerns. The struggle of the women in the Bhal can be interpreted as a struggle for self-reliance on the part of village communities - a goal which was central to Gandhi's vision of India.

Gandhian Legacy

> Gandhi was not a critic of the modern West; he represented a whole class of critics of the modern civilisation. And, like many others in the class, he can be interpreted or re-interpreted in more than one way. To deduce one final supervening Gandhi from his life and work would be both anti-Gandhian and self-defeating.
>
> (Ashis Nandy 1981: 173)

Among the different intellectual traditions that influenced the thinking on human-nature relations in India, the Gandhian tradition is predominant. Because of his critique of industrialisation and modern science Gandhi perhaps had more influence on the Indian Greens than Marx (Omvedt 1993).

Contrasting the Gandhians [26] with the Marxists, Gail Omvedt states "these (the Gandhian) scholars are challenging not merely political and economic structures such as capitalism but the foundations of modern civilisation" (Omvedt 1993 :145).

While the Marxist critique focuses on the capitalist system and its mode of capital accumulation based on exploitation of alienated labour, Gandhian critique focuses on industrialism. Gandhi traced alienation to industrialisation - the machine age itself rather than to institutions like capitalism. To Gandhi, industrialism itself was anti-nature and anti-man. Modern science

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[26] Gandhians constitute one category of critics of modern civilisation, who also include the Theosophists, the Swadesi advocates, the Traditionalists (represented by Coomaraswamy),the Intermediate technologists (represented by Allan Octavian Hume, Fredrick Nicholson) and the Neo-vitalists (represented by Patrick Geddes). All these groups were engaged in the debate on modern science and technology which was the basis of a critique of modern civilisation.

which was the basis for industrialisation, facilitated man's domination over nature. While such a domination may have been consistent with a Western world-view which placed man over nature, it was antithetical to an Indian conception of nature in which nature is not regarded as merely inanimate and inert but as both alive and sacred. This conception, which was basic particularly to the Indian rural ethos, began to disappear with the introduction of modernisation and the adoption of modern science and industrial culture. In an important sense, with the coming of industrialisation, a change in values occurred whereby the earlier relationship between human beings and nature was inverted. Earlier nature was placed above human, now, humanity's conquest over nature becoming the reigning paradigm.

According to Ashis Nandy, the Gandhian point of view could be described as a "critical tradition" that is not a rejection of modernity as a whole but of a theory of linear progress that asserts that industrialisation is the **only path to** increased productivity and economic growth. Gandhi's critical tradition is "not so much a rejection of modern technology on grounds of what it was, but on the grounds of what it replaced, represented or symbolised" (Nandy 1981:176). Modern science led to the destruction of indigenous conceptions of nature along with local cultures, traditions and knowledge systems. (Viswanathan 1989:17). Local knowledge was "empirical, concrete, embedded in a local matrix of nature and tradition" (Viswanathan 1989:18). It adapted itself to suit the needs of the local ecology.

Gandhi visualised a village-centred, decentralised economy for India. His vision was represented by Kumarappa, a Gandhian economist who in the 1930's criticised modern civilisations for disembedding the economy from its ethical and cultural context. A decade later, similar criticism was articulated by Karl Polanyi in The Great Transformation (1944), which became the basis for the ecological Marxist debate in the United States. It is this concept of the embeddedness of the economy in the society which provides the meeting ground between contemporary Gandhians and ecological Marxists.

Regenerating space, regenerating power

Majid Rahnema in his article, "Power and regenerative processes in micro-spaces," points out the Gandhian emphasis on the need to build on the power of rural communities to regenerate village communities (Rahnema 1988: 366). It is this aspect which is most relevant to this case-study. The rebuilding of village communities, the regeneration of communal space, (the third condition of production according to O'Connor's thesis) can be seen as an implicit aspect of the struggles of women in the Bhal. Village communities in the Bhal can be viewed in Rahnema's terms as "micro-space." In these micro-spaces, there are at least two forms of power - formal and informal power. "Unlike the power of the rulers, the power of the people is less visible and more difficult to mobilise. It is also more difficult to destroy or co-

opt this power. It is through the creation and the enhancing of these forms of power that the common people, the women the peasants and the marginalised... and the subjugated of all kinds have been able to overcome many of the formal obstacles and structure to their lives " (Rahnema 1988:366).

This chapter examined the different theoretical perspectives that help situate the actions of the women's groups in the Bhal in the wider context of the politics of water in India. The next chapter examines the historical context in which to situate the relationship between the village communities, their water systems and the state in India.

Chapter Three

Deconstructing "memories" of the past and "visions" of the future

The relationship between state, water systems and village communities.

> In a brochure designed by the Sardar Sarovar Nigam Limited, the state agency which is in charge of constructing one of the largest dams in the world - the Sardar Sarovar dam- there is an ad, which contains two pictures. The first is that of a drought-prone, cracked land entitled, "Memories of generations gone by...." This is followed by a second picture with lush green fields, trees and neat little houses with a dam in the background entitled, "Visions of generations to come : Sardar Sarovar - the life-line of Gujarat."

> Sometimes it is as if that was all a dream. Waking up on my land, working a few hours, watching the sun rise, waiting for the crops to grow. There is no time now. I wake up at 5 a.m.,go to the mines, take a one-hour break in the afternoon, then work until dark, and all the time I'm afraid that a boulder will fall on me and crush me. But that is my future.
>
> (India Today, Sept.15, 1987:11)
>
> Jitta Ram (a peasant who after the drought of 1987 left his 100 bighas of land in Rajasthan and migrated to Delhi to work in a stone quarry)

This chapter outlines the relationship between the state, water systems and village communities [27] in India during three different periods in history: the pre-colonial, colonial and post-independence periods. It highlights key changes in state policy,

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[27] The use of the term "community" can be limiting since it ignores the distinctions based on caste,class and gender within the village community. While these are important distinctions, my focus in this chapter is more on the external relations of village communities with the state rather than on internal divisions.

bureaucracy and technology that have contributed to transforming the relationship between communities and their water resources. It describes some of the political and ecological implications of these interventions. In exploring the connections between "memories of the past" in the form of indigenous water systems and "visions of the future," which are represented by modern water systems, my effort is to understand the role of key social actors who have contributed to the water crisis in contemporary India.

As human societies "evolved" from nomadic to agrarian societies, water became a central factor in both the growth and decline of human civilisations. From civilisations which developed along major rivers to small village communities which grew around village ponds and tanks - it is the presence of water which has enabled human settlements to grow. All over the world people have developed a variety of imaginative systems to capture, store and control the use of their water. These early "indigenous" systems were particularly common and important in dry and arid regions and even today can be found in different parts of the world. For example, up until 1932 Teheran was entirely supplied by natural tanks, about 40,000 of which still exist in the Middle-East. [28]

In India, indigenous techniques for capturing, storing, conserving and controlling the use of water for agriculture as well as for drinking have ancient origins. Tanks, wells and step-wells provided the most widespread and sustained source for both

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[28] From Andrew Stone's talk at the AWRA (American Water Resources Association) symposium, June 30th, 1993 in Seattle, Washington.

drinking water and for irrigation in both rural and urban areas. Decisions on how to manage these systems were primarily governed by the concerns of the community. The legal and political structures that existed in earlier times gave enormous power to the communities, particularly the village communities (Sengupta, 1985; Reddy, 1990; Shankari, 1991).

Pre-colonial Period: Water - A Common property of the village community

Traditionally in India water, along with land and forests, was a part of the village commons. The protection and sustenance of the commons, particularly the water systems, was an important cultural and social responsibility of village communities. Several writers have pointed out the ways in which indigenous water systems played a critical role in the survival of village communities, not only in the arid regions of North-western India such as Rajasthan and Gujarat but also in various parts of South India (Goldman 1994; Agarwal & Narain 1993; Shankari, 1992). The relationship between the communities and their water systems was one of mutual inter-dependence with political institutions such as the state performing an important supervisory role. Water works have been, since very early times, an important enterprise funded both by the native rulers as well as the Mughal rulers.

According to Indian customary laws, be it Hindu or Muslim, the "ownership" of water could be of three types : private, state or community ownership. The pre-colonial customary laws in India

placed community rights over water above individual rights. However, while the community had the right to access water, it did not have the right to transfer or alienate the common land or its water sources (Shankari, 1992; Agarwal & Narain, 1993; Goldman, 1994). These water laws, according to Chattrapathi Singh, "were one of the strongest laws in India and were clearly annotated and practised (Singh, 1971).

The indigenous water systems in India primarily concentrated on, and were content with, capturing water where it fell (as in the case of tanks, ponds and other rainwater harvesting systems) or using the natural flows of water (as in the case of inundation canals on rivers). They were designed with local technologies and locally available material and worked to capture, conserve, and distribute rainwater (Rosin, 1993:1) . A variety of water systems ranging in complexity from simple hand-dug wells to gigantic sophisticated anicuts were developed in various parts of the country to suit the varying needs of communities and the different climatic conditions. Even today, a large number of indigenous systems such as tanks, ponds, hand-dug wells, step-wells, roof-water collection systems and inundation canals can be found in various regions throughout India.

The source of water for the traditional systems was predominantly rainwater, surface or subsurface water. At a time when subsurface water was easily available, most hand-dug wells did not go below fifty feet and the water-lifting devices were manual devices utilizing pulley wheels or animal power limiting the amount

of water that could be drawn (Sen Gupta, 1985: 1921). The limited capability of these water lifting technologies had an inherent advantage of conserving water (perhaps a virtue generated out of necessity which can be contrasted with the inherent wastefulness of modern technologies - a vice generated out of capacity).

Maintenance of indigenous systems

Role of state

According to Wittfogel, in hydraulic civilisations, management of water works was one of the three most important functions of the state next only to finance and military defense (Wittfogel, 1957). India fits this model of a hydraulic civilization. The state played an important role in initiating the construction of water works which also provided an important source of revenue for the state. For example, in Asia Before Europe, K.N. Chaudhuri notes that in 1356 when the Mogul Emperor Firuz Shah financed the construction of irrigation canals to supply the town of Hisar (40 miles from Delhi) and to irrigate the villages around it, he not only received the additional revenue from the new lands which were brought under cultivation, but a 10% water-tax called 'sharb' (Chaudhuri, K.N. 1990: 243). While, revenue generation was an important consideration for financing water works, the state in pre-colonial times provided for the maintenance of drinking water systems such as tanks through institutions like "dasabandam inams" which disappeared with the coming of the British. (Sengupta, 1991)

Community management

While the state financed the water works, the maintenance of these water works was largely a responsibility of local communities who developed their own institutions, traditions and rules to protect, maintain and distribute water. Uma Shankari (1991) outlines one example of a system through which communities used their own labour force to maintain indigenous systems in their villages. The maintenance of water works like tanks was done through the collective labour of the village; each family that benefited from irrigation contributed a certain number of persons to clean the channels and tanks . Farmers were not allowed to divert the water for their private use, and people who violated these local customs were penalised.

In some regions, elaborate institutional and organisational arrangements were made for the allocation of water. The office of "Neerkatti" or "water binder" in the villages of the Chitoor district in Andhra Pradesh provides an interesting example of one such arrangement (Shankari, 1991:117). A "Neerkatti" traditionally performed the role of a valve operator on a modern pipeline, with some important differences. He was in charge of opening and closing sluices to let water into farmers' fields. However, unlike the contemporary valve operator, who is a part of an impersonal government bureaucracy , "Neerkatti" was a hereditary duty performed by specific castes within the village . The Neerkatti along with other village functionaries decided the kind of crops that could be grown depending on the availability of

water. The distribution of water to the fields was based on priorities of the community with regard to crops. (Shankari, 1991:119). For example, usually the first preference of the community was to accord priority to water for paddy growing and not for cash crops. The paddy fields of all the farmers had to be watered first before releasing water to other crops such as sugarcane (Shankari, 1991:117). This process ensured that food crops remained a priority in the allocation of water. But institutions such as the "Neerkatti" came to be disregarded, as British rule substituted new bureaucratic regimes, discarding the traditional village-based systems. The sanctity of food crops claiming priority was dispensed with.

Thus, many of the socio-political, legal and ecological conditions that existed in pre-colonial India provided for a measure of balance between the state and village communities. This began to shift with British rule, when the state began to play a more active interventionist role in transforming the control of village communities over their water resources. The colonial interests in using water systems for revenue generation were placed above those of the village and community's control over their water resources; local practices and indigenous systems for distribution of water were systematically undermined.

Colonial legacy: Destruction of community ownership

In a nutshell, the colonial legacy in India with regard to water resources could be described as an assault on communitarian control through a process that was part privatisation and part state monopolisation .

At the time Britain established colonial rule in India, the two countries were undergoing very different kinds of developments with different priorities in water use. India was a developed agrarian society with diverse and complex indigenous irrigation works and other water control systems throughout its huge territory. Like most agrarian societies, India's dependence on nature generated systems and technologies which required not only a better understanding of the linkages between rainwater, surface-water and groundwater as well as land, forests and water, but also a respect for the natural limitations of these relationships, a respect that industrial societies do not exhibit. This attitude was embodied in a worship of nature, which was common in India as in most agrarian societies.

In contrast, the industrial age in Britain produced a new arrogance, an illusion of unlimited human potential to control and to conquer nature. This is well captured in Churchill's speech in 1899 when he said:

> I am looking forward to the day when engineers would build dams that are big enough so that not one drop of the Nile would reach the Mediterranean (Stone, 1993).

A disposition for aggressive intervention and indiscriminate

exploitation of nature became a characteristic feature of modern water systems with a corresponding disregard for natural cycles and ecological processes.

Britain was in the process of undergoing the industrial revolution and developing into an industrial society. Its agriculture had never been dependent on irrigation in the way Indian agriculture was. Hence, even in its agrarian phase, British agrarian community structures and their attendant water systems were less diverse and complex than those in India. The British colonial contempt for indigenous systems and its unwillingness to appreciate and accept the superiority of indigenous techniques of water management, combined with the British emphasis on large revenue-generating water works led to the neglect and decline of indigenous water systems. (Sengupta, 1985: 1919).

Neglect of indigenous systems

Whereas the previous regimes in India helped support and finance the construction and maintenance of traditional water systems, the state under British rule paid scant attention to these systems. Arthur Cotton, the founder of modern irrigation in India writes:

> There are multitudes of old native works in various parts of India... These are noble works and show both boldness and engineering talent. They have stood for hundreds of years. When I first arrived in India, the contempt with which natives justly spoke of us on account of this neglect of material improvements was very striking; they used to say we were a kind of civilised savage... so inferior to their great men, that we would not even keep in repair the works they had constructed, much less even imitate them in extending the system. (Cotton, 1874:23-27)

In many instances, in various parts of India the native rulers were more actively involved in the construction and maintenance of indigenous systems than the British. There was a striking decline in the irrigated area served by indigenous systems in the British- held territories and an equally striking increase in tank-irrigated land in parts of India ruled by native princes. For example in the late 19th century, in the British occupied area of the south, the Madras Presidency, the cropped area which was covered through tank irrigation declined from fifty percent in 1882-83 to ten percent a decade later while in the princely state of Hyderabad the tank irrigated area increased from 4,000 ha in 1895-96 to about 55,000 ha by 1905-06 and 364,000 ha by the late 1940s. (Indian Institute of Ecology, 1992:5). Further, institutions such as the "dasabandamdar inams" were abolished under the British and maintenance of tanks was directly linked to revenue.

Not only did the British not attend to the water systems which local people, particularly the rural poor, had traditionally depended on but through the innovations made in law and technology, the colonial regime laid the basis for the degradation of ecology and community in such a way that it actually deprived the indigenous systems of their sources of water.

The Indian Easements Act - privatisation of ground water

British law violated the pre-existing Indian traditional legal norms by destroying community ownership of the commons and transferring the ownership into the hands of the state. It conferred the ownership of both surface water (rivers, lakes, streams) and ground water to the state and private ownership.

The Indian Easements Act of 1882 marks the first radical shift in the way water was conceived and regulated. It laid the basis for the private ownership of water and legitimised the unhindered appropriation of ground water. It states:

> a landowner has the right to appropriate water percolating in no defined channel through the strata beneath his land; and no action will lie against him for so doing, even if he thereby intercepts, abstracts or diverts water which would otherwise pass to or remain under the land of another. (Bhatia, 1992:64).

The Forest Act of 1894 further legalised the right of the state to acquire land and along with it the water resources from communities. The colonial state created different departments - forests were entrusted to the Forest Department, and water was handed over to the Public Works Department (PWD). Various other departments emerged to take care of the diverse uses to which water was put.

State Monopoly

The new laws and the regulating bureaucracies changed the very way in which 'water' was conceived previously and established a state monopoly over the use of water. The specific legal terminology used reveals the magnitude of the change. The state gave itself the power "to acquire water sources; to convert the use of water and to divert its flows" (Ramanathan, 1992: 11). And this was done without regard for the communities which surround the water bodies. This is a continuing concern today and is one of the central themes of this thesis.

Subsequent changes in the political economy, which will be outlined below, illustrate how the power and ability to acquire, convert and divert water passed out of the hands of the village communities into centres of power newly created by industrial, commercial and urban interests. Correspondingly, the pre-existing diverse, **decentralised**, small, village-based indigenous water systems were downgraded and were displaced by **large centralised**, modern water systems. This paradigmatic change perpetuated itself, aided by industrialisation, innovations in technology, and the modern bureaucratic system. It is no wonder that this pattern continued in the post-independent India where it found further consolidation in the economic priorities of the modern state. Some of the key aspects of this process of consolidation will be illustrated by considering the acquisition of water sources, conversion of use and diversion of flow in the period before and after independence.

Diversion of Rivers : The beginning of 'social engineering' of rivers through Dams

I constrained the mighty river to flow according to my will and led its water to fertilise lands that had been barren and without inhabitants.

- Queen Semiramis of Iraq
(Stone, 1993)

Large concrete dams marked the beginning of this new phase of using technology and modern civil engineering science to control the flow of rivers and to engineer large-scale diversions of river water. The earlier (indigenous) systems, which were content with capturing water where it fell or where it naturally existed, had played an important role in recharging ground water and regenerating the natural water cycle. These indigenous systems are ecologically sensitive, based on recognition of the cyclical nature of ecosystemic processes. However, the new systems, particularly those involving large dams, which were initiated under the British, interrupted the natural water cycle in a major way by altering and diverting the flow of the rivers and altered the natural drainage pattern of the river. According to critics, this could eventually dry up the dammed rivers. (Shiva, 1988) Also, the creation of reservoirs to store water requires large scale deforestation along the river banks decreasing the capacity of soil to hold water during monsoons, resulting in increasing run-off causing floods in some areas and droughts in other areas (Bandopadhyay, 1987:2160).

Britain's need to grow commercial crops such as cotton to feed the British textile industry (which was suffering a setback because of the decline in cotton imports from America during the Civil War) and the need to generate more and more revenue from Indian agriculture were the prime incentives behind the steady expansion of large irrigation works under the British. Thus the industrial growth of Britain was made possible through the destruction of indigenous systems of irrigation and water works and the increasing commercialisation of Indian agriculture.

The principal actors in the modern water systems were the civil engineers trained in the engineering schools set up under British rule. Soon, the planning, design and execution of the new water works was entrusted to this new batch of civil engineers, and the local communities ceased to play any role thereafter. However, it is important to note that in times of water crisis, even the colonial regime had no alternative but to fall back on the indigenous systems. After the trauma of the famines, whose incidence grew during the British period, even the exploitative colonial regime had to wake up and put in place a famine policy. Part of the strategy was to revive the community traditions of maintenance of water works. During the Bengal famine, the Compulsory Labour Act was introduced. It required every able-bodied male in the village to provide labour in times of emergency when breaches in embankments threatened to flood villages. In this way, the colonial state introduced legislation to enforce a practice

which earlier by local custom had been executed by "joint labour of the village community." (Ramanathan, 1992:13). "Kudimaramat," which literally means **"repair of wells,"** is another such institution which was revived.

Drinking water

It could be argued that the colonial regime laid the basis for a new hierarchy of needs whereby the state's interests in using waterworks for commercial agriculture to generate state revenue superseded the state's obligations to protect the basic needs of citizens for drinking water and growing food. Most of the colonial water laws related to aspects of revenue generation (Ramanathan, 1992). It must be acknowledged , however, that there were rare instances when the importance of protecting drinking water systems was acknowledged in law. The Bengal Irrigation Act of 1876 states that :

> **if any supply of drinking water was substantially deteriorated or diminished by any works undertaken, the remedy was not compensation, but an adequate supply of good drinking water within a convenient distance** (Ramanathan, 1992:14).

It is beyond the scope of this thesis to examine whether this principle was upheld in practice during the colonial regime, however it would be pertinent to raise the question whether the state could and would remedy a problem that its own irrigation policies and practices have created. Moreover, even if the visible physical deterioration of water systems could be remedied, could

the larger ecological damage resulting from the changes in the political economy be reversed? Furthermore, the fact that the damage was not confined to indigenous water systems but also led to a decimation of the social support systems should be remembered.

Water for Electric Power

As the pace of India's industrialisation increased in the inter-war period (1920-1940), there was a corresponding emphasis on generating electric power, and water was seen as a "cheap" source of energy. Thus emerged a new mindset. Water was used to produce power and later power was used to "produce" water. This cause-effect relationship is worth illustrating.

With industrialisation, the pattern of water use increasingly tilted towards urban and industrial use. Large river valley projects were initiated to meet the demands of industrial production. One of the first hydro-electric projects was launched in 1914 at Bhore Ghat by the country's biggest industrial interests, the Tatas, to meet the urban industrial needs of Bombay city (Mankodi, 1989). However, not all the concerns of the state at that time were for industrial production as occasionally there were significant reversions to traditional priorities.

Famine and Water for Food

After the 1942 Bengal famine and the Bihar famine of 1957, "insufficiency of food and lack of control of water were seen as the two great factors for underdevelopment" by India's planners (Anderson, nterview August,1993). The concern to increase food

production and to control floods also provided the initial impetus for large river valley projects.

At the time India gained independence, in 1947, American engineers were being consulted to construct the first major dams in the country and "investments in multipurpose river valley projects which fulfilled the need for massive amounts of cheap industrial power, food production and flood control were being seen as inevitable" (Anderson, interview, August 1993).

Post-Independence India : The dominance of technology and bureaucracy and the emergence of a water crisis

Independent India inherited the legal system of its colonial masters, and no significant changes were made with respect to water laws after 1947. Maintaining the colonial laws ensured that control of the commons remained under the state. Ground water use continued to be governed by the Indian Easements Act of 1882 and the Forest Act of 1894 in the post-independence period. Adopting the policies of a welfare state meant more active state intervention in the use of land and water resources, with the difference that now the state could acquire these resources and set the priorities in the "interests of the public." (Ramanathan, 1992). Thus the welfare state became the regulatory body which undertook to regulate water use. The emphasis on modernisation of agriculture and industrial growth continued however, leading to irreversible changes in the relationships between state,

communities, and their water systems and priorities of water use. Tension between the needs of the village communities and the priorities of the state increased. Modern water systems solely emphasised production unlike the indigenous systems which manifested their designers' concerns about protection and sustainability of water resources.

By this time, Gandhi's vision of decentralised village self-rule based on small-scale industries had already been set aside. Prime Minister Nehru's vision, which was clearly influenced by Western notions of "progress," was premised on the use of science and technology for modernisation of agriculture and industrial growth. Large river valley projects were launched as symbols of modernisation and commanded a powerful appeal with planners and policy-makers. As a result, India today has the "distinction" of having built the largest number of dams of any country in the world. In the pursuit of this new vision, the flow of almost every river in the country was altered.

The " green revolution" in the sixties was also the product of this vision. It involved a major shift from traditional agricultural practices to modern cultivation methods and was based on intensive use of new seeds, fertilisers and mechanised irrigation. These changes pushed India into an irreversible path of capital-intensive irrigation. There was an increased dependency on agricultural inputs.

Thirsty seeds and soil water

During the green revolution new varieties of seeds, the High-Yielding Varieties (HYV), or "miracle seeds" as they were popularly known, were introduced to improve crop yields. Vandana Shiva, in a study, entitled The Violence of the Green Revolution: third world agriculture, ecology and politics (1991), points out that, while they did increase food production, they also increased a dependency on external inputs. Shiva aptly calls them "thirsty seeds" - thirsty for capital, fertilisers, pesticides and water. The thirst for water is so great that, according to Bandopadhyaya (1987), in the absence of irrigation water these new varieties quickly consume the moisture in the soil they grow in, thereby degrading it and creating a new kind of drought - a soil-water drought.

Power for Water : Tube-wells and the surface-ground water connections

With the availability of hydroelectricity made possible by river valley projects, there was a growing use of electricity to tap underground water. While earlier only the visible sources of water -rainfall, surface (rivers, lakes, ponds) and subsurface water (wells) were put to use, the availability of electricity now made it possible to tap the invisible sources of underground water. Electricity could enhance the power of water pumping technologies. Thus while water was being used to generate power through hydro-

electric projects, in turn, water power was being used to extract water from deeper and deeper reserves.

The perceived advantages of on-the spot extraction of water encouraged this practice. Ground water was seen as a "cheap" and "efficient" alternative source of water compared to the major irrigation works. This perception led to a steady expansion of ground water irrigation (Bhatia, 1992 :21). Electrification of villages led to a rapid electrification of pumpsets and tube-wells (Bhatia, 1992 :23).

B.B. Vohra outlines the perceived advantages of ground water: "...ground water requires no expenditure for storage and transport, and can be harnessed by the farmer with his own efforts...it also involves no environmental problems...it is a resource entirely under the farmer's control and requires no huge and corrupt bureaucracies before it can be put to work.." (Vohra, 1987) [29].

This kind of optimism regarding the "potential" of ground water was characteristic of the early 1980's. It was not until recently that the economic and environmental consequences of ground water exploitation were realised. When tube-wells failed to yield water, concerns about ground water shortage began to be expressed. [30] Throughout the 1980's the state and financial

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[29] B.B. Vohra writes extensively on ground water issues. He was the first chairman of the Central Ground Water Board.

[30] This was reflected in the tone at the National Bank for Agriculture and Rural Development (NABARD) and Central Ground Water Board (CGWB) sponsored conference on "Ground water development" in

institutions encouraged the "development" of ground water by financing tube-wells through cheap credit policies and subsidised electricity.

Nevertheless, however cheap electrical power and tube-wells might be, this new source of water was accessible only to the few wealthy farmers compared to the majority of small farmers. Describing the impact of the increase in tube-wells, Bandopadhyay states:

> While drought is getting mitigated for the farmers growing cash crops, energised pumpsets are creating new drought for marginal and poor peasants by drawing down the water table to below their reach (Bandopadhyay, 1987).

Thus, what really happened is that the few who had access to capital could drill tube-wells and they came to control this new groundwater source both in the rural and in the urban areas.

Capital for water

As the water table declined, the competition for deeper and deeper tube-wells and for water grew. In India today, an average tube-well involves nothing less than a capital investment of Rs.40-50,000 (which is beyond the reach of the majority of people). The larger the capital investment, the deeper the well and the greater the quantity of water one could own. Thus began a whole "chase

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Delhi in December 1994 where concerns about excessive pumping of ground water was being expressed. This, according to some observers, was a sharp contrast to the earlier conferences of the Central Groundwater board.

for the water table." [31] "Water became a fugitive" in great demand,[32] a resource, a commodity.

A less visible but related effect of this trend is described by Uma Shankari. She describes the impact of the introduction of bore-wells on indigenous water systems and notes how in the villages of Chitoor district of Andhra Pradesh in south India, there has been a phenomenal growth of bore wells; but it has been only the rich farmers who could afford to drill these wells. Once the rich farmers had access to an alternative sources of water for irrigation, they lost interest in the problems relating to the traditional sources of water. In India where ten percent of the population owns fifty-five percent of the land, it is the rich ten percent who also own fifty percent of the new irrigation facilities. In the pre-colonial period it was this class of farmers who initiated the activity of maintenance of indigenous water systems - an instance of enlightened self-interest. But, their present lack of interest about the deterioration of the traditional systems has generally resulted in these practices being discontinued.

On a larger scale the state itself is borrowing capital from international institutions like the World Bank to finance water works. Most of the water projects in India, both for irrigation and

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[31] This term is borrowed from Marcus Moench's article, "Chasing the Watertable: Equity and Sustainability in Groundwater Management" Economic and Political Weekly December 19-26, 1992. It describes the phenomenon of groundwater exploitation in Gujarat.

[32] Bela Bhatia, an activist at the Shramjivi Samaj (agricultural labourers union), in a personal interview.

for drinking water are being funded by international capital. To what extent these agencies are accountable for their interventions or even exhibit an interest in protecting the sustainability of water sources can be gathered from a comment made at a recent conference on ground water development in Delhi. The World Bank representative commented that it was not the "creditors' responsibility to recharge the water table." [33]

Associated with this trend, one can observe another perverse dimension. It has become more profitable to invest in bore-wells and electric pump-sets than to own land or practice agriculture. More and more enterprising farmers have taken to the selling of surplus water that the new technology makes available. Water is thus being turned into capital.

Water Markets

In recent years in arid regions, water has become a major source of profit, a commodity to be bought and sold.

> The "water market" at Sayalgudi is a sight to behold. At any given moment 10-12 ox carts carrying huge barrels draw water from the public kanmoi (the giant irrigation tanks) for sale. Water traders dig wells, deepen the existing ones in the bed of the public kanmoi and are charging 30 paise a pot for drinking water. Another set up bathing ghats in the kanmoi charging 50 paisa a bath. The collector go the local panchayat to take over the bathing ghats.The water lords within a week proclaimed they "owned" the wells within the public tank in Sayalgudi..
>
> Three people "own" the 13 private wells sunk in the tank bed... At the rate of 30 paise a pot and at the rate of 500 pots a day per well, the three earn Rs.60,000 a month.
>
> Times of India, June 23, 1993

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[33] This view was expressed by a World Bank representative at a conference organised by the Central Ground Water Board in December 1993 in New Delhi.

The capacity of these entrepreneurs to use water to accumulate capital is enhanced by state subsidies on electricity to farmers who use it to draw water to sell. They are the new "water lords" more affluent than the landlords (Times of India, June 23, 1993). This process can be seen as the establishment of new linkages between the state, capital and water. The old and traditional connections between communities and their water resources are thus being supplanted by new market mechanisms, which are now intervening to mediate the relationships [34].

Land-water connection: Loss of water loss of land

The vicious cycle of tube-wells, over-exploitation, drought and debt is illustrated in an example from the state of Tamil Nadu. Once the borewells appeared, the dug wells of the small farmers started drying up. The rich farmers then sold the water to the small farmers entrapping them in debt; unable to pay their loans, they sold their lands. In the village of Kovilpatti, farmers recall a time when many owned at least three acres of land, whereas they now own only one third of an acre due to this process. Small farmers lost forty to fifty acres to large farmers (Sainath, P. 1993) . Thus, not only the water under the land but the land itself is being appropriated by large farmers.

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[34] Proponents of water markets, like Tushaar Shah and Marcus Colchester argue that in cases where the state has not been able to regulate the distribution of water, the market is a better mechanism tc act as a regulatory body to distribute water.

Commodifying thirst

While in the rural scene, water is made artificially scarce, in the urban context the need for drinking water is artificially diminished. The connection between the two phenomenon is well brought out in the critique that Vandana Shiva levelled against the importation of Pepsi Cola (Shiva, 1990:134).

The growth of soft drink companies like Pepsi was made possible by the shift in agriculture towards water-intensive fruit production. When soft drinks appeared in the market, a new consumer culture was encouraged to support their consumption. Advertising promoted a consumer culture in which to drink soft drinks instead of water is considered "modern" behaviour. This strikingly brings out the perverse trends in conversion of water use: in rural areas, cash crops (fruit-growing) take precedence over food crops; in the urban areas (and for that matter in rural areas too) it is as if the need for drinking water is eliminated by the creation of "new thirsts."[35]

Use of water by the urban industrial sector also is growing rapidly. Most of the recent dams are being built primarily to meet these urban industrial needs.[36]

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[35] Modern life-style increased the domestic consumption of water among the middle and upper classes. For example, all kinds of water guzzling gadgets such as lawn sprinklers, showers, bathtubs, flush toilets began to appear in urban homes. These were regarded as symbols of modernity.

[36] There are no regulations or incentives to induce the urban industrial system to conserve water.A recent Bureau of Industrial Costs and Prices (BICP) report revealed that the paper industry uses enormous amounts of water.

While these are the trends generated by commercialisation of agriculture and industrialisation, the effect of the complex state agencies and structures that were built to plan and manage water resources in particular is no less deleterious in distancing water from village communities.

Bureaucratization of Water management

The post-independence period saw the emergence of a number of state institutions that were responsible for planning, designing and managing different water systems and for shaping policies on water use. Decisions on water use were fragmented in different ministries ranging from the Ministry of Water Resources to the Ministries of Irrigation, Agriculture, Power, Urban and Rural Development, and the Environment. Indigenous systems came under the Ministry for Minor Irrigation. A once major source is now seen as a "minor." The priorities of each of these ministries were different and not infrequently conflicting. Prior to the 1980's, at the national level water issues were handled by the Ministry of Agriculture and two technical bodies, the Central Water Commission (CWC) and Central Ground Water Board (CGWB). It was only after water scarcity reached crisis proportions in major parts of the country that the need for a separate Ministry of Water Resources was realised.

Since the Ministry of Water Resources is an important actor in safeguarding drinking water supply, it is useful to describe here the various agencies associated with this Ministry. The key

bodies responsible for formulating the national water policy within the Ministry are: the National Water Resources Council (NWRC) and the National Water Board. The National Water Resources Council was set up in 1983 to advise the Ministry on "administrative arrangements and regulations which promote fair distribution and use of water resources by different users, keeping in view the optimum development and maximum benefits to people." The National Water Board was formed in 1990 to review the progress in the implementation of the National Water Policy and report to the NWRC. It is also responsible for suggesting "investment priorities in the water sector for achieving the objectives of the National Water Policy."[37]

At the national level, in addition to these recently established agencies the two older apex technical organisations - the Central Water Commission (CWC) dealing with surface water resources and the Central Ground Water Board (CGWB) dealing with ground water resources continue to play an important role. The Central Water Commission was set up in 1945. It is responsible for initiating, co-ordinating and furthering schemes for the control and use of surface water for purposes of irrigation and industrial power generation. The Central Ground Water Board, which was called the Exploratory Tube Well Organisation under the British, is responsible for "drilling, construction, development and testing of

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[37] There are several committees under the NWB such as the Committee on Domestic and Industrial Water Use, which assesses water requirements for drinking and industrial use and recommends guidelines for domestic and industrial water supply.

tube-wells" (CGWB brochure), for conducting research and assessing ground water potential, and for advising the Ministry on policies regarding use of ground water. CGWB is a coordinating body for state ground water boards and provides training to officers who assist the state in preparation of schemes for use of ground water.

Financial institutions such as the National Bank for Agriculture and Rural Development (NABARD) provide credit to assist rural areas to build and maintain water supply facilities. NABARD is an important player in directing decisions surrounding rural water use and actively participates in shaping water policies. Finally the World Bank has in recent years become an influential international actor in the management of water works in India. It is a significant contributor to the schemes designed by the water supply boards in the country.

Several other research and consultancy organisations such as the Central Water and Power Research Station (CWPRS) and the Water and Power Consultancy Services Limited (WAPCOS) provide consultants for irrigation or hydro-electric projects. At the state (provincial) level, the construction of drinking water systems and the supply of drinking water is the responsibility of the state water supply boards.

Policies, Practices and Perceptions

During the years 1985-87 water scarcity assumed alarming dimensions in India. Twenty one out of twenty-four states in the country experienced serious drought. The number of people who were

affected by drought increased from 18.5 million between 1960 and 1965 to 191 million between 1985 and 1987 (one-fourth the population of the country) (India Today, 1987:11) Tens of thousands of people migrated from villages in search of work. The water crisis has been particularly severe in the villages of the states of Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Tamil Nadu and Bihar. In 1989, the World Watch Institute predicted that India would experience a major water famine in the next decade and that it could drastically affect its food production (Hindustan Times, December 19,1989).

The state responded by putting in place a Drought-Prone Affected Areas Programme (DPAP). Central assistance for drought relief increased from 239.6 crores in the 1970's to 1,362 crores from 1980 to 1985 (India Today 1987).[38] For the first time in post-independence times the state formally acceded priority to drinking water. Official water experts got together and formulated the National Water Policy which gave overriding priority to drinking water over irrigation and industry. According to the policy, "drinking water needs of human beings and animals should be the first charge of any available water" (National Water Policy 1987:10). The Government also launched a "Water for all by 1990" campaign and a National Drinking Water Mission to fulfil its policy goals.

Even before the National Water Policy, the Central Ground Water Board proposed a draft bill in 1970 to regulate the drilling

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[38] One crore is ten million.

of tube-wells. Later the Bombay Irrigation Act was introduced in 1976 which states:

> "No holder of agricultural land in which there is a tubewell, artesian well or borewell exceeding forty-five metres in depth shall allow any water from such well to be used for purpose other than for the purpose of agriculture or of drinking ...." (Gujarat Government Gazette. Vol XVII, 1976:280).

While all these attempts were made to ensure conservation and social equity in the distribution of water, especially emphasising the priorities for drinking water, the implementation of these declarations continues to be half-hearted.

Eight years after the national water policy was formulated, it continues to remain just that - a policy, and not a law. The possibilities of India having legislation to prevent over-exploitation of water seem bleak considering the influence that wealthy farmers' lobbies and industrial pressure groups have over political regimes that govern the country.

Because there are no regulations enforcing the National Water Policy, there have been several instances of violations of its principles. Wealthy farmers continue to extract enormous amounts of water and use it to grow cash crops such as sugar-cane or chilli peppers. In her study, Lush Fields and Parched throats: the political economy of ground water in Gujarat, Bela Bhatia (1992) points out how state intervention in the form of credit policies and electricity subsidies has enabled the irrigation sector to appropriate water from the drinking water needs of people. On the one hand, there is a shortage of drinking water, but on the other, there is a surplus of water and energy for industry and commercial

agriculture. Poor peasants are losing crops and are being deprived of drinking water, while wealthy farmers are growing sugar-cane and other water-guzzling cash crops (Bhatia, 1992).

Another example can be cited from Michael Goldman's study of chilli pepper production in a water-scarce district in the state of Rajasthan (Goldman, 1990). In the Rampura Mathania area of the Jodhpur district chilli peppers, a local cash crop grown by wealthy farmers, consumes more water than is consumed by all the local food crops combined. The local peasants, unable to dig tube wells and buy pumps, are loosing access to ground water, and food production is affected. In extreme cases, unable to pay the price for water, peasants are selling their lands to the chilli producers. The chilli producers continue to dig wells and appropriate their neighbours' water and their lands, thus reconfirming the trend that control of water is indeed the means to expand social and economic power.

Water Resource "development" : Science and water power

As water became central to the growth of the national economy, the drive to acquire new sources, convert the use of water and divert the flow of water continued, this time in the name of "development." [39] Research scientists [40] in ground water boards

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[39] Though "development" of ground water resources is the stated aim, for all practical purposes, it seemed to have become synonymous with "extraction" of ground water.

focused on developing "new sites" for tapping ground water. The people who stood to gain from this research were those who had the capital to invest in these new sources. [41] However, the poor, who depend on surface water resources had nothing to gain but everything to lose from this research because of which water started moving from their lands to the lands of their rich neighbours.[42]

Meanwhile, subsidies offered by state and financial institutions for irrigation and industry further augmented the trend towards concentration of economic power. As the resource becomes scarce, the power to acquire the source, convert the use and divert the flow of water has important implications for strengthening political power and state power.

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[40] Personal communication with a junior hydrogeologist (who wished to remain anonymous) in CGWB, Ahmedabad who expressed his frustration at the way in which research continues to be oriented to "developing" new sites for tube-wells, while the need for recharging the water table receives little or no attention.

[41] This is evident in the very functioning of these water management bodies, which allows for more interaction between water resource development corporations and individual farmers and tube-well companies and less interaction with the local communities.

[42] It is this phenomenon that Bela Bhatia explores in her book, Lush fields and parched throats: the political economy of Ground water in Gujarat.

Water for (political) power/ (political) power for water

As mentioned earlier, soon after independence there was an increase in large-scale river projects. About 1,224 large dams were constructed after independence and India today has the dubious distinction of having displaced the highest number of people in the world due to the construction of reservoirs. (Mankodi, 1986:85)

So convinced were the leaders of the need to build dams that when communities dispossessed of their lands began to assert their rights and refused to move from their homes, they were forcibly removed. The promise of a paradise delivered by technology on the one hand led to the worship of dams as "temples," and on the other hand it justified the use of force by the state. This issue of displacement has become the centre of environmental battles. However, what is less visible is the displacement that occurs as a result of rural-urban migration as communities deprived of their sources of water move to urban industrial centres leaving behind deserted villages.

Water moves - People follow: Dry wells and deserted villages

> I am not against meeting the needs of the metropolis.. but is this really justice if in this process.. like a villager in Fatehpur, whose land is taken away for building the Hatmathi reservoir... Today, even today if you go there, you will find in the hot summer months, they can see the open canal, they can see the water being taken out to Prantij, while in their own village they suffer from drinking water crisis.
>
> Bela Bhatia, December, 1993

> There is no lack of water here, unless you try to establish a city where no city should be (Edward Abbey 1968, quoted in Stone's talk 1993)

With people's access to traditional sources of water reduced, more and more people are migrating from the villages to the cities. The engineering of the movement of water has indirectly led to the movement of people (Singh, 1992).

The over-exploitation of water made possible by modern technologies of water extraction has thus contributed to a paradoxical situation. Ground water from hand-dug wells is being drawn off into deep bore-wells. To "remedy" the situation, state agencies are borrowing huge sums of money to build pipelines and dam projects to transport water back to "no source" villages which have been deprived of their ground water sources. [43]

To sum up, by the beginning of the 1990s the Indian state had developed an elaborate system of bureaucracy to manage water,

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[43] "No source village" is the official term used for villages which are faced with water scarcity. It implies that it was somehow their natural state of existence rather than the product of efforts to develop water resources with modern technology.

which, while ostensibly fulfilling its responsibility of delivering water to communities, in fact, by taking control of the water taps took control of the resource away from the communities. Communities that had earlier developed creative solutions for meeting their needs now began to depend on the state for the most basic of needs, water.

The system of extraction and distribution of water has created a situation whereby politicians, engineers and contractors, and financial institutions become the key actors in perpetuating a system on which village communities are forced to be wholly dependent. At one level, the communities depend on the state for their water, and at another level, the state has begun to depend on international institutions such as the World Bank to finance water works.

Neglect of dry land agriculture - degraded lands

Bandopadhay analyses the priorities of the financial institutions and the modern state in the context of the logic of capitalism and its theory of economic growth. In the name of "adding strength to strength" and "investing capital where it grows," financial institutions and state authorities subsidise inputs to those who are already well-endowed. Agricultural growth and the economics of water supply for agriculture in India have been shaped by this development and economic growth ideology. Preferential diversion of institutional support to the new water systems has led to the decline of traditional systems; the people who depended on them became inconsequential. Arid regions that

centred their growth around indigenous systems and rain-fed agriculture became marginalised in mainstream development thinking. This created an "uneven development." The arid regions, which had earlier supported thriving populations came to be conceived as "wastelands" unworthy of attention, wasteful because they did not generate revenue. (Bandopadhyay, 1991: 2164) In this manner once thriving rural areas have become deserts. This is the result of flawed priorities of state planners largely divorced from the experience of local communities and their water systems.

Summary:

In this chapter, I have attempted to trace some of the impacts of state policies and modern technologies in transforming the relationship between communities and their water resources. The transfer of community ownership of the commons into the hands of the state and the legitimisation of private ownership of ground water, which was essentially a legacy of colonial laws, led to dramatic changes in the way water was conceived and used. Capitalist agriculture and demands of industrialisation led to irreversible changes in agricultural practices which led not only to the neglect and decay of physical systems of sustenance but to the destruction of social support systems and an erosion of collective memory.[44]

The advertisement quoted at the beginning of the chapter, which is typical of the state's discourse, is an illustration of

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[44] This concept of the "erosion of historical memory" is borrowed from Dorothy Kidd's presentation on "Midwifery and the Inuit" at SFU in October 1994.

how this is done. It constructs life before and after the dam as a linear progression from the food scarcity of drought to abundance created by dams and irrigation. It is these visions which are successfully eroding traditional systems and eroding the historical memory associated with the indigenous systems (systems that use water for sustaining human, animal and plant life). These diverse vital systems are being supplanted by one dimensional vision of a system that uses water to meet the needs of industry, capital and political power holders. The state and technology and not nature are constructed as the providers of water. They also present water scarcity as a memory of the past, while in fact water scarcity is a contemporary phenomenon brought about by interventions of the state, law and technology, which significantly increase overexploitation of water while reducing the capacity of people to sustain their traditional sources.[45]

The villages in the state of Gujarat in India can be regarded as a microcosm of the widespread destruction of the communities and their water systems that began during the colonial era and continued during post-colonial era in India. With this background, the next chapter focuses on the history of the coastal villages of the Bhal in Gujarat, where groups of women are organising to revive, reclaim and recover a historical memory of local knowledge and systems of organisation.

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[45] Many "drought-prone" areas of today once had rich sources of water . For example Kalahandi in Orissa, which today is considered one of the worst drought-prone areas in the country only a few years ago, according to the Geological survey of India, was virtually floating on a vast reservoir of sub-soil water.

Chapter Four

Setting the Scene: The Regional Context of the Bhal

Introduction

The region along the west coast of the Gulf of Cambay in the state of Gujarat is called the Bhal. Administratively it constitutes portions of four districts: Ahmedabad, Bhavnagar, Kheda and Surendranagar. It covers 275 villages and an area of 5078 sq.km.[46] The focus of this particular study is the Bhal area of Ahmedabad district, more specifically the Dholera region of the Dhandhuka taluka which includes sixty-nine villages with a population of 40-50,000 people.

Origins: the Land, the Forests and the Sea

> When I was about 12 years old, I remember how two small girls, who were brought to this village by their uncle, went out to play and got lost in the forest. They found one girl the same day but it took them another day to find the other girl. That was how dense the forest was.
>
> An old resident of Kamatalav,
>
> 25th November, 1992

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[46] In Bhavnagar, Kheda and Surendranagar districts there are 58 villages, 78 villages and 20 villages which constitute the Bhal area respectively. In Ahmedabad district, there are 119 villages which constitute the Bhal area. Of these, there are 50 villages in the Dholka taluka and 69 villages in Dhandhuka taluka. Study report, Department of Geography, Gujarat University, 1993:2. The administration of Gujarat state is divided into districts which are then divided into talukas. Each taluka in turn is constituted by several villages. The Bhal is a geographic area which crosses the administrative boundaries of three districts.

The land of the Bhal, as its geological history reveals, was once under the Arabian Sea. [47] It is a low-lying flat land, about twenty-five meters above sea level. Because of its proximity to the sea (most villages are within seven-fifteen km. from the sea) and because it is a low-lying region, the land is prone to sea ingression. However, only forty years ago, the coastline was protected by thick jungles of mangroves and Pilu (Salvadora Persica), an indigenous, oil-seed producing, salt-resistant plant. Only when the jungles disappeared did sea water ingression became a problem.[48] Now sea water comes right up to the villages during high tides. When the water recedes or dries up, a crust of salt remains leaving behind wide cracks on the land. The land's marine origins, constant incursions from the sea, and the nature of the soil (which has a high water retentive capacity) makes the land of the Bhal extremely saline. [49] Water found just ten feet below the surface is three times more salty than sea water. Seventy percent

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[47] The Gulf of Cambay and the Gulf of Kutch were connected to each other earlier. The land which rose to connect them is now called the Bhal.

[48] There are various reasons that people gave for the disappearance of Pilu, one of them being overgrazing by camels which migrated from Kutch in the early 1960's. It is difficult though to pinpoint the exact reasons or time when the vegetation in the Bhal began to disappear.

[49] While the ground water in most parts of the Bhal is unfit to drink, there are a few precious sources in the northern part of the Bhal which yield sweet, potable water.

of the land is unfit for cultivation. This is what gives the land its name - the "Bhal," which in the local language means forehead or the land where nothing grows.

However, the land was not always barren of vegetation or human activity as its name now suggests. Long before the colonial rule, all along the coastline of Gujarat there were prosperous little trading towns, which played an important role in international trade. The vegetation also has an important place in the oral history of the region. Some recollect how until recently Pilu was so dense that people often lost their way in them. This vegetation was the main source of fodder for the cattle in the region.

Water is another predominant memory of the landscape. Villages in the Bhal area grew around their "gaam talav" or village ponds which were their main sources of water. The names Bhimtalav, Kamatalav, Rahatalav,... remain as testimony to the importance of these ponds to the village communities. Ironically, today this same region is referred to as "napaniya": land without water. In the early 1970's sources of water, food, and fodder began to deteriorate, and people started migrating to other parts of Gujarat in search of work and water. Migration, in its turn, led to further deterioration of the land and the life of the communities. Along with forests and water, entire villages communities have disappeared from the Bhal. Drought, debt, impoverishment, and migration are typical of this region today.

What are the historical roots of this change? What political and economic forces shaped the conditions of people and their

water systems in these communities? What is the relationship between drought, debt and migration and what is the role of the state in all of this? This chapter is an attempt to address some of these questions within the specific context of the Dholera region. Dholera is a small town about 120 km. south of the city of Ahmedabad on the highway which leads to Bhavnagar. Within a four to ten km. radius from Dholera there are about twenty five to thirty small villages, which form the periphery of the town. This town has an important place in the history of this region because this area was an important port for the British colonial rulers.

Debt, Drought and Desertion in a Colonial port: The period between 1802 and 1947

Prior to the coming of the British, the coastline of Gujarat, despite its limited agricultural activity, played an important role in the economic profile of the state. The ports of the Cambay region were entrepots for centuries and Dholera was one of the important centres of this trade.

> Long droves of camels laden with dyed cloth, silk, opium, sugar streamed down into the plains of Gujarat and Kathaiwar. These were exported by sea from Dholera and in return it received metals, European cloth and other foreign wares. (Choksey, 1968:203)

Dholera first came under colonial rule around 1802 when the British acquired control over Ahmedabad region. By 1810 Dholera rose into prominence when it became one of the key centres for the British cotton trade. Dholera cotton fetched the highest prices in Bombay markets, and the port of Dholera soon became a prosperous seaport

with an increasing number of merchants moving there. However, with the coming of the railways, fortunes began to change. Trade centres shifted, and Ahmedabad became the leading centre of trade. Bombay and Surat grew in importance because of their proximity to railways, and sea trade began to decline. Produce which was formerly brought to Dholera now went by train to other inland centres (Choksey, 1968:205).

Another trend which appeared during this period was that Dholera, instead of exporting grain began to import it. It lost its importance as a local market and fell from its former prominence (Choksey, 1968:213). [50] The town experienced a steady decline in population from 12,468 in 1872 to 3,491 in 1921. [51]

Before 1860 food crops played an important role in the agricultural economy of Gujarat (Choksey, 1968:87). Under the British, India was turned into a supplier of cotton and a buyer of

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[50] Decline in trade in Dholera from 1863-1920 (Choskey, 1968:213)

Year	Total trade
1863-64	4 1/2 crores
1871-72	1 1/2 crores
1920	less than 10 lakhs

(One crore is equivalent to ten lakhs and one lakh is equivalent to one hundred thousand).

[51] Decline in population in Dholera.

Year	Population
1872	12,468
1881	10,301
1891	10,888
1901	7,356
1911	6,050
1921	3,491

manufactured British cloth. Cotton goods poured in from Britain, and old village industries began to die and along with them traditional occupations such as weaving began to disappear. On another front, cultivation of commercial crops such as cotton and tobacco grew steadily displacing food crops such as rice and jowar.

The rise of food prices in India after 1905 was largely due to this substitution of commercial crops for food grains. Increased cash crop production and decreased food crop production only worsened the vulnerability of the peasants. In a nutshell, the introduction of railways and the opening up of markets laid the basis for capitalist agriculture in Gujarat. By the time British rule ended, the ports of the Cambay region remained undeveloped and even sacrificed to the growth of metropolitan industrial cities like Ahmedabad, Surat and Bombay. Dholera presents a typical case of uneven development. Trade declined, but merchants stayed on becoming money-lenders and accumulating capital from heavily indebted farmers (Choksey, 1968).

The Post-Independence Period

Today, Dholera resembles an abandoned town - with empty streets, rows and rows of locked houses and closed shops. Still, it is the nearest local market town for the villages which surround it. It still is the area's centre where all the infrastructure is concentrated: a vegetable market, a primary health care centre, a functioning school and a temple. The town is

connected by frequent bus service with the surrounding villages and with Ahmedabad. The Ingoli water pipeline also ends there.

The majority of the people who live in Dholera, as its other name "Darbari gaam" (meaning village of the Darbars) suggests, belong to the Darbar community who have traditionally been in the business of money-lending. It is they who own the majority of the shops and the only restaurant in the town. The social composition of the surrounding villages, however, is different. In these villages the peasant castes, called the Kohli Patels are the largest in number followed by the shepherds caste (Bharwads), the traders, the Vaghris - who sell vegetables and utensils and barter used clothing , the weavers (Vankars) and the caste which is the lowest in the social hierarchy (the Bhangis) and the Harijans. While the different castes specialised in these traditional occupations, the basic occupation of most people in these villages is still agriculture. The important crops grown in this region include oil seeds, millets, fodder, jowar, bajra [52], cotton and mustard. As agriculture here is dependent on rainfall, the entire region is cultivated only during winter when the rains come. People migrate to the north during summer to work as wage labour and return home in the rainy season to cultivate their lands.

The people from the surrounding villages form the clientele for the Darbars in Dholera. During a drought, people depend on loans from Darbars to survive the crisis and to buy agricultural inputs such as seed grain. Social obligations such as marriages and

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[52] Jowar and Bajra form the staple diet in the region.

funerals are also financed by recourse to the money-lenders. Because of its strategic location, any changes occurring in the surrounding villages rarely go unnoticed in the "Darbari gaam." This is illustrated by two recent examples related to me. A man from a small village called Mahadevpura borrowed Rs.500 from a Darbar. He was unable to pay his debt. When he tried to leave his village, he was caught in the Dholera bus-stand, tied up and beaten. Again in 1987, when the women in Mingalpur beat up Vikram Singh, a Darbar from Dholera, for many days they were afraid to go to the Dholera market to buy provisions for fear of retaliation from the Darbars[53].

The decline of Dholera continued into the post-independence period. Gujarat became a separate state in 1960. The new state's priorities of economic growth, its emphasis on industrial growth, cash-crop production and mechanized irrigation perpetuated the condition of decline of the countryside in spite of the official commitment to integrated rural development. While in the earlier phase, industrial production was largely concentrated in the textile industry now petrochemical and fertiliser industries dominate the scene. The new industry is capital intensive. Green-revolution agriculture has led to dominance of cash crops and a deficit in food crops. Most of the workforce for the industry is supplied by migrant labour from villages. Peasants are migrating in increasing numbers to the cities as a their sources of

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[53] This beating occurred when Vikram Singh started to harass a guarantor in Mingalpur to retrieve his debt when the women intervened and chased the Darbar out of the village.

livelihood in the villages are destroyed. What began as seasonal migration turned into permanent migration as ecological conditions in the last decade worsened and the intensity and frequency of drought in the Gujarat villages increased.

In the post-independence period, the process by which locally available surface-water resources disappeared and drought became an "accepted" feature, particularly in the rural areas, needs to be highlighted. What is in reality a "man-made" situation has come to be regarded as a natural phenomenon in which villages are described as "no (water) source villages." Policies, particularly in areas like the Bhal, are rationalised on the basis of an assumption that no amount of human intervention could remedy the natural condition. Given this context, the role of (both long-term and short-term) policies of the state needs to be examined.

The Area in Red: Nature of state intervention in the Bhal

By the time India achieved its independence, the Bhal had come to be formally categorised in government revenue records as a "backward" "underdeveloped" region, as a "wasteland." Despite its constitutional commitment to socialist goals, [54] the pattern of growth that continued after the British left resulted in uneven development in India as a whole and in Gujarat as well.

One consequence of this uneven development was that two broad forms of response emerged in the "underdeveloped" regions of

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[54] Article 375 (25) of the Constitution of India provides for a special budget for "backward" areas.

different parts of the country. One was manifested in the form of social movements, which erupted in some regions. The other was manifested in the organised activity of the Non-Governmental Organisations (NGO)s.[55] These responses, particularly the violent rural unrest in some regions, compelled the state to address the problem of rural poverty. The 1970's saw the emergence of a deliberate strategy on a national level to identify "backward" areas and to work out a policy to bring about rapid economic transformation of the countryside.

During periods of drought, crisis-oriented, short-term relief measures were adopted by the state for this area. In 1976-77 the Drought Prone Area Programme (DPAP) was started in forty talukas in Gujarat with an annual budget of Rs.1.5 million and in the Sixth Five-Year Plan (1975-1980), the allocation grew to fifteen lakhs (Pastakia, Interview 1992).

In Gujarat, the Bhal area was taken up for "special attention" during the Seventh Five-Year plan (1980-85). In 1983-84 a total provision of five million rupees was allocated for seven such "special areas" (Pastakia, Interview, 1992).[56] As with the general policy on economic development, the policy of special areas development was mostly influenced by economists, who defined

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[55] This distinction between NGOs and social movements is not always very clear cut. Within each "model" of response there are a variety of groups which draw inspiration from a wide range of ideologies. Much of the NGO-based activity in Gujarat can be said to be inspired by the Gandhian legacy.

[56] Under the Eighth Five-year Plan (1985-1990), forty three talukas have been reported under the DPAP, but there was no mention of special areas development programme..

underdevelopment (or backwardness) as lack of economic growth resulting from poor industrial development.[57] A considerable amount of time, expertise, labour power and funds have been spent on special schemes geared towards development of agriculture and industry in the Bhal. However, both modern industry and modern agriculture were dependent on water and capital, which the Bhal did not have. This deficiency is the reason why this area was coloured red on official development maps in the 1980s. It is also why officials and politicians repeatedly suggest that the "ONLY" solution is to relocate villagers out of the Bhal and settle them elsewhere (Utthan-Mahiti, 1983).

This government fixation on relocation provides a rationalisation of the behaviour pattern of public servants such as teachers, minor revenue officials and the like, who have abandoned the area. For example, in almost all villages (except Bhangadhh and Mingalpur), though buildings exist, the schools are not functional because there are no teachers. In Gandhipur, I was told that there were two teachers on the payroll, but not one showed up even once all year. This total abandonment of the area is one reason why this area has never been studied adequately to develop alternatives suitable to the ecology of the region.

In spite of the increasing amounts of money that have been

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[57] For example, the IG Patel committee, which was instituted to identify and suggest measures to remedy the situation, consisted mostly of economists.

spent on drought relief each year, the living conditions have continued to deteriorate, and people continue to migrate in large numbers from the villages seeking employment in drought relief works and jobs in industrial cities such as Ahmedabad and Surat. The diamond polishing industry in Surat, for example, thrives on the cheap labour provided by the rural migrants from regions like the Bhal. While the men in these regions seek wage labour, it is usually the women, who are reluctant to migrate and therefore stay behind, who have begun to develop more creative strategies for survival.

Drinking water

By the late sixties water scarcity was beginning to emerge as a serious problem, and the severity continued to increase each year. Under the twenty-point programme, a programme introduced by Prime Minister Mrs.Gandhi, the state undertook to provide water for all its citizens. By the 1980s water scarcity had reached a crisis level. For example, in Gujarat, out of 18,000 villages, 14,500 were declared "no source villages." [58]

In 1972 the Gujarat Water Supply Board was formed, and this state agency was entrusted with the task of addressing the problem. Most of its projects are financed by the World Bank, whose policy priorities continue those of the colonial period in so far as they

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[58] All these villages have officially been "covered" under the 'Minimum needs programme' of the state government. This means the infrastructure necessary for water supply such as pipelines and taps have been officially installed. This, however, does not necessarily mean that all the villages actually receive water.

stress acquisition of new sources through mobilisation of capital and technology to build large dam projects. The water supply schemes of the recent decades focus mainly on transportation of water over long distances through pipelines and in water tankers. About three thousand villages receive piped water from various dams in the state.

The Bhal in particular is supplied by the Sabarmati water supply scheme. Also referred to as the Ingoli water pipeline, this pipeline has its source in a village called Ingoli about one hundred km. from Dholera. The pipeline was conceived and designed in the "Jal Bhavan" in Ahmedabad where the Gujarat Water Supply and Sewarage Board (GWSSB) is situated.

> The Jal Bhavan is a six-storey building - the physical structure of the building literally represents the vertical hierarchical structure of the water bureaucracy with district offices in the bottom floors, the zonal office above them; on the topmost floor is the office of the World Bank presiding over them all. [59]
>
> Field Notes, October 1992

The supply of water is determined in the capital city of Ahmedabad where engineers make decisions regarding who will get how much water and when. The tasks of maintaining the waterworks are

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[59] My first visit to the GWSSB was at 10'oclock in the morning. I got off the rickshaw and walked to a six-storey building - which had a sign reading "Jal Bhavan." I was stopped by the watchman at the gate, who asked me whom I wanted to see. I said I was there to gather some information about the water supply to Dandhuka taluka. He said nobody shows up in the office before 11 o'clock. But.. I said there must be somebody I could talk to. He said, "sardi ka mausam hai, itne jaldi koi nahi aate idar." (Its winter, nobody comes to work here so early.) Early I thought to myself. The women in Kamatalav... they are up before dawn to start work, while the bureaucrats who make decisions about their water don't stir out of their homes till mid-day?

performed by several different employees of the GWSSB. The responsibility of letting out the water is that of the valvemen. The linemen inspect the pipeline and report any leakages to the engineers on site. The major responsibility of organising and supervising the maintenance of the waterworks is that of the engineers. The system is governed by a board which consists of a chairman and six members, who may be politicians, bureaucrats or technocrats such as senior engineers, all of whom are always men. Twenty years after the pipeline was commissioned, it has turned out to be expensive and unreliable, almost a pipe dream.

Pipelines and pipe dreams

They hang the man and flog the woman
That steal the goose from off the common,
But let the greater villain loose
That steals the common from the goose.

Traditional rhyme (The Ecologist:1993)

GWSSB Chairman: I am going to suggest to the Chief Minister that heavy penalty should be given to those who break the pipeline. Today there is no specific law for this. I am going to request the Chief Minister to bring the bill for heavy punishment.

Q: What steps are you taking to prevent over-exploitation of water?

GWSSB : I cannot do anything because farmers are taking so much water. In Mehsana the big farmers are drilling bores and are collecting water from fourteen hundred deep wells. That I cannot stop. Only government can stop that.

Field Notes, January 1994

The Ingoli water pipeline is one of the few and perhaps the main indicator of the state's presence in the Bhal. Three tubewells in the area surrounding Ingoli pump about 4.4 million litres of water everyday to feed the pipeline. The water is stored in an overhead tank at Ingoli and then distributed through a one-hundred-km pipeline to about sixty villages in the Dholera region. The pipeline in its turn fills underground tanks in each village, and water is drawn out through taps at a standpost. The pumping, storage and distribution of water is heavily dependent on the erratic supply of electricity from the Gujarat Electricity Board (GEB). Consequently, the timing of water supplied to the villages becomes very uncertain. This problem is particularly acute in the

summer months as the catchment areas of the hydro-power stations dry up causing interruptions of power generation. This in its turn jeopardises the system's capacity to lift even other available water supplies for use.

Over the years the experience of the people in the Bhal suggests that the water supply through the Ingoli pipeline is fraught with problems. There is no fixed time for supplying water. It could come at two at night or any time of day without advance notice. When they hear the valveman opening the valve, people immediately take any vessel they can get and run for water to the underground tank where water from the pipeline is stored. There is a great rush to fill the pots with water, because the supply lasts barely twenty to twenty-five minutes before disappearing again. Corruption in the water supply board, [60] leaks in the pipeline, erratic electricity supply, and the competitive extraction of water from sweet water areas surrounding the bhal, by large corporate farmers also contribute to the problem. Even optimally located villages are not exempt from the effects from this poor state of affairs. The plight of the tail-end villages is even worse. Villagers, particularly women, are reduced to clamouring for drops of water from the pipeline during summer. The dependence on the valvemen who control the water supply is enormous.

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[60] Corruption is rampant in the water supply board - a fact which was acknowledged in private discussions with the board members.

> We never know when the valveman will arrive. In summer, sometimes he would come in the middle of the night. Women would be up all night waiting for his arrival. All of a sudden the entire village would wake up. There is a mad rush for water. Women fight and abuse each other. Almost one woman's head is broken every day in the fight.
>
> Conversations during the pravas
>
> Women who are normally careful about their veil slipping away and their faces showing -don't care when they are fighting for water - their clothes are in shambles, hair dishevelled ; they don't care if the woman next to her is her mother-in-law; they push her aside. All they are interested in is filling their pots with water.
>
> Conversations during the pravas
> December 4, 1992.

Some villages, like Raisangadh, have been connected to the pipeline, however the people have never seen any water. The Water Supply Board members are known to favour the constituencies they represent in disbursing projects, and this kind of preferential diversion of finances to some areas leads to the neglect of politically and economically weak regions. How control of water and control of political power go hand in hand can be seen in the way the board members of the GWSSB are selected. When the Congress Party came to power, it showed its favour to the then State Youth Congress President by appointing him as a board member. In private discussions, he was clear about the fact that his position would further enable him to bring more water projects to his constituency in the politically powerful Surendranagar district. He was sure that this lever of patronage would ensure him victory in the next assembly elections.

Yet another factor making the pipeline system less effective

is the increasing salinity of water in the Bhal region because of the excessive use of water sources in the interior of the state. Excessive pumping in interior Gujarat and consequent decline in water tables is changing the water quality in the tubewells that supply the Ingoli pipeline. On the one hand, the old sources for the pipeline are becoming increasingly saline, and on the other, attacks on the pipeline by thirsty migrants are becoming more common, particularly during summer. These acts are indicative not only of the degree of desperation that is evident in the summer but also are a comment on the alienation of communities from the water systems. As of today, there is no law to prevent over-exploitation of water in Gujarat. [61] The GWSSB chairman, who pleaded helplessness in controlling the overexploitation of the rich farmers who were growing cash crops in the neighbouring districts was very prompt in suggesting a new law when it came to punishing the poor rural migrants who were breaking the pipeline to quench their thirst. Water thus in effect becomes a property of the state to be protected from the very people it is supposed to care for. At the same time, degradation of their traditional water sources is making these people increasingly dependent on the modern waterworks and the state, both of which have proven to be undependable.

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[61] Where some regulations exist, they are not enforced. For example, the Gujarat Water Resource Development Corporation (GWRDC), the body which provides permits for electricity and loans for construction of tube-wells, has designed an elaborate set of rules. But hydrogeologists and engineers I spoke to in GWRDC blame politicians for granting permissions in areas where they (the scientists) refused permits because water tables were low.

Irrigation vs Drinking water

The fact that water supply is not regarded as important as irrigation was evident from the interviews with engineers in the Water Supply Board.[62] One engineer who worked in the GWSSB since its inception had this to say:

> Let's say there is a reservoir in which water is stored, and water supply people will say do not release the water for irrigation because we need it for drinking; farmers go and approach the irrigation minister to release the water for irrigation. The Minister says okay we'll release some water, and that water is released. We lose water that is meant for drinking. There are many instances of these things happening.
>
> Field notes, January 1994

In 1984 there was a severe drought which affected sixteen states in India. Until about twenty years ago the water table was just thirty to fifty feet below the ground, now in many places it has dropped to below eight-hundred feet! Whatever investment was made earlier was simply wasted. Mega projects were once again regarded as the ultimate solution. Large-scale river valley projects gained popularity in public imagination and drew a lot of political support. It was around this time that the government of Gujarat stepped up its efforts to construct the Sardar Sarovar Dam to divert the waters of the river Narmada. The Bhal too was declared a potential beneficiary of the dam and was included in

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[62] Interviews with engineers in the water supply board revealed the general atmosphere of uncertainity in which water resource decisions are taken. Pointing this out, one engineer cited the frequent transfers of bureaucrats by the government : "In the last year four secretaries (senior level officials) have been changed by the government. How will the department work? Who will do this job? Now we have a specific secretary holding the charge, but we don't know for how long he will stay because nobody is interested in holding the portfolio of water supply."

the command area of the dam. The Bhal, originally the "area in red," is now coloured green in the official maps. This, in fact, totally ignores the reality that the land of the Bhal, because of its salinity, is unfit for irrigation.

The bureaucracy that organised the use and distribution of water supply became strong advocates of the government decision to construct the dam.[63] The dam was soon presented as the only solution to the drinking water problem. Moreover, it was argued that the waters of the river were going to "waste" anyway. Here once again a pipe dream of a huge, 540-crore-rupee pipeline, built across the sea from Dahej in Baroda on the east coast of the Gulf of Cambay to Bhavnagar on the west coast with a porjected capacity to provide ten million gallons of water daily from the Narmada river is held out as a hope to the drought-weary villagers of the region. (Economic Times 2 May 1993). The Gujarat Water Supply Board, whose annual budget for the entire rural water supply is 800 million rupees, started to receive an additional 1,000 million rupees every year to implement this water project alone.

The economic priorities of Gujarat are clear from the budget allocations of the state government, which annually spends a meagre sixty crores on the entire drinking water supply in the state, while a lion's share of the state budget is allotted to the

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[63] One illustration of this is the comment by the chairman of the GWSSB in a recent interview. He was emphatic that "We can solve the drinking water problem only through Narmada canal water.." Personal Interview, January 1994.

Sardar Sarovar Dam alone. Initially this project was estimated to cost 6,000 crores. Now it is likely to exceed 13,000 crores or fifty percent of the state's budget. The state originally borrowed fifteen percent of the funds for the dam from the World Bank, which later withdrew its support after a critical report on the Independent review by the Morse Commission. Despite a massive resistance against the dam, the construction continues today.

The state claims (and indeed this is the popular perception in the Bhal too [64]) that the dam will not only turn their fields green but that the Narmada waters will soon flow through taps throughout the drought-prone regions. In reality, few studies have been conducted to see how the land in the Bhal will be affected by the proposed diversion of river waters. One report compiled by a social science research group in Baroda University states that most of the Bhal region which falls under command area will have serious problems of water-logging if canal irrigation is undertaken (Medha Patkar, Interview January 1994). Even assuming that drinking water will be provided, the conditions of the existing pipeline illustrate how this may not reach the people who need it most.

However, except for the opposition against the dam in the Narmada valley, public opinion in rest of Gujarat is said to favour the construction of the dam. Why is there such strong support? What

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[64] For example, Vijuben, describing the Bhal to women in Godhi gaon, (a village we visited during the pilgrimage), said, "What is in our lot except saline land? If we get our share of the Narmada waters, then our lot will improve." This triggered a discussion about whether the dam would irrigate saline lands, such as the Bhal.

is the vision that the state has constructed for the people? Who really are the beneficiaries of this vision? Where does the work of the women of the Bhal fit into all of this? This is the focus of chapter five. The women's groups that have emerged to find local solutions to the water crisis in the Bhal are in effect demonstrating that the state's strategy (large dams) is damaging to rural communities as well as to the state as a whole in the long run. These groups are not directly concerned with the Sardar Sarovar agitation, involved as they are in developing their alternatives. However, their very involvement in local solutions is an indirect comment on the mega-project orientation of the state. What follows in the next chapter is an account of the role of the women's groups in the Bhal area in articulating and devising local solutions based on communitarian and traditional rainwater harvesting systems. In fact, their struggles can be conceived as a struggle to reclaim the commons. The "commons " here is used in the broadest sense of the term, which is defined as the " social and political space where things get done and where people derive a sense of belonging and have an element of control over their lives" (The Ecologist, 1993:6).

Chapter Five

Reclaiming the Bhal

> If we solve the drinking water problem, if we can get people to stay on the land, it is possible to organise, to improve the soil, to lobby with the government, to build bunds, to plant mangroves and possibly prevent the sea from entering the land.
>
> Nafisa Barot (Personal interview, 1993)

Introduction

The previous chapter focused on how regional disparities developed with specific reference to the Bhal. The water systems that the state actively supported were confined to surface and ground water sources. All over India, areas which depended on rain-fed agriculture declined. The coastal regions which were not served by any irrigation system were left to decline further, while in areas which depended on irrigation and came under the green revolution, a prosperous peasant class emerged. It is this class which has been at the forefront of recent agitations for more irrigation facilities, better agricultural inputs, higher prices for their crops and subsidies for agricultural inputs. (Salunke, 8; Bhatia, 1992)

While demands for more irrigation systems are mounted by the rich peasants, it is the poor peasant women, who have been bearing the brunt of drought, debt and migration, who are at the forefront of struggles for drinking water (Omvedt, 1993). Thus, women, who in the mainstream thinking are perceived as mere passive victims of exploitative rural conditions, constitute the principal agents of

change in the rural areas.

This chapter examines how groups of women in the Bhal area are mobilising to secure and sustain the natural, material and social conditions necessary for the survival of their communities. In particular I will emphasise how one network of womens' groups (called Mahila Mandals), with the help of a non-governmental organisation, Utthan-Mahiti, are not only reviving traditional rainwater harvesting systems but are also involved in a more comprehensive effort to rebuild their communities.

There are four sections to this chapter. The first section establishes the socio-economic context in which the relationship between the women's groups and the NGO emerged. The second section describes one major activity of these groups - forming and promoting small savings groups among women. The third section describes how they are attempting to revive the rainwater harvesting systems, and the fourth section describes their efforts towards afforestation, that is, the planting of Pilu trees indigenous to the area. Though the major concern turned out to be providing drinking water and hence revival of traditional rainwater harvesting systems, the groups initially started with the more modest function of mobilising savings. Hence, in my analysis I will follow the chronology of the evolution of these efforts.

Socio-economic Context: Women's groups and the NGO

Above us is the upper class [65]
Who are we? We are the lower class.
Why are we below them?
Because we have little land, little income
The class above us has everything.
They have name, fame and land.
If they can live like that,
Why not we?
If they can have everything,
Why not we?

-Devuben (Dec 4,1992)
(a Harijan woman)

The livelihood of the majority of the people in the Bhal is based on two sources: land and labour. Most villagers are small farmers who own three to seven acres of land. Agricultural productivity and return from land is low and as a result their incomes are also low. Land and cattle, which were once a sign of wealth, have become a source of debt. [66] For the Darbars (the money lenders) on the other hand, the chief source of income is not land but capital. Villagers obtain loans mostly from Darbars who charge exorbitant rates of interest (about one hundred percent per year in many cases).[67] Physical intimidation and threats aginast

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[65] The literal meaning is society not class.

[66] In Ottaman chaurasta (crossroad), during the drought of 1987, a man, unable to provide fodder for his cattle is reported to have hung himself from a tree after letting his sheep/cattle free.

[67] The average family debt of most households is Rs.14,000 to Rs.20,000.

debtors are not uncommon in this area.[68] Money-lending is the central mechanism through which the Darbars ensure their continued dominance in the area (Sreenivasan, 1991). Unable to survive the harsh economic and ecological conditions, the majority of people from these villages have migrated to the cities leading to a disintegration of the village communities.

In general, the impact of displacement weighs more heavily on the women than on men. Unlike men, who see migration and wage labour as an access to cash, for women it means loss of social support that life in the village offers. They have showed more reluctance to leave home, and it is they who are developing their own strategies for survival. In the Bhal, in the late 70s a leadership was beginning to emerge, particularly among the women of the lower caste (Kohli Patel women), who began to articulate the problems in the area. These leaders include Devuben (a Harijan woman) and Jasoda ben in Bhangadh; Kathu ben in Mingalpur, Gauri in Kamatalav, Maju ben in Navagam Karna, Uji ben in Khun and many others.

In the late 1970s while Devuben and the women in the villages in the Bhal were beginning to articulate problems in their own villages, an urban-based study group from Ahmedabad came to work in the Bhal area in the Dholera region. Thus began the interaction between the village women and this urban group. Eventually, the

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[68] In 1987, in the neighbouring district of Kheda in a village called Golana, confrontation between the Darbars and the leaders of a co-operative led to the killing of three people belonging to the lower castes.

need for a more organised and collective response to the problems of debt, drought and migration was recognised.

Birth of an NGO - Utthan-Mahiti

> To transform our daily lives, that is what we should try to do. To transform every aspect of our daily lives, to learn from nature, from people, from society, so that we get new ideas in our lives and overcome our difficulties.
> Devuben: December 3,1992

In 1979, an urban study group called Ahmedabad Study Action Group (ASAG) was entrusted by the government to prepare a block level plan (BLP). After completing this assignment, some members of this study group, disillusioned with the governmental process, stayed on to form a non-governmental organisation called Utthan. This body started with the premise that the "people in the area, though aware of their resources, missed links in their information which if bridged could lead them to work for their own development" (Utthan-Mahiti report 1991). They became involved in the project of facilitating "information exchange" or "Mahiti." Originating as a project of an urban-based NGO, it soon turned into a rural group called Mahiti. The name Utthan-Mahiti reflects the dual structure of this organisation. Utthan is the Ahmedabad based urban NGO that provides support to the rural group, Mahiti. The objective of Utthan, whose members identified themselves as "outsiders," is to enable local leadership to grow and gradually phase out its own role. The members of Mahiti constitute the insider group. These are people local to the region. Utthan and Mahiti started working

in fourteen villages in the Bhal and established a "People's Learning Centre" about three kilometres from Dholera facing a small village called Bhimtalav. Utthan and Mahiti maintain their distinct identities but work as a team. One member each from Utthan and Mahiti together spend four days a week in the villages to which they are assigned. Broadly speaking, their joint objectives have been to "develop self-reliant village organisations and to investigate effective ways to use the land" (Utthan-Mahiti annual report). Their approach has been to build local human, natural and social resources.

Mahiti and Mahila Mandals

One of the first things Mahiti became involved in was the strengthening of the existing social groups of women and youth in the villages. Many of the women's groups originated as "bhajan mandals," prayer singing groups, which gradually took on social concerns as their sphere of activity. The women's groups or the Mahila Mandals have emerged as a strong force during the last ten years in these villages.

The women's groups consist of women from different castes. In fact, it is a Harijan woman from Bhangadh, Devuben, who has become the leader of Mahiti. Even before Mahiti came on the scene, she was spreading awareness about birth control in her village. It was in this connection during her visits to other villages that bonds of solidarity and trust were established. It was also during this period that social concerns entered the agenda of women's groups in

a prominent way. The agenda for transformation was set in the interactions between village communities, Mahila Mandals, Mahiti and Utthan. Drought, debt and migration emerged as the predominant concerns.

Saving in Groups: Capital for Women

> Everytime there was a wedding or an illness in the family, people would go to the moneylender to borrow money. After we formed the mandal, we don't go to the Darbar any more. We have savings up to Rs. 40,000. Most of our difficulties in our village have been solved.
>
> -Jasodaben (Bhangadh) December 3rd, 1994

In March 1985, Devuben and seven women formed a savings group in Bhangadh. Six months later a group of ten was formed in Mingalpur. The women started saving their money in small amounts regularly. Slowly the membership of the groups expanded, and by 1990 there were fifty four women in these two village groups.

The objectives of the Women's Savings Groups (WSG) was to develop an alternative loan source so that women could have access to loans for servicing the needs of their households at a reasonable rate of interest. Since other formal credit institutions and the Darbars were inaccessible to women in general, the loans of the WSGs were designed to be easily accessible to the women members.

The practice and system of saving

The Mahila Mandals set up a self-designed system of fixed deposits of money. Twice a month - on every full moon (punam) and

new moon day (bhij) day, women meet and each make a deposit of Rs.5 to the savings group. There is an initial deposit of Rs. 10. The money that is saved is held in a locked safe. The safe is in the custody of one member of the group while the key is entrusted to another member. Two other members hold another safe for storing the borrower's collateral, while yet another member is given the custody of the record books. The responsibility of holding the "safes" rotates within the members of the group (Devuben, 1993). This system works in such a way that when a woman needs a loan she must get the approval of at least three or four other women in the group.

All transactions are recorded in two cash books. The first is a cash book for the entire group (in which is recorded each transaction of receipt or payment of funds). The other is a member passbook for recording individual accounts: current balance, deposits, loans, payments. [69] When the WSGs first began in 1985 in Bhangadh and Mingalpur, the task of recording the cash was entrusted to Devuben, who was the only literate woman in those two villages. Over the years she taught other women in her village to read and write. These women now record the proceedings in both Bhangadh and Mingalpur villages. Devuben still lives in Bhangadh and attends all the meetings; in fact, the meetings are often held

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[69] This idea of keeping passbooks came from a workshop on women's savings groups held in Udaipur in the fall of 1990, which some members of both Bhangad and Mingalpur attended. The workshop, hosted by a Rajasthani NGO 'Astha' and sponsored by Friends of Women's World Banking, sought to bring the experiences of different Indian women's savings groups together.

in her house, but now these groups are not dependent on Devuben's presence as they once used to be. Other women, particularly more younger women, are assuming leadership of the mandals in these two villages.

The spirit of ownership that this activity generated among the women is evident .

> At a Bhangadh meeting, Jasodaben pointed to the record books beside which I was sitting. She asked me slyly, "Whose books are those?" Without thinking, I answered "Devuben's" because I knew Devuben had brought them to the meeting. Jasodaben laughed and corrected me, "No Gauriben, those books belong to us (the mandal)."
>
> (Sreenivasan, 1990:29)

In the surrounding villages too savings groups began to emerge. Meanwhile, Mahiti also began to grow in its membership. Now, twice a month, one member of Mahiti who is literate attends the mandal meeting in his/her designated village and in the event of no other literate woman member being present, this outside Mahiti member records the savings for the group. The Mahiti member also acts as a link person with the other mandals. This practice, along with the constant daily interaction that the members of Mahiti have with the women in the mandals resulted in an abiding bond of trust, which became the basis for other kinds of collaborative action in the villages. Once the financial transactions are done, these meetings get transformed into oldstyle singing sessions. This is an added attraction for other women to join the groups.

The loan pool was initially fed exclusively by the members'

own savings. Two years after their formation, when the Mahila Mandals became involved in other activities such as Pilu cultivation, the profits from these were funnelled back into the savings pool. This increased the capital base for the villager's credit needs and helped finance other activities.

All members have access to loans. There is no restriction on the use of a loan, though this must be declared to the group. A borrower must leave a collateral of equal value to the loan amount. The loans are usually small (less than Rs.1000) and women usually have enough jewellery to serve as collateral. The schedule of repayment is left to the borrower. Generally borrowers tend to make monthly payments towards their interest and pay the principal later. So far there have been no cases of default or long overdue accounts. The fact that the women interact with each other daily cultivates a strong sense of responsibility in borrowers who do not wish to default and hurt the other women in their community (Sreenivasan, 1990: 23). In 1990 the loans in Bhangadh and Mingalpur that were made available to the women amounted to Rs.20,000.

Loan approval

A "committee" consisting of one representative of each caste or phali (sub-caste) was formed within the savings group to consider loan requests when the group did not have sufficient money to meet all the requests for loans. The criteria for approving loans were agreed to in principle by all the women in the mandals. The first preference went to meeting the most basic of

needs such as for medicine or medical care; and the needs of the poorest women came first (Sreenivasan 1990: 27).

There are many instances of women volunteering to support other women who were unable to provide collateral by taking the loan on their behalf and providing their (the volunteering women) own collateral as guarantee. Such acts of generosity are not uncommon and are held in great respect in the mandal. This further enhanced their solidarity with poorer women even those outside the mandal.

In this way the WSGs mobilise their communities and act as a local bank to save and borrow capital whenever it is needed. It must be pointed out, however, that these groups are different from formal institutions and other informal savings groups initiated by development agencies (such as the Self-Employed Women's Association SEWA [70]), where the loans were restricted to "income generating" uses, for example, to increase the productivity of land.

The loans of the women's savings groups in the Bhal fall under the 'unproductive' category in terms of conventional and official reckoning. They are used for a variety of purposes ranging from bus fares, medicine, weddings, repaying the Darbar and sometimes to finance agricultural inputs. The capital saved is not used to generate more capital per se but primarily for consumption or the immediate sustenance of the communities.

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[70] SEWA is a well-known (Gandhian inspired) women's organisation in Ahmedabad, which has started several income-generating projects for poor women.

Advantages

The kind of loan services the women's groups offer are markedly different from those of the Darbars. The interest rates are low; repayment is flexible, and there is no physical violence or intimidation. Also, the loans are more accessible to the poor, and whatever the size of the loan, it is considered legitimate. Darbars often encourage the borrowers to take only large loans - more than what is needed (Sreenivasan, 1990: 22). [71]

Impact of women's savings

Before the savings groups, women had saved money; but as individuals their savings were more easily appropriated by the men in the household. Saving in groups thus provided a protection to their income and reduced their dependence on men. (Sreenivasan, 34). Since only women could officially take the loan, men are dependent on their wives for loans offered by the Mahila Mandal. Because of their access to loans, women are respected more by their family, and to that extent there has been a change in the wife-husband relationship and correspondingly a rise in the status of women in the family.

The women have developed greater confidence in their collective strength. As interaction with each other has increased, the women felt better equipped and more in control. Women are also increasingly speaking out against the Darbars. Dependence on the

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[71] There were many instances such as one that the women in Mingalpur narrate about how a man who went to the Darbar for Rs.500 was given Rs.1000. The Darbar said, "Here, take Rs.1000 you may need it" (Sreenivasan, p.22).

Darbars has been reduced. For example, in 1987, in Mingalpur, a Darbar, who was threatening a guarantor for a borrower, was confronted by the women and chased out of the village.

Women's savings groups can thus be interpreted as an agency eroding the socio-economic stranglehold of the Darbars. Capital is generated locally, material conditions for production are generated locally, a greater step towards self-reliance has thus been taken. The change that women experienced in this process is summed up in one woman's (Sauriben) comment that she felt "like a frog that has come out of a deep well" (Sreenivasan 1990:22).

The WSGs soon developed a momentum of their own. As mentioned earlier, the WSGs originally began in two villages and now more than fourteen villages have WSG's creating a ripple effect in the surrounding smaller villages. In smaller villages like Khun and Rahatalav, women meet regularly, contribute Rs.5 at every meeting, and discuss ways in which to expand their membership. Most of the women of the area who are married carry these ideas with them back and forth between their parents' and in-laws' villages.

Access to credit reduced the dependence on the Darbar. But since the capital base of the Darbars still survives inspite of its partial erosion by the alternative provided by the women's groups, those requiring large loans still cannot escape dependence on the Darbars. However, the WSGs role has reduced some of the Darbar's stranglehold, and one can say that as an agency of social intervention, it is creating a sustainable change in rural relations.

Harvesting Rain

> We knew there was a depression in the land there.. a couple of kilometres away from our pond where fresh rain water gets collected. There was some rain there. We decided to dig a channel and bring this rain water to the pond. It was a very difficult task, but all the people of the village worked day and night for several days and finally we got this water to the pond. We didn't need any money to do this. We did it with our labour.
>
> A woman in Mahadevpura (during the drought of 1987)

Large dams have been justified in the name of protecting vulnerable regions from drought. According to the conventional definition, regions which receive less than fifty percent of the normal (668mm) annual rainfall, are described as severe drought-prone areas. The paradox is that the majority of the areas which are classified as drought prone, receive rainfall well above the national average. There are many instances of high-rainfall areas experiencing drought. Critics argue that even low-rainfall areas get enough rainfall to satisfy the local needs for drinking water and agriculture (People's Science Institute 1991: 11). There are numerous examples of arid areas sustaining themselves by developing systems to harvest rainwater. But these local systems have come to be ignored and neglected in the mainstream drive to harness rivers. The women's groups in the Bhal are striving to revive the traditional systems of water conservation.

The technology of rainwater harvesting respects nature's processes. It is labour intensive and is dependent on the traditional knowledge and skills of the local people. But these practices are diminishing as people in both rural and urban areas

have come to be dependent on piped water provided by the state. As the sources of water become more distant, people's attention was diverted from systems which depend on rainwater. State-funded schemes have proven to be expensive, unreliable and alienating. It is in those rural areas where the crisis is most severe that these systems are being revived once again.

In the Bhal most of the original village ponds or the "gaam talaavs" are no longer functional beyond the first two or three months after the monsoons. The bunds (mud walls) protecting the ponds are broken and have been washed out by floods in monsoons. By February or March each year, water begins to evaporate and salt seeps in, making the water in these ponds saline. [72] With the onset of summer, by May or June, temperatures rise to forty six degrees centigrade and the ponds dry up completely. People in these villages collect water from hand dug "virdas" or water holes in dry beds of the village ponds. But with the increase in salinity, these too yield only brackish water [73].

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[72] These shallow ponds contain brackish water which has salinity levels of up to 3000-4000 ppm (parts per million), which exceeds the health standards that require that drinking water should not exceed 1000 ppm.

[73] At a women's shibir (camp) organised by Mahiti in 1992, Maju behn who is from a village called Navagam Karna in the Bhal area, brought a bottle of green-coloured water to show the kind of water the villagers are forced to drink in summer.

Rain in the Bhal

When it rains it floods, when it doesn't there is a drought.

Vijuben

The average annual rainfall in the Bhal is about six hundred mm, (national average is 668mm) which is normally spread over 35 days during the four months from June to September (P.P. Patel 1988: 12). In the Bhal, periods of drought follow periods of excessive rainfall, and heavy dust storms and cyclones in summer are common (Patel 1988:14).

The lack of an underground source of water makes the problem of drinking water particularly acute. There are only two ways one could address the lack of drinking water in the Bhal : bring water from outside, which is what the state agencies set out to do, or tap the existing resource, that is, to harvest the rain. The latter is what Mahiti set out to do.

The basic idea behind rainwater harvesting is to make better use of rainfall. Rainwater harvesting is particularly common in the arid regions of the country. For example, the desert city of Jaisalmer, in Rajasthan, which receives not more than 400 mm of rain, has five hundred to seven hundred rainwater harvesting systems called "Khadins." In the more wet south India, about forty thousand gravity-fed tanks have been counted in Tamil Nadu. These simple, small-scale systems for harvesting rainwater, which act as drought-proofing mechanisms in the driest regions, have been dismissed in mainstream approaches which are set on a path of acquiring more and more new sources of underground water and

diverting the flows of rivers to arid regions. The modern systems are based on an assumption that the bigger the problem, the larger the solution.

An idea takes root

In the Bhal, in order to utilise the rain, the problem of salinity had to be tackled first. A number of experiments were carried out to improve the capacity of the existing village ponds. Meanwhile, some men from these villages who in the course of migration had worked in the construction of irrigation canals came up with a new idea. When they returned to the village, they talked about how irrigation canals were being lined with polythene. They felt that if their village ponds too were lined with plastic, it could prevent salinity from seeping in and also prevent rainwater from seeping underground. The water could thus be stored for longer periods of time and in potable form. Thus began a collective response to solving the drinking water problem. Mahiti pursued this idea with the assistance of Indian Petrochemical Limited, and in 1983-84 Mahiti constructed the first "plastic-lined pond" to conserve rainwater at the People's Learning Centre in Dholera.

Plastic-lined ponds

The technique of rainwater harvesting tried at the People's Learning Centre was an improvement over the original approach of digging ponds to store rainwater for domestic needs. The new technique involved digging a ten-foot-deep pond which was then covered with a plastic film. The plastic film lining the pond bed

was in turn covered with a thick layer of good soil. A wall was constructed around the pond to prevent flood water from flowing into the pond and inlets were dug to bring water into the pond. The pond thus serves as a storage reservoir. No electricity was required to draw water from the pond. Instead, a smaller storage tank was constructed next to the pond so that water flows from the pond through a system of sand filters into the tank. People draw filtered water from the tank with the help of hand pumps without polluting the pond itself. The storage tank was designed to store about 15,000 litres of water. The ponds, inlets and the tank were designed to take advantage of the natural pull of gravity on the flow of the water.

Based on this initial experiment, in 1985 another plastic-lined pond was constructed in Rahatalav. This technology proved its worth when water remained in these ponds for more than eight months after the monsoons. In the summer of 1986, when all the old (unlined) village ponds dried up in the surrounding villages, the lined pond in Rahatalav was the only source of drinking water for the entire area.

Encouraged by this experience, the people in the surrounding villages with the help of Mahiti made applications to the central and state governments for funding. In response to this, a team from the Technology Mission in Delhi visited Rahatalav, talked to the people in the surrounding villages, and finally a scheme to construct a series of lined ponds was approved for seven villages. Soon after, the implementation of the project began in January 1987

in Khun, Rahatalav, Mahadevpura, Bhangadh, Mingalpur, Rajpur and Zankhi. The Council for the Advancement of Rural Technology (CAPART), an autonomous body under the Department of Rural Development funded the project .

Labour power

Indigenous water systems require intensive human organisational inputs. The presence of a network of women's groups, who were already catering to the needs of the community through projects such as savings and loans, provided the necessary social support for the system of rainwater harvesting in the Bhal area.

The actual construction is a labour-intensive process, and the major responsibility for organising and supervising the construction work was taken up by the Mahila Mandals and youth groups. Strong efforts were made by these groups, particularly the women's groups, to prevent migration. The women's groups worked to persuade their menfolk against the 'easy' option of migration by impressing them with the alternative opportunities for employment generated by the water conservation project. These rain-water projects provided a modicum of employment, at least during construction. Not only the women directly involved in the promotion of this idea but other women too were able to convince their husbands to stay home and help in the construction of the ponds. As a result of their efforts in the summer of 1986-87, about eighty percent of people in seven villages stayed and became involved in the construction of these ponds (Utthan-Mahiti video).

For the first three to four months the people in these seven

villages worked without any pay. It was only later, when funds for excavation came from the National Rural Employment Programme (NREP) under the scarcity work programme, that people received wages at the rate of Rs.11 a day. Thus the water systems were built entirely by local labour.

Women's role

The involvement of women in the construction of these ponds is a perfect illustration of how people took ownership of the process of construction and maintenance of the water system, thereby beginning to reclaim their community's rights. Women's role in the construction of the rainwater ponds was not restricted to their labour alone. In many cases, they confronted both village authorities and state officials in selecting the sites for the ponds and in actively intervening to prevent corruption during the construction process. For instance, in supervising the construction work, one representative from the Mahila Mandal would accompany the construction supervisor on his rounds to ensure that work was being done properly (and people's wages were being recorded properly). This supervision prevented extra monies from going to the supervisor and the village sarpanch (leader of the village panchayat). Instances of corruption were immediately noticed, reported, and checked by the women's groups as can be gathered

from this statement by one of the women in the Mandal.

> When somebody came and complained to me about the corruption in the pond, I went there and asked those people not to do so. But they abused me and tried to beat me up. I came back home, and then the women's groups sent a complaint to the government. But the same people came and apologised, and so we decided not to take any action against them.
>
> Uththan-Mahiti video

Women's roles were not restricted to supervision alone. Their knowledge of the land was a critical component in the construction of the lined ponds.

Knowledge of the terrain:

> The village leaders said the pond should be dug at one place, and women and the people suggested another site. Unlike other times, we were able to stop work for three days until a right decision came. The sarpanch and his men went to the government, and the women with some men also went to the officials. Finally, the engineers approved the site selected by the women and the village as meeting technical standards and work stared there.
>
> -A woman from Mingalpur
> Utthan-Mahiti video

The predominant feature of the rainwater harvesting system was its dependence on local knowledge of the land and climate conditions. This knowledge was an important factor in the success of the system. It was important to know the locations of the depressions in the land and the direction of water flow in order to select the right site for the construction of the ponds and the inlets which led to it. The water that was collected in the catchment was guided into the pond through the inlets. Since it was women who spent most of their time walking and looking for water, their knowledge of the terrain and the catchment areas became a

critical input in the selection of the sites. Whenever there was a conflict between the village leaders and the women about a site, it was the judgement of the women that proved right, and it was their choice that prevailed. For example, in Mingalpur, the Sarpanch initially refused to allow the women to select the pond site and pressured the engineer to approve another site. But the people of the village decided to dig at the site selected by the women.

The participation of people in developing the water systems was not limited to the construction of the ponds. Several rules were developed to maintain the ponds. Villagers also proposed to build temples on the banks of the ponds to prevent people from polluting the waters (Hiraway 1988: 24).

Advantages over piped supply

The advantages of these decentralised, small-scale water systems over the centralised water supply schemes of the GWSSB are many. Unlike the state supported systems, which have had an alienating effect on the village communities, these systems allow for local participation and input. In fact, the local systems require a strong group commitment on the part of the local communities to control, operate, and maintain the system, and they have elicited this response (Ray, 1986, 241). Not only are these systems relatively less expensive to construct and maintain than the modern systems, but they have also improved people's access to

water. [74] They enable women to draw water at their convenience instead of being dependent on the valvemen or the supply of electricity. As these ponds were located in the villages women do not have to walk as far and have fewer conflicts over water. There is no scrambling and fighting for water at the pond as was common at the pipeline.

Six years after the lined ponds were built, a pattern was established in the way people supplemented the government supply with their own sources. The village people obtained water from the pipeline when they could and saved the water in the pond for the most difficult times of the year. Thus while lined ponds provided an alternate source of water to the people, it has not reduced the dependence on the pipeline. It is only when the pipelines go completely dry in summer that people resort to supply from lined ponds.

Still, to the extent that these systems "push back the margins" and increase the self-reliance of the poor, they have a long-term effect in reducing rural-urban migration (Ray, 1986, 241).

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[74] The total cost of a pond which could store about 1.1 crore litre of water is about 3.5 lakhs. A pond which could store about 2.6 crore litres of water could cost about 5.6 lakh rupees. (Statistics from Utthan-Mahiti's reports).

Extending community ties

There are some instances when the ponds provided water for people and cattle living beyond the village community. During the drought of 1987, when rains failed in most parts of the Bhal, the people in a small village called Mahadevpura joined forces and brought water from a nearby catchment area to the plastic lined pond. As a result the pond in Mahadevpura had seven to eight feet of water during the entire period of drought . While this water could have supplied people of Mahadevpura with water for about a year, the local people decided to share it. They held a cattle camp for about five to seven surrounding villages thus extending their bonds of solidarity and their community ties beyond their villages.

In the state of Gujarat, saline land covers an area of eight thousand square kilometres and includes more than a thousand villages. Most of these villages suffer from chronic water shortages. The rainwater harvesting system developed in the Bhal by Mahiti is now being extended to other areas with similar conditions. At a recent meeting with the Minister for Minor Irrigation and the Chairman of the GWSSB, representatives of Utthan and Mahiti urged the Ministers and the Board to introduce rainwater harvesting on a larger scale in the coastal area. Utthan also produced a video documenting the process and is now showing it to the surrounding villages to mobilise people on this issue. Women's shibirs or awareness camps conducted by Mahiti at the People's Learning Centre have brought together women from a number

of small villages who are trying to initiate this idea in their own villages.

Slowly the women's groups in the villages began to take on other activities such as afforestation to restore the land. From reviving water systems they have expanded to reviving the indigenous species of plants, in particular the Pilu.

Planting the Pilu: Restoring the land

> When I sat in the jeep to visit the Pilu plantation in Mahadevpura with Laddu bhai, Bindu and Naishad and the CIDA representative, little did I realise that we were going to one of the most remote and inaccessible villages in the region. It was just before noon and the sun was at its peak, except for a lonely Pilu tree, stray patches of mustard and grass the landscape was bare. As the jeep strode over the kutcha road it stirred up storm of dust behind it. Unconsciously I looked behind to see if anyone was behind, but... there was no one in sight. After what seemed an endless drive in the heat, we saw patches of green and yellow and at the far end a village appeared out of nowhere.
>
> Fieldnotes October 25, 1992.

Nearly seventy percent of the geographical area of the Dhandhuka taluka in the Bhal has been classified as unproductive "wastelands." Degraded lands are both a cause and a consequence of migration. Improving the land is critical to curb migration. Initially several ideas were tried out by Mahiti and the Mahila Mandals in their discussions with the local people. The first was to build 'pala' or bunds to prevent sea ingress along the coast-line. The second was to grow indigenous plants that would (a) create a ground cover which would reduce salinisation, (b) increase organic inputs and thereby improve soil fertility allowing farmers

to grow more fodder or grass and, (c)provide a source of income to the local people from the 'unproductive' land.

The first option of building a sea wall was an expensive one, so Mahiti followed the more economical option of afforestation, which also had an economic advantage. They began with a modest effort of initiating a Pilu seed collection as a source of income among the villagers.

Pilu or Salvadora Persica is a perennial, drought resistant plant which grows in the saline tracts of the Bhal. While the jungles of Pilu, which were an important part of the history of the Bhal, are no longer visible today, there are still some trees along the coast. The fruits of these plants are edible, while its seeds which are rich in oil, can be used in soaps.[75] Around the month of March, when the seeds are ready for plucking, local people equipped with food provisions for two or three days would set out to camp on the coast to pick Pilu seeds. They then sold the seeds to traders at cheap prices or exchanged them for wheat. Earlier, Pilu was never a significant activity or source of income for the villagers.

Realising the commercial potential of the seeds, Mahiti began women's groups and youth groups to organise the collection and marketing of seeds (previously harvested only intermittently by individual villagers). The women's groups i.e., the Mahila Mandals, set up a system where they bought the seeds from the other

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[75] The oil of Pilu is non-edible, used commercially in the manufacture of soaps and cosmetics.

villagers and sold them in the market themselves [76]. This benefited both groups instead of the traders. This activity, initiated by women's groups, has motivated a large number of families to take up plantation activity on "wastelands." Now most of the villagers sell the seeds to the women's groups.

From organising the collection of seeds from already existing Pilu trees, the Mahila Mandals moved on to start their own Pilu plantations. The Mahila Mandals registered themselves as a cooperative to be eligible for government loan funds to purchase wasteland and start their own plantation. Several methods of planting were tested at Mahiti's Centre. They realised that Pilu provides a natural protection to the soil from salt as it purges the salt at its roots when it grows. Also, wherever Pilu grows, a local grass known as "murad", tends to grow along with it. Thus the ecological and economic considerations made the growing of Pilu an important part of Mahiti's and the Mahila Mandals' agendas for transformation in the Bhal.

A youth group of forty young men from a village called Khun also applied to the government for lease of revenue land. This encouraged large numbers of other people to lease revenue lands for Pilu plantation. Together with the people of the area, Mahiti prepared a proposal to be submitted to the National Wastelands Development Board (NWDB) for funding. In 1986-87 the Yuvak Mandal (Youth group) received funds from the NWDB, and the first Pilu

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[76] The Mahila Mandal took a loan of Rs.60,000 from Mahiti to buy Pilu seeds from the villagers.

plantation was set up on seventy hectares of land in Khun. About seventy-five farmers got together and planted one hectare of land each. In all, eight hundred and forty seedlings were planted. Several farm ponds were constructed to harvest rain and provide water for the plants.

Four Mahila Mandals from four different villages have now acquired twenty hectares each of the common land. The plantation land will be held in the name of the Mahila Mandal, and women make all decisions regarding its use, sale of produce and use of revenue.

All these efforts are making women more self-reliant and less dependent on tneir men. Further, the Pilu plantations provide a source of employment and income and give the women a reason to stay behind rather than migrate.

Village communities, under the leadership of the womens' and youth groups are reclaiming their lands from the state. In this way, the women's groups or Mahila Mandals in the Bhal are acting as chief agents of change in the Bhal by reclaiming the capital, land, and water resources which mainstream development has systematically denied them.

Meanwhile, on the other side of the Gulf of Cambay, the resistance against the Narmada dam has been becoming stronger. An attempt was made in December 1992 to connect the struggles of the women in the Bhal with the anti-dam movement through a trip organised by Mahiti. A group of one hundred women from the Bhal reached the site of the Sardar Sarovar dam on December 6th 1992 .

But communal riots which erupted all over the country during that time compelled them to turn back without actually going to the valley where the resistance was based.

Conclusion

This chapter illustrates how women's groups in the villages of the Bhal are mobilising to bring change in their daily lives. The explanations for this kind of collective action can be seen in terms of the theoretical frameworks described in chapter two.

For example, the relevance of ecological Marxist theory can be seen in the field under study, in so far as the efforts of the womens' groups can be analysed as struggles for "conditions of production" : land labour and space. The women's groups I have shown focussed mainly on three main areas: (a) drought - lack of water (b) debt - lack of cash (c)migration - loss of labour and consequent loss of space. By gaining access to these three "conditions of production" (water, cash and labour) they can be seen as gaining access to their natural, personal and communal conditions of production.

The ecofeminist perspective as well as the Marxist feminist perspective emphasised women as the primary agents of change. The ecofeminist perspective emphasised the importance of recognising the relationship between women and nature (water) and the importance of recognising women's indigenous knowledge systems. By using their knowledge of not only their ecological conditions but social and economic conditions for the survival of their

communities, the women's groups in the Bhal have demonstrated that they play a critical role in the survival of the communities. However it must be noted that not all the women of Bhal were involved in the struggle for survival. It was only the lower class, Kohli Patel women who were active in the Mahila Mandals and exhibited a knowledge of the terrrain. This draws attention to the Marxist-feminist connection between gender and class.

While the case-study of Mahiti is one example of how village communities have been responding to drought by reviving their indigenous technologies and forms of social organisation, they have been by no means alone in their struggles for survival. By the late 1980's, anti-drought struggles were breaking out in many places in the country. The need for a national-level campaign to fight drought was being mooted by Delhi-based groups such as Participatory Research in Asia (PRIA). In Gujarat recently attempts are being made by the urban based group - Utthan to link up the various anti-drought struggles in the province. In October 1994 in Ahmedabad, a network of groups like Mahiti was formed. They called themselves "Pravah" meaning "flow."

Conclusions : Putting the Plug?

> Question: What is the hope for reclaiming the soil of the Bhal?
>
> Nafisa : None. One cannot talk about "reclaiming", one can only talk about improving the top soil. One way of doing this is to collect sweet water in some areas through bunding. The pressure of the water which gets collected will push the salinity down.
>
> (Field notes, November 24, 1992)

Over the last fifteen years, the relationship between Utthan and Mahiti has continued to remain strong. [77] However conflicts between different factions within some villages (such as Mahadevpura), in other villages, between the village leaders, the Sarpanches, and the women's groups as well as between the Mahiti's own members produced several setbacks in the functioning of the group. A number of youth groups (Yuvak Mandals) disintegrated and failed to regenerate.

It is the womens' groups (Mahila Mandals), however, which have consistently remained strong. How did the women's groups sustain themselves? Why did they remain strong while the youth groups collapsed? There could be several explanations for this. Firstly, as already mentioned, women were less inclined to migrate than the men, so they were more inclined to undertake sustained leadership. Devuben who is an exceptionally committed woman

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[77] This was undoubtedly due in no small part to the commitment and the excellent personal relationship and understanding shared by the two women who lead these organisations - Nafisa and Devuben.

provided an important role model to the women in the Bhal. When Mahiti began in 1980, she was the only woman member of the team. Over the years she gathered an enormous respect and credibility both within the groups and in the village communities as a whole. Thirdly, as new members joined Utthan and Mahiti, the number of women members increased. They influenced the formation and strengthening of women's groups in the new (and old) villages they worked in.

The People's Learning Centre

From the beginning of the 1990s closer contact with the village communities became possible as more Utthan and Mahiti members started staying at the People's Learning Centre in Dholera. [78] The Centre also provided a meeting place for people from different villages to interact, to exchange ideas to plan and to come together for shibirs.[79]

All this is not to say that the conditions in the Bhal have changed dramatically. The domination of the Darbars continues. There have been significant confrontations with the Darbars and

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[78] Staying at the Centre is particularly convenient not only because of its proximity to most villages where Mahiti is working but also because it has an artesian well which provides a twenty four-hour supply of hot, salty water for bathing. Where water is scarce, this is a luxury! The People's Learning Centre has also become a place where outside visitors can stay.

[79] Shibirs are programmes (camps) conducted to raise awareness on issues such as domestic violence, adult literacy, health awareness, and untouchability.

local government officials, which has led to increasing tension in the region.[80]

However, the lack of availability of water is still a major burden increasing women's labour. It remains a major cause for migration and water-related diseases are still the major cause of death among children in the area. How do you stop the flow of people from rural to urban areas? How do you prevent the diversion of water away from the sustenance needs of the poor to the needs of the thirsty crops of commercial agriculture or to sustain the needs for electricity of industrial enterprises? How can one plug the drain of water, labour and capital? [81]

By embedding the efforts of the Mahila Mandals in the Bhal within the historical context of the relationship between the state and village communities, I have attempted to look at how the problem of drought is rooted in the politics of water in India. As Chapter Three reveals, the state, in its drive towards industrialisation and capitalist growth, imposed modern water

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[80] For instance, based on statements made by members of Mahila Mandals along with other village women, the houses of Darbars were raided by the police. But the Darbars put a tremendous pressure on the men of the village who in turn forced their women to withdraw their statements. In another instance, charges of corruption were laid by Mahila Mandals against officials of the local minor irrigation department. For the first time they were fined and transferred.

[81] Peggy Antrobus, the founder of Development Alternatives for Women in a New Era (DAWN) in a talk at the Global Assembly on Women and Environment at Miami 1991, said that the efforts of womens' groups and small communities were like pouring water into a bath tub. Unless there is a plug, (here she means, unless there is structural change) these efforts could go down the drain.

systems that ignored local needs and undermined the community expertise on which the indigenous systems were based. The introduction of new water extraction technologies led to depletion of surface water resources in the rural areas. This was one of the main factors for the increase in rural migration in India. Thus the drain of labour from the villages, the migration of rural people to urban areas, is linked to the depletion of water resources. Chapter Five reveals how within the specific context of the Dholera region of the Bhal, ecological (drought), economic (debt) and social (migration) deterioration are inextricably linked.

Chapter Five details how women's groups emerged and became involved in a wide range of activities. They have adopted a range of options for action such as forming saving groups, planting indigenous species of plants, and reviving indigenous water systems. All these actions were confined mainly to women. Participation in these activities has generated a local leadership in these rural communities that has begun to question local authority. However, it is important to emphasise that the women have not contested all the different sources of domination (state, class, patriarchy, technology) which have been identified by the proponents of the different theoretical perspectives described in Chapter Two.

In particular the lack of critical analysis of the state can lend itself to be described as closer to a Gandhian perspective.

Indigenous knowledge - Gandhian legacy?

By reviving indigenous techniques of water harvesting these groups are laying claims to indigenous knowledge systems which have been denigrated by modern science. While the dam builders point to the "wasted rivers", the women's groups point to "wasted rain". Reliance on local resources, both natural (rain) and human, is central to the Gandhian notion of self-reliant village communities.

Even while initiating their own activities, there is a general acceptance of the role of the state as these groups often depend on governmental and external sources of funding. [82] In their relations with the state agencies, their strategy involved lobbying bodies such as the Gujarat Water Supply Board to incorporate rainwater harvesting systems as an integral part of their drought-relief policy .[83]

Rajni Kothari, in his article "NGOs, State and Capitalism," contends that by asking for the integration of their efforts with

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[82] During the two months I was there, there were three visits from different funding agencies. Every time a potential funder paid a visit, all the Mahiti members had to leave their work in the villages, come to Dholera and be present to answer their questions. Each time the ritual was the same: they toured the Learning Centre, the solar distillation plant, the rooftop water collection system, the plastic lined ponds and the Pilu plantations.

[83] Anti-dam activists pointed to the misplaced priorities of the state where a lion's share of the budget, 80% of the state budget, was being used for the building of one dam, while smaller traditional systems that are more consistent with the history and needs of people were ignored. (Patkar, January 1994). But all these debates remained within the framework of the state's preeminent role.

the state, NGOs "lose the ability to critically evaluate government policies on behalf of people. They (NGOs) are given space only as long as they do not challenge large policies, even if they do - not too publicly " (Kothari 1984:2182). The liasoning with officials at the Water Supply Board and the ministers in Gandhinagar by the leaders of Utthan-Mahiti could be interpreted as efforts to establish vertical linkages with the state agencies. It is important, if we follow Kothari and Omvedt, to establish more horizontal linkages with other struggles in and outside the region. These will prevent actions such as those of the womens' groups in the Bhal from being limited to isolated localised initiatives.

There was also no conscious articulation of a feminist critique or strategy in the actions of the womens' groups. While they were concerned with drinking water issues, they did not question why women should do the domestic chores and not men. Nevertheless while women's issues did not play an important role in the formal agenda, to an important extent they did find an articulation in their informal agenda.[84]

For the women, the main aim of coming together "is to create space for women.." (Omvedt 1993: 228). The Mandals are regenerating the "political space" for women to dialogue (Omvedt 1993:229). New bonds of solidarity are developing among the women's groups of different villages. While it may be that they may not be able to resolve their problems entirely, while it may be that

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[84] During the Pravas, the skits that the women enacted mocked the 'male' actors in their lives: drunk husbands, gambling husbands, doctors, Darbars.

people may still migrate from the Bhal, there are nevertheless more incentives to stay now. It is in this sense that "Reclaiming the Bhal" should be understood.

Conclusion

The intention of this study was not to find the definitive plug or to establish a rationale for recommendations for change but rather to open up the politics of water for discussion. In spite of the growing severity of drought conditions, academic analysis of issues related to drought has been inadequate. The agenda for action is being established by anti-drought struggles emerging in different parts of the country. This thesis is meant to be a modest contribution to address the new agenda and to bridge the gap between academia and such struggles.

> Pick and shovel, iron platter,
> We're paving the taluka with roads.
> Drought is hanging on our backs...
> The storage of knowledge at the university,
> the colors of disco are growing
> and drought is hanging on our backs..[85].

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[85] Protesting against the lack of interest in drought studies, Mukti Sangarsh, a group in Maharashtra stormed the local university and demanded that drought be researched. Meanwhile, in Gujarat University, a geography professor, Anjani Desai, commented that it was difficult to motivate students to work in the Bhal area. The heat and lack of water were the major obstacles.

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LIST OF APPENDICES

Glossary of Terms and Abbreviations

Anicut	Wall built across a river to store and contain water
Ben	Means sister. It is usually added at the end of a a woman's name as a respectful form of address.
Bhai	Means brother. It is usually added at the end of a man's name as a respectful form of address.
Block	Middle level administrative unit designed for rural development consists of a number of villages
Caste	Unit of social stratification. The caste system in India is divided into four major divisions in the following hierarchical order - Brahmins (Priests), Kshatriyas (rulers), Vaishyas (traders) and Sudras (peasants). The untouchables (harijans or dalits) are the lowest in the hierarchy.
CGWB	Central Ground Water Board
CWC	Central Water Commission
Dalit	Term used to describe the 'untouchable caste'. It literal meanineg is oppressed and is a term which is being used in place of the term "harijan", by these castes to draw attention to the political nature of the oppression.
Dasabandam inams	One of the many monetary contributions that Muslim rulers gave people to maintain indigenous systems.
Gaam	Village
GWSSB	Gujarat Water Supply and Sewarage Board.
Harijan	Term given by Gandhi for the 'untouchable' caste.
NGO	Non-governmental Organisation.
NABARD	National Bank of Agriculture and Rural Development
Panchayat	Village level adminitrative unit.
Pravas	Pilgrimage
Sarpanch	Leader of the Panchayat.
Taluka	Administrative unit in a district.
Virdas	Water holes in village pond beds.

List of people Interviewed

In Gujarat

1) Devu ben, Mahiti, October, 1992
2) Neeru, Mahiti, October, 1992
3) Naru bhai, Mahiti, October, 1992.
4) Nafisa Barot, Utthan, November, 1992.
5) Sachin, Utthan, January 1994.
6) Father Gorus, Dhadhuka, December, 1992.
7) Bharat Patel, doctor at the Primary health care centre, Dholera, January, 1994.
8) Astad Pastakia, Behavioural Science Centre, November, 1992
9) Vijay Sherry Chand, Behavioural Science Centre, November, 1992.
10) Bharat Patel, Assistant Engineer, Gujarat Water Supply Board
11) Himanshu Vyas, Board member, Gujarat Water Supply Board, January, 1994.
12) Chairman, Gujarat Water Supply Board, January 1994.
13) Kevlanikar, Gujarat Water Resources Development Corporation, November, 1992.
14) Anjani Desai, Geography department, Gujarat University, October, 1992.
15) Jayashree, district magistrate, Ahmedabad district, October, 1992.

In Delhi

15) Bela Bhatia, SETU, New Delhi, January 1994.
16) Medha Patkar, leader of Narmada Bachao Andolan, New Delhi, January 1994.
17) B.B. Vohra, former chairman of Central Ground Water Board, New Delhi, January, 1994.

In Vancouver

18) Bob Anderson, professor, School of Communications, Simon fraser University, Vancouver, August, 1993.
19) John Wood, professor, Dept. of Political Scienc, University of British Columbia, Vancouver, August, 1993.

Transcripts

Excerpts from the dialogues of women of Bhal taken from a video footage shot during a four day tour (pilgrimage) organised by Mahiti in December 1992.

I. Discussion about the Bhal and the Narmada dam.

1. Vijuben :We get rains only in monsoon. Even that is erratic. When it rains it floods. When it doesn't we have a drought. The water from the canal is our only hope. Either we get waters from the Narmada or we have nothing at all. No crops, no solutions to our problems.

2. Devuben: We are anxious to see the canal because we expect that when the waters come our lands will become productive.

Other women: Yes, Yes.

3. Devuben: But this is not possible because our lands are saline. We have so much salinity that it goes six feet deep. When you try to plough the land you dig out salt. This salt mixes with the good soil and makes it useless. So the land of bhal is unfit for irrigation. So for us the canal is really useless.

4. Vijuben:So then what do we do? What will people in the sanstha (organisation -NGO) do for us?

5. Devuben:Mahiti or any other sanstha cannot do anything for you. They may only tell you what to do. The initiative to do things has to come from within. Why should we expect outsiders to come solve our problems, to fix our land? If we don't understand our land, it will not improve. Our biggest strength is our determination. With that we can achieve anything.

II.Discussion about the need for collective action (joining Mahila Mandals or womens's groups)

6. Devuben: Where do we spend all our energies? We are always either working in the fields, cooking or fetching water. We have no time to even think....Quite often we think that if we join the Mandal we neglect our families. What it means is we do something which is useful for our community , for the village, for our families and for ourselves.

III. About transformation

7. Devuben:To transform our daily lives. That is what we should try to do. To transform every aspect of our daily lives, to learn from nature, from people, from society, so that we get new ideas in our lives and overcome our difficulties.

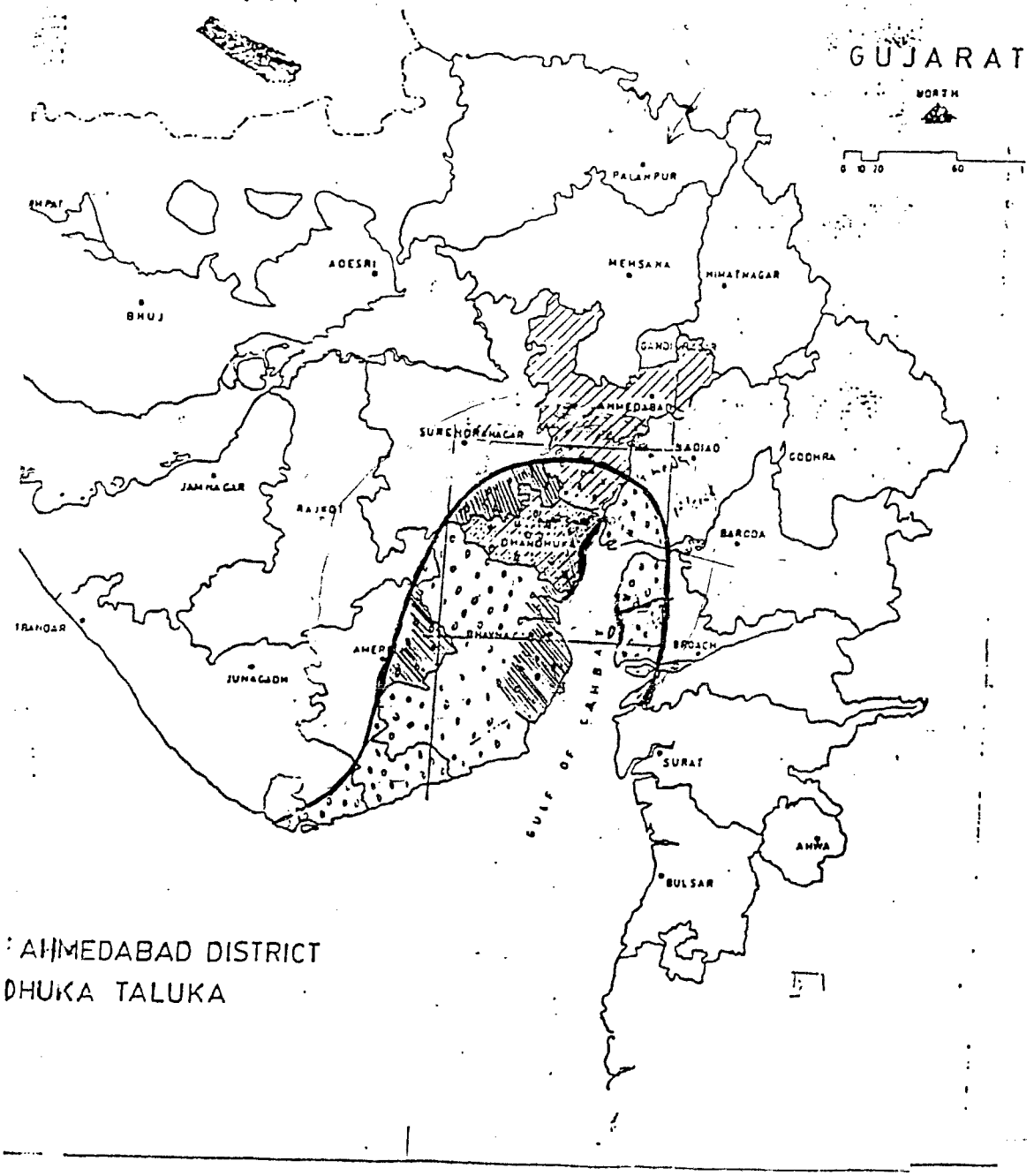
8. Devuben:We have set out on this journey to create a new way of thinking.What is new that we can implement to get out of our difficulties. Just bowing to this deity or that, offering money here, and there is not going to do much good.

9. Devuben:I saw the conditions in Bhangadh and Mingalpur 25 years ago. There was so much hardship it is hard to imagine how people live. But along with these hardships some solutions came about. Today some of these efforts are working.But that is not enough. It is not enough to just form a savings group or a mandal, it is important to constantly think about questions which affect our communities.

10. Devuben:We have a lot of potential within us. We should understand this potential, bring it out and use it. Go to the temple and offer worship by all means but what is more important is to realise that what we seek outside and worship as Chamundi and Kali is not outside. Kalika is not outside. She is within each one of us.

11. Devu ben Each woman here has a different experience. If each one comes out with her own thoughts, we can understand each other. How can the older groups support the newer groups? How can we get closer to each other and support each other in our own small broken ways.

12. Devoo ben:
Above us is the upper class.What are we? We are the lower class.Why are we below them? Because we have little land, little income.The class above us has everything.They have name, fame and land.
If they can live like that.Why can't we?
If they can have everything? Why not we?



AHMEDABAD DISTRICT
DANDHUKA TALUKA

BHAL AREA

AREA IN WHICH WORKING AT PRESENT

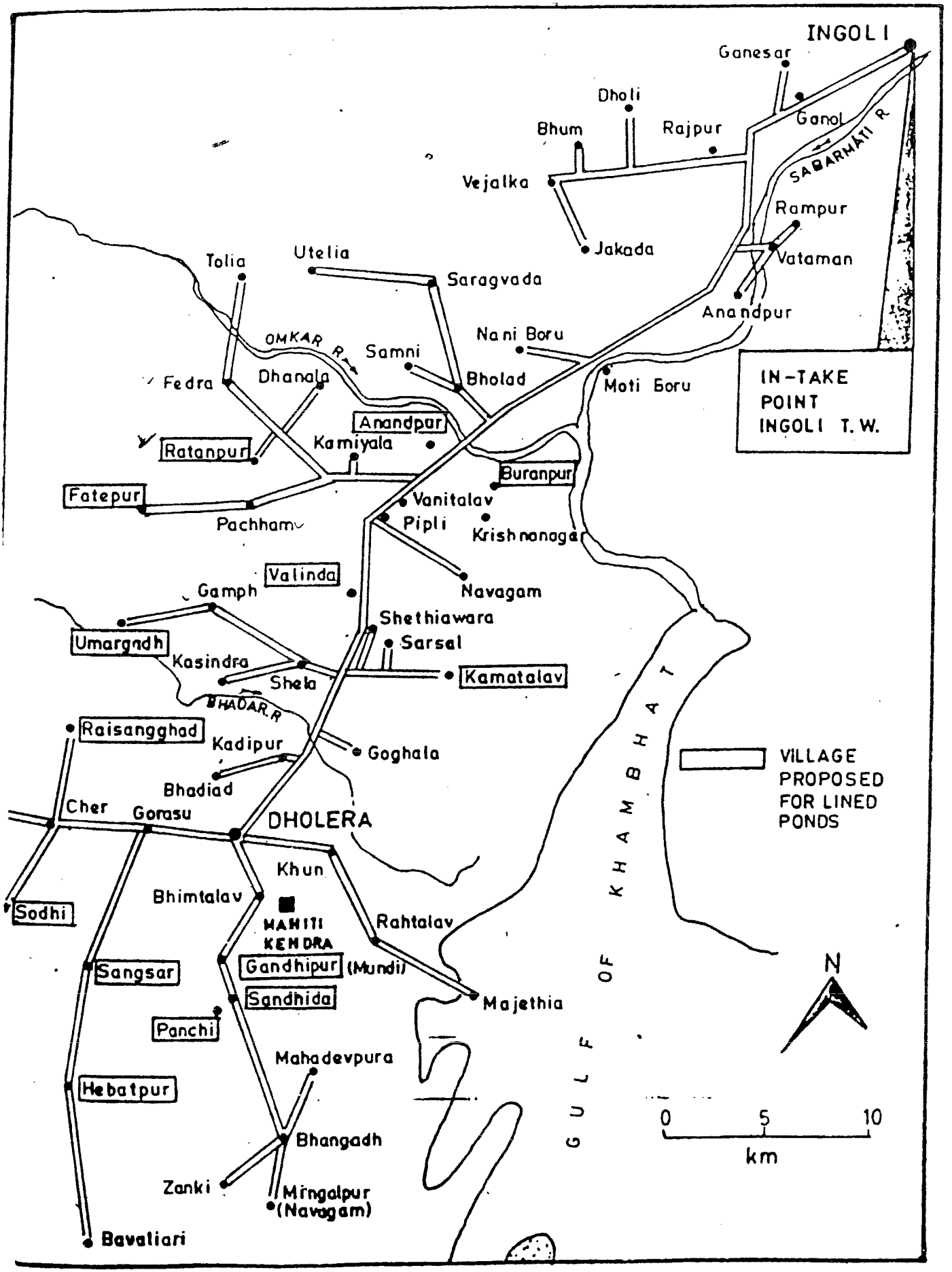
1) RAHATALAV
2) KHUN
3) RAJPUR
4) ZAKHI
5) BHANGADH
6) MINGALPUR
7) MAHADEVPURA
8) BURANPURA
9) SODHI
10) GANDHIPUR
11) UMARGADH
12) HEBATPUR
13) PANCHI
14) SANGASAR
15) KAMATALAV
16) NAVAGAM
17) VALINGA
18) RATANPUR
19) ANADPUR
20) FATEPUR

PROPOSED AREA OF FUTURE WORKING IN DHANDHUKA TALUKA

1) GAMPH
2) DHANALA
3) KAMIYALA
4) SANDHIDA
5) PANCHAM
6) CAHR
7) GORARO
8) MONDI
9) GOGALA
10) KADIPOR
12) BHOLAD
13) MOTIBORO
14) VANITAPUR
15) DEVGANA
16) AKRU
17) REYLE
18) SHELA
19) KHADOL
20) RAJKA
21) KHARAD
22) JINAR
23) NABHI

SALTY AREA.

DISTRIBUTION OF SABARMATI PIPE SUPPLY SCHEME IN BHAL AREA (G. W. S. S. B.)



WATER SUPPLY STATUS

Sr. No.	Village	(code)	Population Mahiti-1988	Supply Mode	Supply Condition	Alternative Source (km)
1	2		3	4	5	6
1.	Raisangadh		600	Tanker	Erratic	Aliyasar (2.5)
2.	Umargadh	(39)	800	Tanker	2 hrs/day	Aliyasar (4)
3.	Gamph	(38)	2200	Pipeline	Erratic	-
4.	Kamatalav	(62)	1300	Pipeline, Tanker	Erratic	-
5.	Hebatpur	(122)	4300	Pipeline, Tanker	1 hr/day	-
6.	Dhanala	(8)	1000	Pipeline	5 hrs/day	Borewell (1)
7.	Kamiyala	(11)	900	Sump Station Pipeline, Tanker	Regular	-
8.	Sandhida	(100)	1500	Pipeline	1.5 hrs/day	-
9.	Pachchham	(34)	2500	Pipeline	2 hrs/day	Kamiyala (3)
10.	Buranpur	(10)	1500	Pipeline, Tank	Erratic	-
11.	Kasindra	(59)	550	Pipeline	1.5 hrs/day	Ambli (6)
12.	Cher	(92)	550	Pipeline, Tanker	Erratic	Barwala (30)
13.	Panchi	(118)	1100	Pipeline	1 hr/day	-
14.	Sodhi	(91)	3300	Pipeline, Tanker	4 hrs/day	-
15.	Sangasar	(101)	1500	Pipeline	Erratic	-
16.	Gorasu	(94)	2000	Pipeline	3 hrs/day	Othana (3)
17.	Anandpur	(9)	600	Pipeline, Tanker	Erratic	Kamiyala (4)
18.	Valinda	(37)	800	Pipeline	Erratic	-
19.	Navagam	(36)	800	Tanker	Erratic	Pipli (5)
20.	Ratanpur	(12)	450	Pipeline	1 hr/day	Kamiyala (2)
21.	Shela	(60)	850	Pipeline	1.5 hrs/day	Ambli (2)
22.	Mundi	(99)	1100	Pipeline	1 hr/day	Tank (1)
23.	Gandhipur		800	Pipeline	1 hr/day	-
24.	Fatepur	(33)	1500	Pipeline	Erratic	Gamph (6)
25.	Bhadiyad	(65)	3200	Pipeline, Borewell	2.5 hrs/day	-
26.	Gogla	(63)	1200	Pipeline	3 hrs/day	Kadipur (2)

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