Community Participation in Rural Drinking Water and Sanitation Projects

A Comparative Study of Five Projects in India

Regional Water and Sanitation Group
South Asia, UNDP-World Bank
Water & Sanitation Program

IIM, Public Systems Group
Vastrapur, Ahmedabad-380015.

Danida

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Funding

- The study was funded by the Danish International Development Assistance.

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- ❑ Community participation in rural drinking water and sanitation projects — A case study of Dutch assisted Santalpur extension regional water supply project, Gujarat.

- ❑ Community participation in rural drinking water and sanitation projects — A case study of Danida assisted integrated rural sanitation and water supply project, Karnataka.

- ❑ Community participation in rural drinking water and sanitation projects — A case study of Danida and Dutch assisted rural water and sanitation project, Kerala.

- ❑ Community participation in rural drinking water and sanitation projects — A case study of ODA assisted rural water and sanitation project, Maharashtra.

- ❑ Community participation in rural drinking water and sanitation projects — A case study of SIDA assisted Bichhiwara water and sanitation project, Rajasthan.

Acknowledgments

The consultants wish to thank the following for their invaluable contributions made to this study:

- Peter Flik from the Royal Netherlands Embassy, Mark Harvey and Tamsyn Barton of ODA, Jens Bjerre, Poonam Bala and Mette Jacobsgaard from the Danish Embassy, for their suggestions and feedback.
- Shyamala Abeyratne from the Karnataka project and Balachandra Kurup, Isaac John, Elizabeth Zacheriah, O.T. Rama Devi, K.A. Abdulla and C.O. Kurian from the Kerala project for their contributions and support.
- Project officials from various State governments and Water Boards for the very informative interviews given by them, especially C.C. Shah and Shirish Kapadia of GWSSB, Malini Shankar of the Government of Maharashtra, M.P. Mohan of Kerala Water Authority and Pachgatti of PHED, Karnataka.
- Various NGO officials involved in the project : Devilal Vyas of PEDO, Chaya Dattar of TISS, Reema Nanavati of SEWA, Pallavi Patel of CHETNA and Ishwarbhai Patel of ESI. The field staff of the various projects gave us great support and insights.
- Sandeep Trivedi, Laxman Mankar, Bussi, Kishore Attawar and S.S. Jagnayak who organized and conducted the field data collection, and to Shwima Patel, Purvi Thacker and Joseph Phillip for data entry and analysis. Uma Maheswari who did an excellent job of typing the various drafts of this report and to Ravi Acharya for the DTP work.

Despite all the efforts put into the study, there are undoubtedly many shortcomings. For these, we alone are responsible.

List of Abbreviations Used

AKP	:	Action Aid Karnataka Project (NGO)
CHETNA	:	Centre for Health Awareness, Training and Nutrition Awareness (NGO)
CP	:	Community Participation
DANIDA	:	Danish International Development Assistance
ESI	:	Environment Sanitation Institute (NGO)
KWA	:	Kerala Water Authority
LPCD	:	Litres (of water) per capita per day
MWSSB	:	Maharashtra Water Supply and Sewerage Board
O&M	:	Operation and Maintenance
ODA	:	Overseas Development Administration (U.K.)
PAG	:	Project Advisory Group
PEDO	:	People's Education and Development Organization (NGO)
PHED	:	Public Health Engineering Department
PRA	:	Participatory Rural Appraisal
PWC	:	Panchayat Water Committee
SEU	:	Socio Economic Unit
SEWA	:	Self Employed Women's Association (NGO)
SIDA	:	Swedish International Development Agency
SWB	:	State Water Board
TISS	:	Tata Institute of Social Sciences
VWC	:	Village Water Committee
WWC	:	Ward Water Committee
ZP	:	Zilla Parishad (District local body)

Contents

Executive Summary

INTRODUCTION

1. This study seeks to understand the factors which promote or hinder community participation (CP) in rural water and sanitation projects, and how CP affects the outcomes. The lessons learnt from this study will facilitate the future design of water and sanitation projects. It is a comparative analysis of five bilaterally assisted projects in India, in the States of Gujarat, Maharashtra, Rajasthan, Kerala and Karnataka.

2. In this study, participation is seen as a means to an end: the end being better outcomes in terms of use of facilities, reliability of services, changes in health habits and sustainable operation and maintenance. Factors which affect community participation include:

a. System level variables such as the policy environment, the integration of CP into the project, project organisation, delivery mechanisms and the nature of agencies involved, and

b. Community level variables such as the existing water and sanitation facilities in the village, the effectiveness of local institutions and the past experience of participation by the community. CP is a major factor which affects the outcomes, and our concern is with this linkage.

METHODOLOGY

3. The study was conducted in 78 villages spread over five projects. Data was collected through a series of structured and unstructured interviews with project officials, village leaders, community members (at least half were women) and caretakers of the water facilities (wherever such persons existed). The survey data was collected over a period of ten months between May 1994 and February 1995.

MAIN FEATURES OF THE PROJECTS STUDIED

4. Three of the projects studied were conceived in the late seventies and early eighties as part of the initiatives for the International Water and Sanitation Decade

(1981 – 1990). The Gujarat and Kerala projects started around 1980, while the Rajasthan project began in 1986. The Maharashtra and Karnataka projects were conceived around the same time, though they were operationalised later.

5. As of 1995, the Rajasthan project has been completed; the Gujarat, Kerala and Karnataka projects were in an advanced state of completion (in Kerala, certain schemes have not made much progress but these were not included in our study), while the Maharashtra project had not started yielding water.

6. All the projects were assisted by foreign bilateral agencies: Gujarat by the Dutch Government; Maharashtra by the Overseas Development Administration (ODA) of U.K.; Rajasthan by the Swedish International Development Agency (SIDA), Kerala by the Dutch Government and Danish International Development Assistance (DANIDA), and Karnataka by DANIDA.

7. Three projects (Rajasthan, Kerala and Karnataka) were conceived as integrated projects aiming to improve the health standards of the people and incorporated CP from the beginning. The other two were originally conceived solely as water supply projects, though health objectives and community participation were incorporated later.

MAJOR FINDINGS OF THE STUDY

System Level Variables and their Impact on CP

8. The policy environment influences the nature and extent of CP possible in a project. A policy of no cost recovery makes participation in the form of cost sharing impossible. Even when there is a stated policy of cost recovery the policies that are implemented in practice affects cost sharing. Policies such as the choice of agency that would construct the facilities and maintain them also affect CP. The selection of construction methods and use of technology is often based on the norms and procedures laid down by Government agencies such as Water Boards. The communities are often not consulted on their needs and preferences. In projects where operations and maintenance (O&M) is done by Government agencies, the opportunities to participate are limited. In contrast, in the Rajasthan project and in one village in Karnataka, where NGOs were entrusted with implementation, the community had more opportunities to participate in the decision making and implementation process.

9. Despite the constraints of the policy environment, it was found that the level of CP varied in different projects. Inclusion of CP right at the inception of the project facilitated greater participation since the nature of participation and mechanisms sought to elicit it were clearly conceptualised. In projects where CP was introduced at a later stage, serious difficulties arose with the execution of the project and its coordination with the different agencies involved.

10. Project organisation which complemented technological inputs of the implementing agency (in most cases Government agencies, comprising mainly of engineers) with socio-economic units seemed essential to generate CP at the appropriate stages and in suitable ways. An organisation with an adequate field structure and staff is needed to make any impact (such an organisation of Socio Economic Units was created in Kerala). Given an adequate organisation, both NGOs or Government agencies may be equally successful in generating CP.

11. Participation is facilitated if it is made clear to the community at the very beginning what is expected from them and what they can expect from the project. Especially important is the explanation of the rules for cost sharing, if this is proposed as part of the contract.

Community Level Variables and CP

12. The most important community level factor affecting CP seems to be the existence of strong and functioning village level institutions. These institutions must also be woven into the project organisation to elicit continued participation.

13. Literacy, income or land holding were not important determinants of CP. From our data, it also appeared that participation was not affected by gender, although efforts have been made in all the projects to encourage women's participation.

CP and Outcomes

14. Community participation can bring local knowledge into the needs assessment process, and non-utilisation of such local knowledge may lead to poorer outcomes. Taking into consideration the preferences of beneficiaries (for example, for household connections) is likely to lead to better satisfaction and cost recovery, thus enhancing the financial viability of the project. On the other hand, not involving the communities in the needs assessment process can often lead to omission of the needs of certain sections of prospective users which then reduces the interest of the community and ultimately affects long term sustainability.

15. Involvement of communities in various activities such as health awareness programmes can lead to highly positive outcomes such as changes in health habits, increased use of project facilities and reduction of diseases. Community members can move from being mere recipients of information to active participants as they begin to act as stakeholders of the programme. This can be encouraged through various means such as employing them for masonry work, in the chlorination of wells, or for training others in health awareness programmes.

16. Community participation in siting facilities is likely to have a highly favourable impact on community satisfaction and goes a long way in reducing conflict, particularly if highly transparent processes are evolved.

17. Community based institutions such as panchayats can serve as effective intermediary agencies in diverse ways such as collection of charges, liaison with the implementing and maintenance agencies and local resolution of conflicts, thus leading to improved outcomes.

Conclusions

18. Overall the study showed that a supportive policy environment, clarity regarding inclusion of CP in the project design from the very beginning, adequate institutional arrangements such as SEU, proper assessment and addressing of community needs and preferences, and the existence and involvement of village level institutions and NGOs are factors which contribute towards greater CP. While CP is very important for outcomes, it is only one of the several factors which affect the ultimate outcomes and long term sustainability.

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CHAPTER - I

Introduction

BACKGROUND

1. The Government of India has made considerable efforts in the past decade to supply safe drinking water and provide sanitation to Indian villages. However, the Government's performance in terms of delivery, operation and maintenance has been disappointing. It has become evident that community participation is essential for the success of any water and sanitation project. Therefore, in its Eighth Five Year Plan (1991-96), the Government of India has decided to focus on community participation in all water and sanitation projects. Further measures have been taken to strengthen local institutions in implementing and sustaining water and sanitation programmes.

2. Not much information is available on the factors facilitating or hindering community participation in water and sanitation projects. Therefore, an analysis of the lessons learnt by projects attempting community participation will help in identifying the factors that facilitate community participation. This can lead to identifying better options in terms of infrastructure, both managerial and technical, which in turn, will enhance the long term sustainability and viability of the project.

OBJECTIVES

3. The central objective of the study is to understand the factors which promote or hinder participation, the institutional options being used to facilitate participation, and the role of participation in achieving better outcomes. The following issues are addressed:

- ✦ The factors which influence community participation as seen from a comparative study of the projects.
- ✦ The influence of community participation on the project outcome.
- ✦ The lessons that can be drawn from the experience of these projects.

COMMUNITY PARTICIPATION : TWO PERSPECTIVES

4. Community participation is often viewed from two perspectives. From one perspective, it is seen as a means for enhancing the efficiency of delivery,

operation and sustainability of the project. From the other, participation is seen as not merely a means towards socio-economic development but as an end in itself.

5. This study examines community participation as a means and not as an end. The end is the creation of an operational, effective and sustainable project which meets all its objectives.

DIMENSIONS OF PARTICIPATION

6. We have viewed participation as a process by which people control or influence the decisions that affect them so that better outcomes can be achieved. The essence of participation is the involvement of people in such decisions.[1] Participation has been viewed as a continuous variable which may range all the way from no participation, to being informed about the issues, to giving an opinion on the matter and, in some cases, even giving an interim decision. In exceptional circumstances, the community members may be the final decision makers or demand new facilities and execute them through their own initiative.[2]

7. We see participation as having the following dimensions:

- ✦ How the community participates?
- ✦ When they participate?
- ✦ Who participates?

FACTORS INFLUENCING PARTICIPATION

8. Factors that influence participation may be grouped into (i) system level or contextual factors and (ii) community level factors.

System level factors refer to those which operate at the project level and set the context in which the action takes place. These factors are common to all villages in a given project.[3]

- ✦ Policy environment, i.e., policies of the Government regarding implementation of projects, cost recovery and O&M, and the rigidity of the above policies.
- ✦ Institutionalisation of CP on project document as an objective and specification of mechanisms at each stage.
- ✦ Project organisation and delivery mechanisms.

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[1] Samuel Paul (1987). *Community Participation in Development Projects: The World Bank Experience*. Washington, D.C.: The World Bank (Discussion Paper No.6).

[2] Paul (1987) proposes four levels of intensity in community participation: information sharing, consultation, decision making and initiating action.

[3] The four projects that we have studied are in four different States.

- ✦ Agencies involved in the provision and production of goods and services; the coordination mechanisms; their monitoring and control.
- ✦ The orientation and capacity of these agencies to generate and sustain community participation.
- ✦ The flexibility available in the project design to adapt to changing community needs.
- ✦ The presence of other agencies (Government departments; other donor/ supporting agencies) working in the same project area.

9. Community level factors operate at the village community level and thus may vary from village to village on the same project. These are:

- ✦ Infrastructure facilities in a village.
- ✦ Environmental/geographical factors such as availability of ponds and wells, rainfall, open space available (for defecation).
- ✦ Functioning of local institutions.
- ✦ Village leadership.
- ✦ Level of income and disparity.
- ✦ Literacy and awareness levels.
- ✦ Past history of participation.

10. Apart from system and community level factors, the nature of the project and the technology involved may also affect the level of participation. For instance, in a technology driven project, little community participation may be needed at the construction stage. In an extremely reliable facility which does not call for sustained and continuous maintenance, participation may not be called for at the O&M stage (except perhaps cost sharing).

OUTCOMES

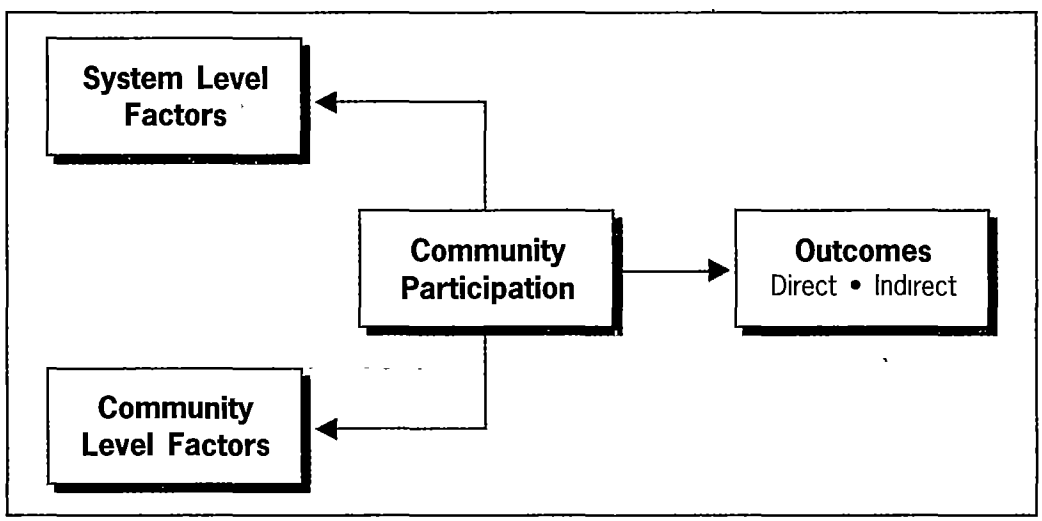
11. Outcomes can be categorised into project related (or direct) outcomes and other developmental outcomes (or indirect outcomes, such as the community demanding other development projects, empowerment of weaker sections and women, ability of the women to engage in income generating activities and changes in social structure). In this comparative study of the projects, we have concentrated on, but not confined ourselves to the project related outcomes.

12. Project related outcomes are :

- ✦ Provision of facilities as envisaged, and their use by the beneficiaries.
- ✦ Technological outcomes. This includes reliability of service, quality of design and of construction of facilities.
- ✦ Changes in health habits; reduction in diseases (since these were project objectives).

- ✦ Satisfaction of the beneficiaries with the facilities provided.
- ✦ Financial viability which includes cost recovery (for capital costs and for O&M) and institutional arrangements for financing recurrent costs.
- ✦ Sustainability. This can only be found in those projects which have been operational for some time now. In some projects, sustainability has to be judged from indirect evidence such as the kind of maintenance facilities built up and the way the facilities were being looked after.

13. From the point of view of this study, the linkages of the outcomes to community participation and of community participation to system and community level factors will be our interest. However, we must note that the outcomes are also affected by the technological delivery of the project. The conceptual model linking the system level and community level factors, community participation and outcomes is shown below in Figure 1.



METHODOLOGY FOR THE STUDY

Projects and Villages Studied

14. Five projects, one each in the Indian States of Gujarat, Maharashtra, Rajasthan, Kerala and Karnataka were studied (See Exhibit 1 for a map of India showing these States and Exhibits 2-6 for maps of each State and the project areas). All projects were implemented by the Government with assistance from bilateral agencies which included the Dutch Government, Danish International Development Assistace (DANIDA), Overseas Development Administration (ODA) of U.K. and Swedish International Development Agency (SIDA). The projects selection was based on the following criteria:[4]

- ✦ The projects should have incorporated community participation as an essential component.

[4] Terms of Reference.

- ✦ The projects should have a mix of technologies such as piped water supply and handpumps.
- ✦ The projects should have a mix of delivery agencies, that is, the Government and NGOs.
- ✦ The projects should have been implemented over a considerable period of time so that the process of people's participation can be studied from the beginning.
- ✦ At least one project should have been completed and it should be managed by the community or some field level institution.

15. The projects studied, the districts and taluks covered in the project and the supporting bilateral agency in each are given below in Table 1

Table 1
An Overview of the Projects Studied

State	District(s)	Taluks	No. of Villages in the Scheme	Assisted by	No. of Villages Studied
Gujarat	Banaskantha	Santalpur, Radhanpur & Kankrej	152	Dutch Govt.	12
Maharashtra	Nasik & Jalgaon	Nandagon & Bhusaval	136	ODA (UK)	13
Rajasthan	Dungarpur	Bichiwara	175	SIDA	12
Kerala	Trivandrum, Allepey, Trichur, Malapuram, Calicut & Cannanore	Chirayinkil in Vakkom Anjengo scheme, Karthikapally in Trikunnapuzha scheme, Mukundapuram in Mala scheme, Ramanattukara, Feroke and Eranadu in Cheekode scheme, Thaliparamba & Telichery in Kolachery scheme	24 Panchayats (about 130 wards)	Dutch Govt. & Danida	27 (wards)
Karnataka	Chitradurga, Kolar	Jagalur & Bageppali	492	Danida	14

Explanatory Notes:

1. In Kerala, villages are very large (with a population of about 25,000) and each village is under a panchayat. A panchayat is a grassroot level village institution, which also serves as the administrative unit. Due to their large size, the village panchayats are divided into wards for administrative purposes Each ward has a population of about 2500 people and we have used these wards as basic units for our study in Kerala. In other States, the basic unit for our study is the village.
2. Taluks (or blocks) are subdivisions of a district and usually there are ten to fifteen taluks in a district.
3. The villages were chosen through purposive sampling after discussions with project officials so as to ensure a mix of interior and non interior villages, as well as villages dominated by different communities, especially to ensure that Scheduled Castes and Schedule Tribes were also represented.[5] The chosen villages also represented varying geographic and demographic sizes. In the selected villages, interviews were conducted with village leaders, community members and caretakers, using a structured questionnaire. Ten percent of the households, with a minimum of ten and a maximum of fifty households, were selected in each village, as to include members of different castes and income groups. One adult member per selected household was interviewed, and about 50 percent of the overall respondents were women. The number of villages studied, and the number of people interviewed in each category for this project are given in Exhibit 7. The survey data was collected between May 1994 and February 1995.

[5] Scheduled Castes (SCs) and Scheduled Tribes (STs): These people belong to the lowest classes in society and are generally among the poorest. They are eligible for certain preferential treatment from the Government in education, sanction of loans, etc. Between the two, STs rank lower than SCs in the social hierarchy.

Data Analysis

16. To measure community participation and outcomes, scales were developed using selected variables. The details of the variables selected and the scores assigned to them are given in Annexure 1. The data obtained in the different projects was then compared, that is, both the project level data obtained through interviews with project officials and others, and the field data obtained through surveys. This report presents the results of these comparative analyses. For the results in each of the projects studied and the lessons learnt, the reader is referred to the individual case study reports which are available as separate volumes.

LIMITATIONS OF THE STUDY

17. The primary limitation of this study is that the outcome of the projects studied depends not only on community participation, but on many other factors, including the technical quality of delivery. These other factors are not studied. Moreover, the study concentrates on the factors affecting community participation and hence the outcomes of the same. Second, as the study is based on case studies of a limited number of projects and villages, the lessons learned are to be taken as tentative and need validation through studies addressing one or a few specific issues.

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CHAPTER - II

An Overview of the Projects and the Results of the Survey

18. This section gives a broad overview of the projects, with particular emphasis on their main characteristics and the factors that determine the extent of community involvement. The results of various surveys conducted to assess the impact of community participation are also presented. For detailed profiles, refer to Annexure II.

MAIN FEATURES OF THE PROJECTS STUDIED

19. All the projects studied, except the Maharashtra and Karnataka projects, were conceived in the late seventies and early eighties. The Government of India contacted several bilateral and multilateral agencies to elicit support for these programmes. Many of these agencies came forward to assist these schemes.

20. The Rajasthan, Kerala and Karnataka schemes were integrated schemes aimed at improving the health standards of people which included sanitation and health education. The Gujarat and Maharashtra schemes, on the other hand, were conceived as drought relief schemes, which were later modified to include health improvement among their objectives. The scope, budget and other features of the projects are given in Table 2.

21. The projects were started in different years. The Gujarat and Kerala projects started as early as 1982, the Rajasthan project in 1986, and the Maharashtra and Karnataka projects in 1990 and 1992, respectively. Even within each project, different schemes started in different years.

22. As of May 1995, all projects were in different stages of completion The Rajasthan project had been completed in 1990, the Gujarat, Karnataka and Kerala projects were nearing completion, while the Maharashtra project had not started yielding water.

Table 2
Main Features of the Projects Studied

	Gujarat	Maharashtra	Rajasthan	Kerala	Tamil Nadu
Conceived in	1978 (Phase I) 1986 (Pahase II)	Mid 1980s	1983	1980	1988
Started in	1981 (Phase I) 1987 (Phase II)	1990-91	1986	1981-82	1992
Scope	Water, household sanitation (in 2 villages), health education and income generation	Water, health education training household, community and environment sanitation in 8 villages (suspended)	Water, household sanitation (given up), limited community sanitation	Water, household sanitation, health education & training	Water, household community & environmental sanitation, health education, training & afforestation
Technogy for Water Supply	Regional pipe water scheme	Regional pipe water scheme	Handpumps	Pipe water schemes	Handpumps, local mini water schemes, and pipe water schemes
Project Budget	Rs. 87 m (Ph.I) Rs. 105 m (Ph.II)	Rs.533 m		Rs.1324 m	Rs. 133 m
Agency for Delivery					
a) Water	State Water Board	State Water Board	NGO (PEDO)	State Water Authority	Public Health Engineering Department, Zilla Parishads (District level local bodies) for both water and sanitation; 1 village by NGO (AKP) for environmental sanitation
b) Sanitation	NGO (ESI)		PEDO	State Department of Rural Development; local bodies village level	
Status as on May 1995	Mostly complete	Water still to come to any village	Complete	Certain schemes complete; certain schemes under test. Some largely incomplete	Mostly complete in water; under way in sanitation

SYSTEM LEVEL VARIABLES IN THE PROJECTS

Policy Environment

23. The Constitution of India holds the States responsible for providing water and sanitation. Therefore, the design, construction and choice of location were dependent on the respective State policies. In most cases, it was the State Governments or the Water Boards which carried out the needs assessment, design and execution of the schemes. The only exception was Rajasthan, where the task of implementation was given to an NGO, People's Education and Development Organisation (PEDO). In Karnataka, the implementation was through district level local bodies called Zilla Parishads (ZPs), which were also responsible for the O&M. In Maharashtra, O&M is planned to be handed over to ZPs and village water committees (VWCs). In the other States, the agencies for construction and for O&M were the same.

24. Except for Gujarat, the Department of Rural Development in each State was responsible for the delivery of the sanitation programme. Different projects delivered this component differently: through NGOs, ZPs/panchayats and local water committees. Table 3 outlines the agencies responsible for each component of the project at the different stages.

Table 3
Implementing Agencies at Different Stages of the Projects

	Gujarat	Maharashtra	Rajasthan	Kerala	Karnataka
WATER					
Need assessment	State Water Board (SWB)	SWB, ZPs	State Government	SWB	Government (PHED)
Iplementation	SWB	SWB	NGO (PEDO)	SWB	ZPs
O&M	SWB	ZPs & VWCs	Panchayat Samithi		
SANITATION					
Demand generation & Implementation	NGO (ESI) & CHETNA	—	PEDO	Dept. of Rural Development, panchayats and local water committees	ZPs An NGO (AKP) in one village

25. The policy environment for cost recovery also varied in each State. In Rajasthan and Karnataka, there was no cost recovery for water. In the other three States, the stated policy was to recover O&M costs though this was never done in full (in this sense, it was more a cost sharing than cost recovery and hence we shall generally use the former term in this study). In no case was there any policy of recovery or sharing of capital costs. In sanitation for household latrines,

there was sharing of capital costs through upfront contributions from the beneficiaries, and subsidies from the project. For community facilities, the costs were entirely borne by the projects.

Building of Community Participation in the Project Design

26. All the projects envisaged CP in some form or other. However, there were discrepancies between planning and implementation. The Gujarat and Maharashtra projects were originally drought relief schemes. In Rajasthan, PEDO treated CP as an integral part of the project and so did Kerala, while Karnataka incorporated CP only in one of the three districts on an experimental basis.

27. The selection of the areas was done primarily by the Government or the Water Boards. The technologies were also determined without consulting the communities. There was a provision for community involvement in the siting of facilities. However, specific guidelines were only given in the Kerala project. Communities were to be involved in the construction of latrines in projects having a sanitation component. In Karnataka, the communities had certain discretionary powers in nominating people for subsidies based on their income level. There was mention of community involvement in O&M and some envisaged training of village level mechanics/caretakers in project documents. However, due to lack of detailed planning this idea was not implemented.

28. In Gujarat, income generation activities were also envisaged as a form of community participation, but this seems to have been added on only in 1988. It was projected that easy access to water would be a time saving factor for women who could use this time in income generating activities. An NGO, SEWA was given the task of organising these income generation activities.

29. The formation of local water communities in the Gujarat, Maharashtra and Kerala projects were seen as a way to incorporate CP. In Gujarat, the project organisation was mainly executed by the Water Board and only recently a small SEU has been opened in Ahmedabad. In Maharashtra, village water committees were to be formed and this was done with the assistance of Tata Institute of Social Sciences, Bombay (TISS). TISS was contracted to train Government officials in community mobilisation. However, it ended up doing a large part of the community mobilisation work itself. In Kerala, the Ward Water Committees assisted by SEUs were formed to mobilise CP, assist the formation and functioning of water committees and give needed inputs for CP generation. These SEUs were made a part of Kerala Water Authority, the agency responsible for construction of facilities. This was a way to institutionalise CP through KWA.

30. In Rajasthan, no institutionalisation of CP was envisaged or done. PEDO did the CP work when they were implementing the project but no follow-up

mechanism was set up to sustain the project after they left. In Karnataka too, no local water committees were planned. A small group was formed in the State capital to organise the work of facilitating location decisions through Participatory Rural Appraisal (PRA) and health awareness programmes.

31. Kerala was the only State which had a clear understanding of CP and the institutional and organisational inputs needed to achieve it. In other States there was little or no appreciation of the difficulties encountered in trying to mobilise Government machinery to elicit CP. The general perception was that CP would come about through the creation of special agencies entrusted with the task of community mobilisation. However, often this was not the case.

Involvement of NGOs

32. The Rajasthan project envisaged its delivery through an NGO, PEDO. In the other projects, NGOs were to be associated in specific activities such as training and building health awareness. In Maharashtra, an educational institution, Tata Institute of Social Sciences (TISS) was given the task of community development in villages, assisting in the formation of Village Water Committees (VWCs) and training Government officials in community development work. In Karnataka and Gujarat, NGOs were given the task of implementing sanitation in a very limited way (household sanitation in two villages of Gujarat and environmental sanitation in one village in Karnataka). In Gujarat, NGOs were also given the tasks of organising the formation of Village Water Committees and implementing income generation programmes.

Project Implementation

Taking into account the needs and preferences of beneficiaries

33. In all projects, the needs assessment was done exclusively by the Government or its agencies such as the Water Boards. Except in a small way in Kerala, the needs and preferences of individual families were not surveyed, nor was their willingness to pay. For example, the preference for household connections was not surveyed. The need for sanitation was not assessed as it became evident that generating rather than assessing the demand was a bigger priority.

No household connections were given in Gujarat and Karnataka. The project officials realised that household connections were a means to enhance the financial viability of the projects through the possibility of higher cost recovery from such connections. Therefore, household connections have been given in southern Kerala and will also be provided in Maharashtra (the number of connections will be determined by the capacity of the system to meet the demand.) However, in Maharashtra the number of connections will be determined by the density of population in a particular village.

Choice of technology

34. No community was involved in the choice of technology. In Gujarat, Maharashtra and Kerala, the Water Boards were responsible for water supply in rural and urban areas, and these agencies chose piped water schemes. In Karnataka, a range of technologies (handpumps, local mini water schemes and piped water schemes) were adopted, but these were governed entirely by the population of the village and followed the policy norms of the Government. In Rajasthan, PEDO was "given" the technology of handpumps, although in view of the highly dispersed population, this was the best option.

Failure to recognise existing needs and flexibility to accommodate changing needs

35. In all the projects except Kerala and Rajasthan, the technological design was based on standard calculations consistent with the norms laid down by the Government of India (40 litres per capita per day or lpcd[6]). The norm for the number of standposts was one standpost per 200 people. The per capita calculation did not take into account the water needs of livestock in Gujarat, which has a large migrant community. Some allowance was made in all the projects for increase in population. In Gujarat this was offset by the addition of villages due to political pressure. Karnataka anticipated an increase in population and made adequate provisions. Requirements of schools, commercial establishments and other institutions seem to have been ignored in all project calculations, especially in Gujarat and Maharashtra.

Per Capita Water Consumption Norms

36. The Kerala project adopted the norm of 40 lpcd initially, but in view of the increased consumption in this State (the frequency of bathing and washing clothes tends to be higher in Kerala owing to greater cleanliness and hygiene practiced by the people), a higher norm of 55 lpcd was adopted later. In Rajasthan, PEDO used its own assessment of the needs of the people instead of any norm based on population. It did not hesitate to put pumps even in remote areas where the number of people served by a pump would be small.

Demand Generation

37. Gujarat and Karnataka has perennial water shortage and there was not much activity for generating demand for water as such, even though the health education programmes covered the use of safe water. In Kerala and Maharashtra, the shortages were seasonal, and considerable efforts were made to generate a

[6] Gujarat adopted a slightly higher norm of 45 lpcd and added a wastage allowance of 10 lpcd, thus effectively operating on 55 lpcd.

greater demand for safe water in times of abundance. In Rajasthan, the project was vitally concerned with the eradication of guineaworm. A major educational effort was needed to motivate people to switch over from traditional sources of water (stepwells) to handpumps.

Promotion of sanitation and hygiene

38. In sanitation, Kerala did not need any demand generation due to the acute need felt for latrines as a result of increasing population pressures. In other States, demand needed to be generated in view of the prevalent habits of defecation in open spaces. PEDO made a half-hearted attempt and abandoned the project midway. In Gujarat (in two villages) and Karnataka, a great deal of efforts went into generating demand for latrines.

Project Organisation

39. In all the projects except Rajasthan where the PEDO implemented the project, the primary implementing agencies were the Water Boards. Due to their technical orientation, the need to create community mobilisation mechanisms was acutely felt. Kerala created a project organisation to systematise the socio-economic activities, termed SEUs. Karnataka organised its community participation activities through a small organisation called PAG, in one taluk only. In Gujarat, there were no SEUs until very recently and the village water committees were formed by the Gujarat Water Board, while the health programmes were conducted by an NGO, CHETNA, the income generation was done by SEWA; and the sanitation work by ESI. However, there was no agency to coordinate these programmes. In Maharashtra, community mobilisation was done by TISS, which worked closely with the Zilla Parishads and the Water Board so as to synchronise the CP activities with the construction of facilities.

Involvement of Village Level Institutions

40. Again, it was in Kerala that the existing village level institutions (which were functioning well) were woven into the project. The Ward Water Committees (WWCs) and Panchayat Water Committees (PWCs) were formed with cross representation from the panchayats. Panchayats were also the agency for cost recovery.[7] Gujarat involved the panchayats in the formation of Pani Panchayats (water committees) but there were no mechanisms to monitor or ensure their continued functioning. The panchayats were agencies to collect the charges on behalf of the Water Board and pass on the collections to the Board. In Maharashtra, the ZPs were involved in the formation of water committees, which would be responsible for village level O&M. In Rajasthan, the panchayats

[7] The Water Board of Kerala.

were not involved until PEDO completed the project and handed over the facilities to them. In Karnataka, the local institutions involved were the ZPs, but there were no water committees at the grassroots level to ensure continued participation.

COMMUNITY VARIABLES

41. The villages surveyed in Gujarat and Rajasthan were poor, remote and water scarce. In Gujarat, the area surveyed was close to the desert area of Kutch, while the Rajasthan villages were mainly tribal. The Karnataka and Maharashtra villages were average rural villages, while in Kerala, the villages were semi urban, following the development pattern of the State. The villages in Gujarat, Karnataka and Maharashtra had reasonable facilities such as roads, schools and health centres, while these were scarce in Rajasthan. Each village in Kerala had a school or clinic within easy access.

42. In many villages in Gujarat and Karnataka there were no major reliable water sources. The villagers, therefore, relied almost entirely on the facilities provided by this project. In Rajasthan, traditional facilities like the open stepwells were considered to be a major source of the guineaworm disease. Hence, the project intended to change people's dependence on the use of stepwells. In Maharashtra, there are sources such as rivers and wells in some of the villages, though water is scarce in summer. In Kerala, household wells are the major sources supply of water. These wells serve for six to eight months in a year, but tend to go dry during the summer months. Thus in Kerala, the project aims to give water during the dry season. Since the wells are not necessarily safe (as per a study conducted by the SEUs[8]), the project also aims to educate the users of the dangers of using polluted water from the wells.

43. The size of the communities varied among the projects. The Kerala villages (wards) were the largest with an average population of 2000. There were no wards with population of less than 1000. The Karnataka and Rajasthan villages were the smallest, with about two thirds of the villages surveyed having populations of less than 1000. The Gujarat and Maharashtra villages tended to be larger, with about two thirds of the villages having population of more than 1000 and nearly forty percent more than 2000.

44. The literacy levels varied in the different States. In Kerala, only about ten percent of the respondents were illiterate; in Maharashtra, about 30 percent were illiterate. Karnataka had about 50 percent illiterate respondents, while the figure was as high as 70 percent in Rajasthan. In Kerala, despite the high literacy level, health awareness among the participants was not particularly high.

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[8] Kerala State Pollution Board, and Socio-Economic Units (1991). *The Bacterial Quality in Selected Wells in Kerala: An Investigation.* (Trivandrum: Socio-Economic Units, Research Report No.6).

45. The income levels of the respondents in the different States did not vary much with the general income levels at around Rs. 7,000 per year.

46. Local institutions were the strongest in Kerala, with functioning panchayats. The level of political awareness was high and people were quite vocal in their criticism of the political leaders. Gujarat and Maharashtra had relatively passive panchayats. In Rajasthan, the panchayats were dominated by powerful groups. The ZPs in Karnataka were largely non-functional as the representative bodies were dissolved in 1991 and the administration taken over by bureaucrats. Recently elections have been held to these bodies.

47. Kerala has a wide variety of grassroots organisations such as youth clubs, ladies clubs (Mahila Samajams) and various other organisations. These organisations have experience and involvement in various community activities such as literacy programmes, in which community members take part. Gujarat has powerful NGOs such as SEWA and CHETNA but not many effective grassroots organisations. Karnataka has only a limited number of NGOs interested in particular kinds of work, while PEDO seems to be the only powerful grassroots level organisation in Rajasthan.

48. It was observed that women were reluctant to participate in community issues in Gujarat, Maharashtra and Karnataka. This reluctance was far less prevalent in Kerala and Rajasthan, due to a highly literate society in the former and PEDO's untiring efforts in the latter.

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CHAPTER - III

Analysis of Data and Discussion of Results

49. This chapter presents a broad overview of the data analysis and analyses the impact of community variables and CP. This leads to a further understanding of the relationship between CP and long term sustainability.

AN OVERVIEW OF RESULTS

Community Participation

50. The overall indicators of community participation measured in the various projects[9] were not very different except in Gujarat where there was no CP component in the earlier stages. On a scale of 0-3, the values of the indices for the different States were: Gujarat: 1.1; Maharashtra: 1.8; Rajasthan: 1.6; Kerala: 1.8 and Karnataka: 1.5. Since these indices are aggregated over quite different measures, we disaggregated them into (i) the degree of involvement of the community members in some activities, (ii) the degree to which they felt they were part of the decision making, and (iii) the stages they were involved, namely, planning, construction, operations and maintenance.

Table 4 gives the disaggregated CP indices.

Table 4
Disaggregated Indices of CP
(Scale of 0-3)

Project	Involvement in some activities	Part played in decision making	Stage in which involved		
			Planning	Construction	O&M
Gujarat	2.2	0	2.4	0.1	0.1
Maharashtra	2.3	2.6	2.9	0.3	N.A.
Rajasthan	2.2	2.7	1.5	1.7	1.2
Kerala	2.1	2.5	2.9	1.9	0.8
Karnataka	1.6	2.6	2.1	1.0	0.8

[9] See Annexure I for description of the indicators used to construct the CP Index and the Outcomes Index.

Outcomes

51. Since the Maharashtra project had not started yielding water, we did not measure the outcomes in this project. In the other projects, the outcomes were also not very different. On a scale of 0-3, the indices of outcomes were: Gujarat: 2.1; Rajasthan: 1.8; Kerala : 2.0 and Karnataka: 1.7. Again, outcomes were disaggregated into seven categories, namely, use of the project source (in the case of water supply only); technological outcomes (reliability of supply, disruption and inherent design deficiencies); changes in health related habits; reduction in diseases, satisfaction of the users with the facilities; reduction in time involved in fetching water; reduction in diseases, and other outcomes such as demand for similar projects and ventures made on the initiative of the community. The results of this disaggregation are shown in Table 5.

Table 5
Disaggregated Indices of Outcomes
(Scale of 0-3)

Project	*Use of project*	*Techno-logical outcome*	*Change in health habits*	*Disease reduction*	*Statis-faction*	*Reduction in time for filling water*	*Other outcome*
Gujarat	3.0	2.1	2.6	2.8	3.0	1.7	0.9
Maharashtra	N.A	N.A.	N.A	N.A	N.A	N.A	N.A.
Rajasthan	2.4	1.6	1.8	3.0	2.0	1.3	1.3
Kerala	2.3	1.8	1.6	3.0	2.7	1.1	1.6
Karnataka	1.7	2.0	1.7	2.0	2.8	1.8	0.8

IMPACT OF CONTEXTUAL VARIABLES ON COMMUNITY PARTICIPATION

Policy Environment

Implementing Agency

52. All the States except Rajasthan, implemented the water components of their projects through their own implementing agencies (Water Boards in three projects; PHED and ZPs[10] in one). These agencies are dominated by engineers and their orientation is technical. As noted earlier, the community was not involved in the choice of technology and assessment of needs nor was their preference for service levels ascertained. All the Water Boards selected regional piped water supply schemes and the design of the schemes was based on certain standard norms which did not necessarily reflect the needs or preferences of community.

[10] Actually the engineering wing of ZPs.

In the choice of location, community members were involved in three States (Maharashtra, Kerala and Karnataka), but in all these three States, a separate mechanism was created to ensure participation. In Rajasthan, PEDO involved the community in the location decisions and whenever possible in construction. The efforts of PEDO are reflected in the scores on the part played by the community in decision making in Rajasthan (Refer Table 4).

Role of the Community

53. The Water Boards contracted the construction work in all States except Kerala. In Kerala, community members were involved to a certain extent as they contributed labour, materials and land for standposts and pipelines. In Rajasthan, PEDO involved the community members in a limited way through labour and material donation at the time of construction. This is reflected in the higher scores of Kerala and Rajasthan compared to the other States.[11]

Policy on Cost Recovery

54. Needless to say, in projects where the Government has a policy of no cost recovery, this form of CP is not feasible. However, the implementation aspect is far more important than having a policy on paper. In Gujarat, the stated policy was cost recovery in the form of water tax, but this tax was very low (Rs.14 per person per year). Collection levels seldom exceeded four to six percent. Due attention to collection was given neither by the Water Boards nor the panchayats. In Kerala, the Government reduced grants to the Water Boards which pressurised them to improve the collection rate to compensate for the ensuing deficits. KWA, therefore, improved its cost recovery rate to about 10 percent of its billings (for all its projects).

Policy on O&M

55. In three projects, the construction contractors were also responsible for O & M. This reduced the scope for CP at the O&M stage in all these three projects. In Rajasthan, the panchayats took over the maintenance and bypassed the mechanics who were trained by PEDO for maintenance.

This situation may change with the new Gram Panchayat Act.[12] Karnataka and Maharashtra are attempting to make the village level panchayats responsible for

[11] Other scores relate only to the water component of the project.

[12] According to the 73rd Amendment to the Indian Constitution passed in 1992, it is mandatory for the State Governments to set up village level gram panchayats. Elections to these bodies are mandatory. They are to discharge a number of functions and exercise a variety of powers. With regard to water and sanitation in their villages they are supposed to be responsible for the operation and maintenance of the facilities and can charge the community members for the services.

O&M. However, the consequences of these new policy changes remain to be seen.

Integration of Community Participation into the Project

56. In Kerala and Rajasthan, there was active CP as at every step participants were encouraged to take decisions. This needed preparation, and hence community meetings as a tool for mobilisation, team and awareness building and enhanced participation were of great significance. Consensus on choice of location was an essential stepping stone towards subsequent work. The only lacuna was the failure to institutionalise this process successfully like Kerala had done by absorbing the SEUs into the KWA.

57. In Maharashtra, TISS was entrusted with the training of ZP officials. However, training took a back seat and TISS ended up doing most of the work. This was a disadvantage as TISS did not have the infrastructure to sustain the work of community mobilisation over a period of time. In Karnataka, CP was treated as a "pilot" activity in one taluk only. Most local institutions in the State were in a period of transition and therefore it was difficult to conceptualise all details of CP.

58. The Gujarat project incorporated CP only in 1988 without identifying the person/institution responsible for generating the same. Income generation activities were introduced at a much later stage, in 1991. A number of organisations did various parts of the work with no overall coordination between the activities.

59. These differences are reflected in the overall CP scores in these projects (see Table 6).[13]

Cost Sharing

60. Cost sharing is always a sensitive issue. In Kerala, before giving the facilities in a village, the concerned panchayat was informed that a charge (of Rs.875/- per standpost) would be levied against the panchayat, who in turn would recover this money from the beneficiaries. The community members were committed to contribute this money to the panchayat. Though this did not ensure full recovery, the recovery rate from panchayats in this project has been much higher, at 25 percent, than for the Kerala Water Board as a whole (about 10 percent). The unpaid amount by the panchayats is shown as arrears due and partly adjusted against the development grants given by the Government to the respective panchayats.

[13] The Maharashtra score excludes O&M and hence is not strictly comparable with the other projects.

61. In Gujarat, cost sharing was not explained to the panchayats or the beneficiaries. As a result, the collection rate varies from four to six percent. Persistent problems are experienced in realising even this amount.

62. In Maharashtra, the amount to be collected from the recipients was not specified, neither were the ways in which it was to be collected. As the project is ready to yield water, collection has become a contentious issue as none of the villagers are willing to commit to paying for the services.[14] Thus, it is always beneficial to explain the rules and rationale for cost recovery way before the project is implemented.

Project Organisation

63. Some organisational infrastructure is needed as a foundation for community mobilisation. In Gujarat this was ignored and therefore most water committees formed to facilitate community mobilisation were ineffective. Table 4 reflects this — the score on "involvement in some activities" includes the participation in income generation activities not strictly related to the project and hence needs to be taken cautiously.

64. Karnataka tried to use a small staff (the PAG) for doing the community mobilisation work. However, not only was its impact small, but it was not possible to find any major differences between the "pilot" taluk and the other taluks.

65. Kerala and Rajasthan, on the other hand, formed specific project organisations — SEUs and PEDO's own field units — to undertake community mobilisation. This led to a higher degree and quality of CP in these two States as compared to Gujarat.

66. Maharashtra seems to fall between Gujarat and Karnataka on the one hand and Kerala and Rajasthan on the other, with TISS training people at ZP level to undertake community development work but with moderate success. The participation mobilised at different stages in the projects generally seems to have a relation with the project organisation developed.

Agencies Involved

67. Rajasthan was the only State which entrusted the project delivery to an NGO. In Karnataka, the environment sanitation aspect was entrusted to an NGO in one village. In both cases, the CP generated was relatively high. PEDO organised a number of meetings with villagers to inform them of the project, its health related aspects and choice of locations. It forced them to resolve their differences and reach consensus on all important issues. In one village, where consensus was

[14] The following development has taken place in this Project after the Study was complete.

not reached, PEDO did not install the facility. AKP, the NGO involved in one village of Karnataka, also held regular meetings with a similar purpose.

68. Both PEDO and AKP had previous experience in community mobilisation work. For example, PEDO was involved in guineworm eradication and waste land development programmes. AKP was involved in adult education, health and loan assistance. These NGOs, drawing on their expertise, were competent in addressing multiple issues at one time. AKP's continued interest in the project has led to several positive outcomes, two of them being a hygienic and well-maintained drainage system and a community garden maintained by the drainage water that is collected.

69. Kerala had no major inputs from NGOs but showed good results on CP mainly due to the intervention of SEUs, while Maharashtra had the intervention of TISS. The problem with Government agencies seems to be their lack of community orientation. As noted above, in the projects delivered by Government agencies, CP was not incorporated into the location decisions.

70. It would, thus, seem that CP generated is influenced by the orientation of the implementing agency. NGOs generally have greater expertise in this area. With Government agencies, it would seem necessary to supplement their efforts with socio-economic inputs. Agencies with adequate field organisation (such as SEUs in Kerala) facilitate these inputs.

71. Multiple agencies working in the same area lead to problems of coordination as these organisations have different priorities. In Gujarat, where a number of organisations (ESI, CHETNA, SEWA and the Water Board) were involved in carrying out specific tasks, coordination was a continuous problem, and the activities were never really integrated.

IMPACT OF COMMUNITY VARIABLES ON PARTICIPATION

Village Level Institutions

72. The existence of village level institutions is the most important community variable. Karnataka had a major disadvantage as the ZPs in the area were largely non-functional. There were also no avenues for participation at the village level and thus CP was severely restricted.

73. Rajasthan and Gujarat had panchayats but did not build upon these institutions. In Rajasthan, there were no attempts to form village level water committees, and thus the participation attained could not be sustained once the project was over. In Gujarat, the panchayats were linked to the water committees to ensure that they function effectively.

74. In Maharashtra, we find a clear attempt to bring ZPs into the process of training and in location decisions and linking them to water committees. The ZPs,

however, were largely lackadaisical in their response. As a result, TISS continued with the work of community mobilisation in a number of villages.

75. Kerala had many strong village level institutions which played an effective role in water and sanitation activities. The Ward Water and Panchayat Water Committees were broadly represented by panchayats and other grassroot organisations such as Mahila Samajams and youth clubs. The officers of both the wards and the panchayats used these committees to resolve all issues at the local levels. They were also fully responsible for the organisation of health related events such as lectures and street plays and for executing the sanitation work in their villages. The SEU members play a consultative role in the WWC and PWC meetings and refrain from taking any decisions. Thus the management of the programme is effectively in the hands of the community members, with assistance from SEUs and the executive officers of the panchayats who are Government employees.

76. As we see from the above examples, project organisation is absolutely necessary to give complementary inputs to the implementing agency. In the long run, this adds greater effectiveness and sustainability to projects which lead to more satisfactory outcomes.

Other Community Level Factors

77. Other factors such as the community size, income levels, educational facilities and literacy levels were compared to assess the relationship between CP and these variables. Participation was classified into high, medium or low depending upon the responses of the survey respondents. It was found that there was very little relationship between CP and any of these above mentioned factors. In fact, even within each project, there was no pattern of relationship between these variables and the CP generated.

78. These findings clearly dissociate the level of participation from the level of income or educational attainment. It is true that in these projects, special effort was made to encourage greater participation from women, especially in Rajasthan and Kerala, but with some effort, it is possible to elicit participation across all sections.

IMPACT OF COMMUNITY PARTICIPATION ON OUTCOMES

Relationship between Indices for Outcomes and Indices for Community Participation

79. The overall indices for CP and outcomes for each project are as shown in Table 6.

80. No clear-cut pattern is evident. A scatter diagram (see Exhibit 8) between the outcomes and CP indices for all the villages in the various projects did not also

Table 6
Overall Indices of CP and Outcomes in the Projects Studies
(Scale of 0-3)

Project	Index of CP	Index of Outcomes
Gujarat	1.1	2.1
Maharashtra	1.8	N.A.
Rajasthan	1.6	1.8
Kerala	1.8	2.0
Karnataka	1.5	1.7

show any significant correlation ($r^2 = 0.04$). However, these overall indices comprise of different dimensions whose relationships can be revealed only by an analysis at a more disaggregated level.

Relations Between Disaggregated Indices

Provision of facilities and their use

81. The provision of facilities were, by and large, as per the original project design in which the community had little say. Hence the impact of participation in this respect or the extent to which the facilities were used could not be studied. However, in our surveys, it was seen that the usage of the project source was seen to be high in all the projects, except Karnataka (see Table 5). In Karnataka, in many villages the pumps provided earlier by the ZPs were preferred since they yielded sweeter water than those under this project, and hence the lower score.

Use of other sources

82. Traditional water sources continue to be used for the drinking needs in all projects except Karnataka. In other States, their use has come down considerably after the project. In Rajasthan, stepwells continue to be used to some extent and some stepwells which have been converted into closed wells (that is, wells with a parapet around and the top fully open) were also being used. In Kerala, particularly in the northern part, wells continue to be used, especially in the rainy season. The extent to which traditional water sources continue to be used after the implementation of the project can be seen from Table 7.

Table 7
Usage of Traditional Sources after the Project

State	Percentage
Gujarat	36
Rajasthan	50
Kerala	51
Karnataka	5

83. These outcomes seem to be primarily related to the existence of alternative sources rather than the

CP generated. However, demand generation and health education also facilitated greater usage as people became more aware of the need for safe drinking water. Thus community involvement with various activities seemed to correspond with the use of project source as can be seen from Table 8.

Table 8
Involvement in Activities vs. Use of Project Source

State	Involvement in Activities (0-3 scale)	Use of Project Source (0-3 scale)
Gujarat	2.2	3.0
Rajasthan	2.2	2.4
Kerala	2.1	2.3
Karnataka	1.0	1.7

84. Recognising the difficulty in eliminating the use of wells (most of which were found to have bacterial pollution), a programme of chlorination of wells in villages has been started in Kerala. The work is done by the village women for a small charge. Additional income serves as an incentive for greater involvement and also helps in reducing the risk of health infection.

Technological outcomes

85. These factor related to regularity of the water supply, disruption of supplies, problems in maintaining the pump area and the percentage of facilities working (in the case of handpumps, the first two were not relevant). These were not seen to be related to the CP; indeed they were a function of the technical efficiency of execution and maintenance. As discussed later, the disruption of supplies in Gujarat was due to the behaviour of nomads there but the extent could not be quantified. These factors do not seem to show much variation amongst the different projects.

Changes in Health Habits and Reduction in Diseases

86. Changes in health habits (for example, using a tumbler with a handle for taking out water from the container and washing hands, with or without soap, after defecation) do not show much variation except in Gujarat where it is higher. Except for Karnataka, all the other States have reduced the incidence of water borne diseases. The indices on changes in health habits and reduction of diseases (according to the respondents) correspond roughly to the involvement in activities. This is seen in Table 9.

87. Interestingly, Kerala, the most literate State, did not show a very high change in health habits. People's beliefs and practices about health and hygienes were

Table 9
Involvement in Activities vs. Change in Health Habits and Reduction in Diseases
(Scale 0-3)

State	Involvement in Activities	Changes in Health Habits	Reduction in Diseases
Gujarat	2.2	2.6	2.8
Rajasthan	2.2	2.4	
Kerala	2.1	2.3	
Karnataka	1.0	1.7	

Note: The reduction in diseases are based on the perceptions of correspondents and not on any records. We found that such records were hard to come by and in most cases unreliable. However, the results based on the opinion of the respondents need to be treated with considerable caution.

not very different from those in other States.[15] This was confirmed during our own interviews with some of the beneficiaries and validates the hypotheses that literacy alone does not change people's habits and practices. In Gujarat, health education specifically focused on changing water related habits and this has had some positive outcomes.

Satisfaction of the beneficiaries with facilities

88. The Gujarat, Karnataka and Kerala projects showed a high degree of satisfaction with the facilities provided. This could not be readily related to any of the CP indices. In particular, the part played in decision making or in planning did not necessarily lead to higher degree of satisfaction for the beneficiaries.

This may be because satisfaction is closely related to what the project actually delivered. Thus the indices in satisfaction corresponded closely to those of the technological outcomes. While participation may increase the sense of satisfaction in the short run, it is possible that the latter is determined, in the long run, by the acuity of people's need and the long-term sustainability of the project.

Reduction in the time required for filling water

89 This was a moderately important issue in Karnataka and Gujarat, but less so in Rajasthan and Kerala. It had, however, much more to do with the initial conditions than on CP or the project itself. In Rajasthan, stepwells were already available, and in Kerala there were Kerala, house wells.

[15] For instance, habits such as washing of hands after defecation and taking water for drinking from the container with a ladle (thus preventing hand contact); and beliefs such as well water is clean because it comes through percolation and children's faeces are harmless.

90. Outcomes, by their very nature, were hard to measure and related primarily to demand for other development activities and initiation of other activities by the community. These answers need interpretation by researchers and subject to this qualification, the indices generally seemed to be related to the overall generation of CP as seen in Table 10.

Table 10
Other Outcomes vs. Overall CP Index
(Scale of 0-3)

State	*Over 11 CP*	*Other Outcomes*
Gujarat	2.2	3.0
Rajasthan	2.2	2.4
Kerala	2.1	2.3
Karnataka	1.0	1.7

91. We find some evidence of relationship of certain dimensions of CP to certain dimensions of project outcomes. Thus, involvement in activities like health awareness programmes and planning activities seems to bear a relationship to the extent the project facilities are used, the changes in health habits and reduction in diseases. These indices still do not fully bring out the ways in which participation affected the outcomes. The salient insights gained are presented below.

Need Assessment and Outcomes

92. Since the community involvement in the needs assessment process was practically nil, we are unable to identify the impact of this process on CP and project outcomes. In Gujarat, no provision was made for the water requirements of commercial establishments and institutions such as schools and health centres. Later it was found that these also utilised the water facilities, and hence the actual consumption of water turned out to be much higher than what was planned. Increasing need from surrounding villages led to additional villages being connected to the pipeline, thus overloading the system. The needs of nomads (Maldharis) along with their cattle and sheep were also totally neglected. These nomads frequently broke the pipes to get water leading to disruptions in water supply. These needs could probably have been taken note of and incorporated into the project design had the community been consulted at the design stage.

93. In Maharashtra, the issue of seasonal migrants was not addressed. As many villagers leave their villages for prolonged periods, they were unwilling to pay full water charges. Also, in many villages the traditional sources of water had not been taken into account while planning for the facilities: a uniform norm was adopted without regard to variations in the availability of supplemental sources of water.

Water consumption would be less in better endowed areas. This is a bone of contention for the local people who object to the imposition of a uniform water tax on all villages.

94. The preferences of beneficiaries, especially for household connections, were not systematically assessed in any of the projects. In Kerala, household connections were seen as a way to effect better cost recovery and as a means to cross-subsidise the standposts. This proved to be a sound approach, since recoveries from household connections were higher than those from standposts. In Maharashtra, household connections are planned but based on norms depending on the village population, reaching 40 percent in large villages. In the other schemes, household connections were not given due to shortage of water supply or the felt need to reach a larger number of beneficiaries within a given budget. A sizeable section of the population that is willing to pay for household connections is therefore dissatisfied with this policy decision. Also, the cost recovery has been lower.

Demand Generation and Outcomes

95. Demand generation was needed for sanitation, especially in Gujarat, Rajasthan and Karnataka. Education regarding the proper use and maintenance of toilets was needed in all the projects. It was only in Kerala and Karnataka that the demand generation for sanitation and safe water proceeded in an integrated manner along with the execution of facilities. In these projects, the usage rate of household latrines exceeded 90 percent, and they were seen to be well maintained. In contrast, in Rajasthan, the sanitation component was given up by PEDO after feeble attempts as they were not hopeful of changing existing defecation habits. In Gujarat, sanitation was done only in two villages, and the provision was not coordinated with water supply. The usage rates of latrines were seen to be directly related to the efficiency of water supply. In the two villages, according to a survey done in 1992, the usage rates were 40 and 75 percent, but by 1994, it was found that the water supply position in the first village had improved and in the latter, deteriorated. The usage rates had reversed to 70 percent and 32 percent respectively.

96. Thus, an integrated approach is needed to match health education on hygienic sanitation habits with appropriate water supply.

Community Participation in Facility Location

97. Considerable effort was made in involving the community in searching appropriate locations for facilities. In some cases participation by communities led to siting of better locations for facilities. In Kerala, the standposts were located in a way that they could be accessible to a large number of people. Earlier, taps were located to suit the convenience of KWA rather than the villagers. In

Rajasthan, facilities were even accessible to people living in remote areas. Preference was not given to local landlords and influential people, which was a welcome departure from the norms prevalent in that State.

98. The value of CP in siting of facilities is realised when the needs of a large number of community members are taken into account. This reduces conflict and makes "hijacking" of facilities by the elite more difficult.

Community Participation and Cost Sharing/Recovery

99. As noted earlier, cost recovery in water has been absent in Rajasthan, Karnataka and Maharashtra. Realisation of charges in Kerala have been higher than Gujarat (25 percent against 6 percent). This difference has been due to three factors. First, in Kerala, the panchayats and the beneficiaries were informed about the charges prior to the commencement of the project, while in Gujarat this was not done. Second, in Kerala, the charges were raised by the Water Board against the panchayats and this put pressure on them to collect the dues from the beneficiaries. In Gujarat, the panchayats were merely a collecting agency acting on behalf of the Water Board. This left no incentive for the panchayat to improve the collections. Third, the KWA itself was pressured by the Government of Kerala to reduce the budget deficit by improving its collections, while in Gujarat the Water Board was under no such pressure.

100. Cost recovery does not seem to be related to people's ability to pay or their income levels. In Gujarat, SEWA has initiated an experiment in a village to develop alternative sources of water. It is supported by a 30 percent upfront contribution from the panchayat and an annual payment of Rs.10 per beneficiary and the experiment has been successful. In Kerala, direct cost recovery from beneficiaries has been done for the last two years in one village and the experience so far has been very positive.

101. For cost recovery to be effective, the rules for the same must be explained to the beneficiaries and their commitment obtained. This may not guarantee 100 percent cost recovery but absence of this condition makes it difficult to realise the charges later. Panchayats can be effectively used as intermediary institutions to effect the realisation of charges, and the existence of incentives is likely to enhance actual realisations. Pilot experiments indicate that cost sharing is possible even in poor areas.

Participation and Other Outcomes

102. Several ancillary outcomes have emerged as a result of project activities and these are worth mentioning. In Gujarat, income generation activities started by SEWA has led to greater affinity with the project and this should improve cost recovery and a sense of ownership and responsibility for the facilities. In Kerala,

women have been hired to carry out chlorination of wells and construct latrines. This is simultaneously an income generating and community mobilisation activity. In Karnataka, in the village where the NGO, AKP was involved, there have been activities such as construction of a soakpit and a community garden. Many villages we studied asked for more facilities and other developmental activities designed to sustain the facilities.

CP and Outcomes : A Final Word

103. The outcomes are the result of several factors which may or may not include community participation. The technological delivery of the project, the continued availability of water and power and the quality of technical maintenance affect outcomes significantly. Cultural factors and forces of habit have influenced the outcomes on changes in health habits. It has not been possible to account for the effect of these factors so as to isolate the effect of CP on outcomes.

104. Our studies indicate that there have been specific ways in which CP influenced the outcomes, and much more could have been gained if CP at different stages had been planned and executed more systematically.

CP AND SUSTAINABILITY

105. In terms of facilities working, the projects showed varying results as is seen in Table 11.

Table 11
Percentage of Facilities Working in the Villages Studied

Project	*Percentage of water facillities working*
Gujarat	72
Maharashtra	N.A.
Rajasthan	94
Kerala	92
Karnataka	73

106. The figures show interesting contrasts between Kerala and Gujarat (both piped water schemes) and between Rajasthan and Karnataka (both handpumps). In Kerala, there has been a system of reporting faults and follow up by the standpost caretaker and the WWCs. The WWCs and panchayats monitor the breakdowns and exert pressure on KWA staff to expedite the repairs. Gujarat has not devised any such system. This indicates the role the community can play in maintaining facilities.

107. In Rajasthan, in spite of some dissatisfaction with the panchayat staff regarding their integrity and maintenance ability, on the whole, the handpumps seem to be well kept. The villagers take the initiative to report the faults and in some cases the mechanics trained by PEDO rectify the pumps if the "official" mechanic does not come soon. In Karnataka, the villagers are lackadaisical about reporting any breakdowns and faults, especially as alternative sources of water

exist (in this case, handpumps installed by ZPs).[16] In some cases, the pumps provided under this project were found to yield brackish water and the villagers have either damaged them or not cared to report when they have broken down.

108. In response to a question as to who was responsible for keeping the water facilities clean, half the respondents in Karnataka said it was the caretaker's or the Government's responsibility, while in Gujarat 90 percent thought it was the responsibility of the women. In Rajasthan and Kerala, however, a large proportion of the respondents felt that it was the duty of the entire village or all those who use the pump. These responses may be seen in Table 12.

Table 12
Perceptions of Responsibility to Keep Water Facilities Clean
(Multiple Response Table)

(Percentage)

State	Caretaker	Women	All in the Village	Users	The Government
Gujarat	8	89	10	61	2
Rajasthan	5	13	41	55	0
Kerala	13	7	31	47	0
Karnataka	46	0	17	28	12

109. Thus we see that proactive community participation can go a long way in maintaining the facilities, thereby ensuring long term sustainability.

[16] This does not mean that the facilities given under this project were not required or that they are not being used. It is just that when an alternate source is available, the villagers do not seem to take great initiative to get the pumps repaired and are quite content to wait till they get repaired in the normal course.

CHAPTER - IV

Conclusions and Implications

FACTORS FACILITATING CP

System Level Variables

110. The system level variables in a project have great influence on the CP possible and attained. First, the policy environment regarding cost sharing and project implementing agency, determine the nature and extent of participation possible in a project. The cost sharing policies must have well thought out measures which can be implemented in practice. The orientation of the implementing agency greatly affects the CP. If it tends to choose the technology based on its own norms and procedures and does not consult the community, then the stake of the community in sustaining the project is automatically reduced. Large technology driven projects often reduce the scope for participation and the need for O&M is also limited. NGOs already working in the area are more likely to inspire the trust and confidence of the community and are therefore more competent to determine the choice and location of facilities. This contrast is apparent when comparing the approaches of PEDO and the Water Boards. In the same way, O&M when done by large Government agencies is often not conducive to CP as evidenced by the Rajasthan experience.

111. However, our study clearly brings out the possibility of different levels of CP being attained despite the constraints of the policy environment. CP is best integrated into a project at the outset. Project design should examine certain essential areas such as the nature of participation, the mechanisms needed to elicit it, the agencies that are to be involved and the coordinating bodies. Some of the projects studied seemed to include elements of CP as the project evolved (for example, the Gujarat project with regard to its income generation programme). This created serious problems of coordination and lack of synergy between different project components. In particular, if the implementing agency is a Government organisation, it has to be recognised that substantial socio-economic inputs will be required to elicit CP, and appropriate agencies need to be created for this purpose (such as SEUs in Kerala). Small units created for this purpose are not likely to have any major impact.

112. There is considerable scope for CP at different levels: ascertaining the needs and preferences; contribution of labour, donation of land for handpumps, piping at the construction stage; and some maintenance, fault reporting, follow up and monitoring of water supply at the O&M stage. The critical system level factor deciding how CP gets generated is the mobilisation and rapport building skills of the implementing agency. A lot also depends on their willingness and commitment to do so.

113. Participation is often facilitated by a clear explanation of what is expected from the community and what they can expect from the project. Information about the proposed facilities and ensuing benefits needs to be shared. If contribution by the community members is expected (sharing of costs, donation of labour), this is to be clarified. Cost recovery is likely to be difficult if this aspect is overlooked. Realisation of charges can be facilitated if village level institutions act as collecting agencies. Suitable incentives also stimulate higher recovery.

114. This study, does not support the proposition that implementation through an NGO is likely to lead to better CP or outcomes. Comparable results were obtained in Kerala and Maharashtra and in Rajasthan. An NGO, by its orientation, may be able to elicit CP, but adequate socio-economic inputs may also provide the same service.

Community Level Factors

115. The most important community level factor seems to be the existence of strong and functioning village level institutions which represent the community's voice. These institutions have to be integrated into the project organisation to ensure continued participation.

116. It does not appear that factors such as literacy, income or land holding patterns have any major impact on CP. The quality of community mobilisation is far more important in generating adequate CP.

COMMUNITY PARTICIPATION AND OUTCOMES

117. Non-utilisation of local knowledge at the needs assessment stage can lead to poor outcome. Taking into account the preferences of the beneficiaries, for example, for household connections, is likely to yield higher levels of satisfaction and better cost recovery, thus enhancing the financial viability of the project.

118. Involvement of communities in various activities such as health awareness programmes can lead to highly positive outcome such as changes in health habits, increased use of project facilities and reduction of diseases. Community members can move from being mere recipients of information to becoming stakeholders of the programme. A good example is the involvement of women in chlorinating

wells in Kerala.

119. Demand generation is needed in sanitation and for the use of safe water, but this may not be easy if changes in habits are involved. Persistence and linking of benefits to participation in demand generation activities are likely to lead to better outcomes.

120. Community participation in siting the location can have a highly favourable impact on the level of interest and involvement shown by the beneficiaries (as the Kerala and Rajasthan experiences show) and it also helps diffuse conflict. The latter may be significant if varying subsidies are involved based on income levels. Transparent processes diminish the possibility of discretionary action by officials and build the trust of the beneficiaries.

121. Community based institutions can serve as effective intermediary agencies in diverse areas such as collection of charges, liaison with the implementing and maintenance agencies and local resolution of conflicts, all of which lead to improved outcomes.

ISSUE THAT EMERGE FROM THIS STUDY

NGOs as Intermediary Agencies

122. We have indicated from our limited experience in one State and in one village in another, that NGOs may be able to elicit better CP compared to Government organisations. However, their ability to replicate and scale up, as well as their technical abilities, should be considered. What kind of NGOs are needed that could combine these technical abilities with a community based orientation? What kind of interfacing is needed between the Government and the NGOs? What kind of actions are necessary to support successful Government efforts, such as the Kerala experiment?

Creation of SEUs

123. The experience of Kerala would seem to indicate the benefits of creating SEUs that connect an implementing agency with community based organisations. They could also serve as catalysts in generating CP. Kerala also has a system of effective and functioning panchayats. Perhaps past experience in activities such as literacy programmes involving community mobilisation, and the existence of other grassroots organisations also helped. However, how will such arrangement sustain if they are only supported by foreign donors and not by state authorities? What are the alternatives to reach communities in the absence of strong local institutions? Will the SEUs be adequate if they are not backed by the expertise and competence of local institutions?

CP as a means of supporting village level institutions

124. Given the evidence suggesting the importance of existing village level institutions to project outcomes, can CP provide a means of supporting the development of these institutions?

✦✦✦

ANNEXURE - I

Development of Indices for Community Participation and Outcomes

COMMUNITY PARTICIPATION INDEX

Responses to 8 questions (listed below) were used. First, individual respondents' scores for each village were tallied to arrive at a village score for each question, expressed in percent of positive responses. The coding categories for village scores were as follows for yes/no questions; other categories are described in the relevant indicator:

- 3 for villages where more than 60% of the respondents answered Yes
- 2 for villages where 30% - 60% of respondents answered Yes
- 1 for villages where less than 30% (but more than 0%) of respondents answered Yes
- 0 for villages where no respondent answered Yes

Thus there would be one score for each village for each question (indicator). The overall CP index for the village was then constructed as the sum of these village scores on each indicator, divided by the number of indicators, yielding a potential score range of 0 to 3. If there were some questions that were not applicable for a particular village, these were ignored.[17]

For cross tabulation with different village characteristics, the villages were grouped into three categories according to the percentage of respondents answering in CP-affirmative ways. The following categorisation was adopted:

Village CP Score	*Category*
1.5 - 3.0	High
1.0 - 1.49	Medium
Less than 1.0	Low

[17] For example, questions relating to sanitation in a village where sanitation was not provided by the project.

Indicators Used

(1) Percentage of respondents involved in one or more of the following types of activities: attended meetings, donated labour, helped with repairs, helped in deciding location, helped in keeping area clean.

(2) The stage at which the respondent's household was involved. Four stages were considered: planning, construction, O&M, evaluation/survey. For each stage, a score from 0 to 3 was given.

(3) Percentage of respondents who attended meetings.

(4) Percentage of respondents who reported that at meetings, community opinion was sought on one or more of the following topics: location of facility, preference for toilets, charges to be paid by the community, house connections versus standposts, facility design, O&M responsibility.

(5) Percentage of respondents involved in one or more of the following planning activities: charting the village houses, identifying rich/poor strata, location of facilities, choosing technologies.

(6) Percentage of respondents involved in one or more of the following construction activities: contributed materials, contributed labour, made suggestions at the time of implementation, for example, on the location of facilities or routing of pipes.

(7) Percentage of respondents involved in daily operation of facilities.

(8) Percentage of respondents involved in maintenance of facilities.

OUTCOME INDEX

Responses to 10 questions (listed below) were used. First, individual respondents' scores for each village, or the data collected for the village, as the case may be[18], were tallied to arrive at a village score for each question, expressed in percent of positive responses. The coding categories for village scores were as follows for yes/no question (other categories are described in the relevant indicator):

- 3 for villages where more than 70% respondents answered Yes
- 2 for villages where 30% - 70% of respondents answered Yes
- 1 for villages where less than 30% (but more than 0%) of respondents answered Yes
- 0 for villages where no respondent answered Yes

The Outcome Index for the village was then constructed as the sum of these

[18] Four questions, namely, question numbers 7 to 10 were at the village level.

village scores on each indicator, divided by the number of indicators. If there were some questions that were not applicable for a particular village, these were ignored.

Indicators

(1) Percentage of respondents who use drinking water from project sources.

(2) Percentage of respondents who stated they covered stored household supplies of drinking water.

(3) Percentage of respondents who drew water with ladle or from a tap (that is, without touching the water).

(4) Percentage of respondents who stated that they were satisfied with the services of the caretaker.

(5) Percentageump area clean (for example, due to its location near a compost pit, or its being in a low lying area).

(6) Reduction in the time required to collect water, on an average, as a result of this project. To arrive at this, two questions were asked: (i) How much time was spent by the respondent or his/her family in bringing water every day at the time of survey and (ii) the time taken before the project began. The responses were averaged for each village and the difference taken. This gave the average savings in time spent in fetching water. This was converted into percentage, and was then converted into scores for the villages as follows:

Percentage time saved	*Score*
More than 70%	3
70 to 30%	2
Less than 30% (but not 0%)	1
0%	0

(7) Percentage of handpumps in working condition. The scoring was as follows:

Percentage in Working Condition	*Score*
More than 80%	3
60 to 80%	2
30 to 60%	1
Less than 30%	0

(8) Whether other benefits had accrued due to the projects such as community vegetable gardens, greening near the handpump area, soakpits being used to produce manure and using drainage water for irrigation. The scoring was as follows:

Community/women's groups formed, ***and*** Any other benefits	3
Community/women's groups formed	2
Any other benefits	1
None	0

(9) Whether this project had led to a demand for similar services from other villages.

Yes : Score of 3

No : Score of 0

(10) Whether there had been any reduction in water borne diseases after the project.

Yes : Score of 3

No : Score of 0

Note: For questions 9 and 10 which were village level questions, the field investigators had asked some village leaders and from their responses, formed his own judgement and entered the same in the questionnaire.

* * *

ANNEXURE - II

Profiles of the Projects Studied

THE GUJARAT PROJECT
Santalpur Regional Water Supply Project

(See Exhibit 2 for a map of Gujarat)

1. The Gujarat project, assisted by the Government of Netherlands, started in 1978, following two parallel missions of the Netherlands Government - one for socio-economic assessment and the other for water engineering assessment. This phase of the project started in 1981 and was completed in 1986. The original estimated cost was Rs.87.34 million.

2. During the implementation of this scheme, 48 more villages in the area were declared by the Government of Gujarat as "no source". Following a Dutch review mission (GU - 10), it was proposed to cover these additional villages and one town, Radhanpur. This scheme, which may be called Phase II of the scheme, started in 1987 and is still not fully complete. Water was available in 34 out of 48 villages as on June 1994 (when the surveys started for this study). The project is expected to cost Rs.105 million.

3. The scheme covers the western part of Banaskantha district of north Gujarat: Santalpur, Radhanpur and Kankrej taluks (see Exhibit 2 for a map). This area is very dry with little rain (annual rainfall: 400 mm. in the area), highly saline ground water and prone to frequent droughts. Rain and water availability decrease as one goes towards the west, and the quality of ground water (in terms of total dissolved solids and chlorides) also decreases. The population is generally poor. The average income per household is Rs. 6,500 p.a. The literacy levels are extremely low (less than 1%), while in Gujarat, as a whole, it is 61.5 percent. An interesting feature of this area is the large migrating population who rear sheep and cattle. They come to this region at certain seasons of the year and consume water for themselves and their livestock.

4. The technology used is pipe line based. The sources of water are deep tube wells in a river in the eastern end of the district. The topography of the area is such that water flows by gravity, except in the villages which are at an elevation.

For these villages, booster pumps and elevated reservoirs have been provided.

5. The supply of water to the community under this project is entirely through village level standposts. Cattle troughs are also provided under the project. There is only a small sanitation component under this project: two villages have been provided with household sanitation on a pilot scale.

6. Originally no community participation was envisaged in this project. It was added in 1986 when the second phase was drawn up. An NGO, Centre for Health Awareness, Training and Nutrition Awareness (CHETNA) was asked to help in developing local users' water committees, called Pani Panchayats, to increase community participation, and these were formed in 1988. However, for this, the "participation" envisaged was really income generation and ecogeneration activities (developing health awareness). These activities were entrusted to two NGOs, Self Employed Women's Association (SEWA) and CHETNA. These activities which began in 1991, were really stand-alone activities and had little direct linkage with the project itself.

THE MAHARASHTRA PROJECT

(See Exhibit 3 for a map of the Maharashtra)

7. The Maharashtra project was conceived in the mid-eighties when there were two successive years of drought in the northern and central parts of the State. These schemes were drawn up to solve the water problem of some of the villages in the region. Since the Government of Maharashtra did not have the financial resources to implement these schemes, they were kept in abeyance. In the late eighties, the monsoons were good and not much attention was paid to these schemes. In the early nineties, ODA of UK came forward to fund water and sanitation projects, and the Government of Maharashtra requested them to include these projects under their assistance scheme. Thus the implementation of these schemes was started only in 1991. The estimated cost of the project is Rs. 533 million. The project has not yet started yielding water and is expected to be completed in about two years time.

8. The project comprises of four schemes covering about 200 villages, one each in Dhule and Nasik districts, and two in Jalgaon district (see Exhibit 3 for a map). The area gets very little rain and the summer months are hot and dry. The average annual rainfall is 800 mm. Water scarcity is very common during summer months. Some villages, however, are relatively better endowed with local resources. The population is generally poor, although there are pockets of relative prosperity. The average income per household in the areas surveyed was Rs. 6,900 p.a. Twenty six percent of the respondents were illiterate.

9. There are also regional water supply schemes, with piped water to be pumped from a dam reservoir, and from the bed of river Tapti and its tributaries.

The delivery to the villages is through gravity via village level reservoirs situated at an elevation. Water is then to be supplied to standposts and household connections. As on March 1995, water had not started flowing in the pipes, and the houses for household connections not identified.

10. Sanitation was also originally envisaged in the scheme in some pilot villages. Due to difficulties in managing the water supply project, this was suspended and has not yet been taken up.

11. No SEUs exist in MWSSB nor have any been created for this project.

12. In the original design of the project delivery, no NGOs were to be involved. After ODA's involvement, the community development was to be done by the Zilla Parishads which are the district level local bodies, with active support from the Tata Institute of Social Sciences (TISS), Bombay. TISS was to do community development work on a demonstration basis in ten percent of the villages and this was expected to be used as a learning experience for the Government staff to start similar work in other villages where TISS would support them.

THE RAJASTHAN PROJECT

(See Exhibit 4 for a map of Rajasthan)

13. In 1983, the Swedish International Development Agency (SIDA) decided to fund a relatively large water and sanitation project in southern Rajasthan which was to be implemented by the Government of Rajasthan in collaboration with UNICEF. As a prelude to this larger project, SIDA decided to try out a pilot project in a smaller area of Bichiwara block[19] in Dungarpur district. The project was to be implemented entirely through an NGO working in that area, People's Education and Development Organisation (PEDO). PEDO was responsible only for the construction and commissioning of the project, it was to hand over the facilities to the local village bodies, namely, the Panchayat Samitis, once their construction was completed. The project was started in 1986 and completed in 1990.

14. The area covered by the scheme is in southern Rajasthan, adjoining Gujarat. It is a hilly and dry area, with an average annual rainfall of 600 mm, and the area is prone to droughts. It is one of the poorest and most backward areas of Rajasthan, with a tribal population of more than 80 percent. The literacy rate is 24 percent and the area is without any industry or major towns. Agriculture is difficult and household income is very low: Rs. 5860 for the respondents we surveyed.

15. The technology used in this project is that of handpumps.

[19] A block is a subdivision of a district and is roughly the equivalent of a taluk.

16. The larger SIDA project called SWATCH had a number of objectives, one of which was eradication of guineaworm. The spread of the disease being essentially through drinking infested water without filtration, health education was an important component of the project. Since the source of contaminated water was stepwells, conversion of these wells into wells with platforms and parapets was also an important activity under the project. Installation of sanitation facilities at institutions (urinals and toilets) and construction of drainages near handpumps were also components in the programme.

17. The entire implementation of the project was given to PEDO. PEDO has its headquarters in Mada town of Bichiwara block and is engaged in the upliftment of the poor and backward tribal population. It is involved in economic development activities such as improving agriculture and developing natural resource base, and social development activities such as nonformal education and women's development.

18. In this project, PEDO created the initial demand, developed health awareness, located the pumps in consultation with the villagers, put up the pumps and handled the initial maintenance. They trained 22 local caretakers for the pumps, including ten women. Though PEDO was willing to maintain the pumps on a continued basis, the Panchayat Samitis insisted on taking over these pumps.

19. PEDO also undertook the conversion of about 150 stepwells. It did not convert those stepwells which it considered were not being used by people for drinking water.

THE KERALA PROJECT

(See Exhibit 5 for a map of Kerala)

20. The Kerala project, assisted by the Governments of Netherlands and Denmark, is an integrated project involving both water and sanitation. The Government of Netherlands came forward in the early eighties to assist three schemes proposed for assistance by the Kerala Government. Subsequently, in 1982, four more schemes were included. The Danish Government also came forward to assist in the Kerala schemes, and based on joint review mission visits, a total of eleven schemes were taken up for assistance. An interesting feature of this project is that it is assisted jointly by the Dutch and the Danish Governments, even though specific schemes are earmarked for assistance by each Government. The Dutch schemes which started in 1982 cover the southern and central parts of Kerala, while the Danish schemes cover the northern part and started in 1987-88.

21. The eleven schemes under this project cover a total of 58 panchayats and serve a population of about 1.4 million people. The original estimated cost of the project was Rs.600 million. The latest revised estimate is Rs. 1324 million. As of

December 1994, four of the projects were complete, with three more substantially complete, with trial runs being conducted in several areas. Three schemes are likely to be completed by the end of 1995, while one scheme is likely to be completed only by 1998. We have studied five schemes, two from southern Kerala, one from central and two others from northern Kerala. We included only those schemes in our study which were either fully or substantially complete.

22. Even though Kerala is a high rainfall State, for about five months in the year there are no rains, and water sources dry up, and often drought conditions may prevail in some areas. Due to the natural terrain of the State, the water received during monsoons quickly runs into the sea, and ground water levels may be quite low during summer. The State has one of the highest density of wells in the world (about 250 per square kilometre). Many houses have their own wells, and there are also community wells.

23. Kerala has a literacy levels of about 90 percent. The density of population is very high, about 900 per sq. km., and in many areas it is as high as 2600 per sq. km. The average household income for our respondents was Rs. 6890 p.a. People do not live in clustered villages as in other parts of India, but along roads and paths throughout the State. Houses are built very close together, so that there are few open spaces for defecation. With increasing pressure of population, privacy is becoming a serious problem, and to find a location for a latrine at a suitable distance (10 metres is adopted as the minimum distance for locating latrines under this project) is often difficult.

24. Despite the high literacy levels, health awareness is not necessarily very high. Many traditional beliefs regarding hygiene exist even among the better educated people. Keralites put great emphasis on cleanliness and hence consumption of water for bathing and washing clothes tends to be higher than in most other States.

25. The level of political awareness and activity is very high. Village level institutions like panchayats are very active, and there are many grassroots associations like Mahila Samajams (ladies' clubs) and youth clubs.

26. The schemes in Kerala are all based on pipe water supply. The sources of water are usually rivers. The supply is through household connections and public standposts in the Dutch schemes. In the Danish schemes it is only through public standposts; no household connections have been given, largely due to acute problems of adequate water sources. A total of about 8500 standposts are to be constructed under this project.

27. Sanitation is a very important component of this project, mainly as household latrines. About 45,000 latrines are planned, all for people below the poverty line.

28. Community participation was central to the project from the very beginning and a joint Danish Dutch review mission, as early as in 1982, recommended the

setting up of Socio Economic Units (SEUs) for dealing with this aspect. These Units were funded entirely by the assisting Governments.

THE KARNATAKA PROJECT

(See Exhibit 6 for a map of Karnataka)

29. The Karnataka project, assisted by the Danish Government, is an integrated scheme involving water supply, household, institutional and environmental sanitation, afforestation, communication, health, education and training. As in the other projects, improvement in the health standards of the beneficiaries was the ultimate objective. The original plan for this project was made in 1988 and after considerable delays, the project started only in January 1992. The estimated cost of the project was Rs.133 million.

30. The scheme covers 492 villages in the taluks of Jagalur in Chitradurga district, Bagapalli in Kolar district and Hungund in Bijapur district. All these are interior districts of Karnataka.

31. Many of the villages covered by the project already had water facilities constructed under earlier projects of the Government. But these were not adequate to supply water to the population at the norm adopted, namely, 40 litres per capita per day. Hence the new facilities were to supplement the existing facilities to bring the water supply up to 40 lpcd. As a result, in many villages, water facilities erected under earlier projects exist side by side with those erected under the present project. In some villages, the only facilities are those provided under this project.

32. Interior Karnataka is a low rainfall region, with an annual rainfall of 700 mm to 1150 mm. All the project areas face acute water scarcity in summer, and do not have any major rivers in their immediate vicinity. The ground water is usually very brackish and at considerable depths. Open space is freely available and is used for defecation. The coverage of toilets in the project areas is less than one percent. The respondents surveyed had an average annual household income of Rs.9900 p.a. The level of literacy was 49 percent.

33. Karnataka has a decentralised system of Government with district level bodies called Zilla Parishads carrying out a number of functions. These bodies have their branches at the taluk level. For a long time elections were not held for these bodies and at the time the project was formulated, they were in a state of flux. In 1991, the representative bodies were dissolved but the official wing continued to exist through Government nominated administrators. Recently the Karnataka Panchayati Raj Act has been passed, which provides for the formation of village level institutions called gram panchayats. The Act gives considerable powers to these bodies but how these provisions will be implemented is yet to be seen. Elections have recently been held for these bodies.

34. The project has a mix of technologies for delivering water, namely, borewells, local mini water supply schemes (MWS) and piped water supply schemes to standposts. The Karnataka Government has prescribed norms for technologies for water supply based solely on the population in the village, and hence the choice of technology in this project depended solely on this criterion.

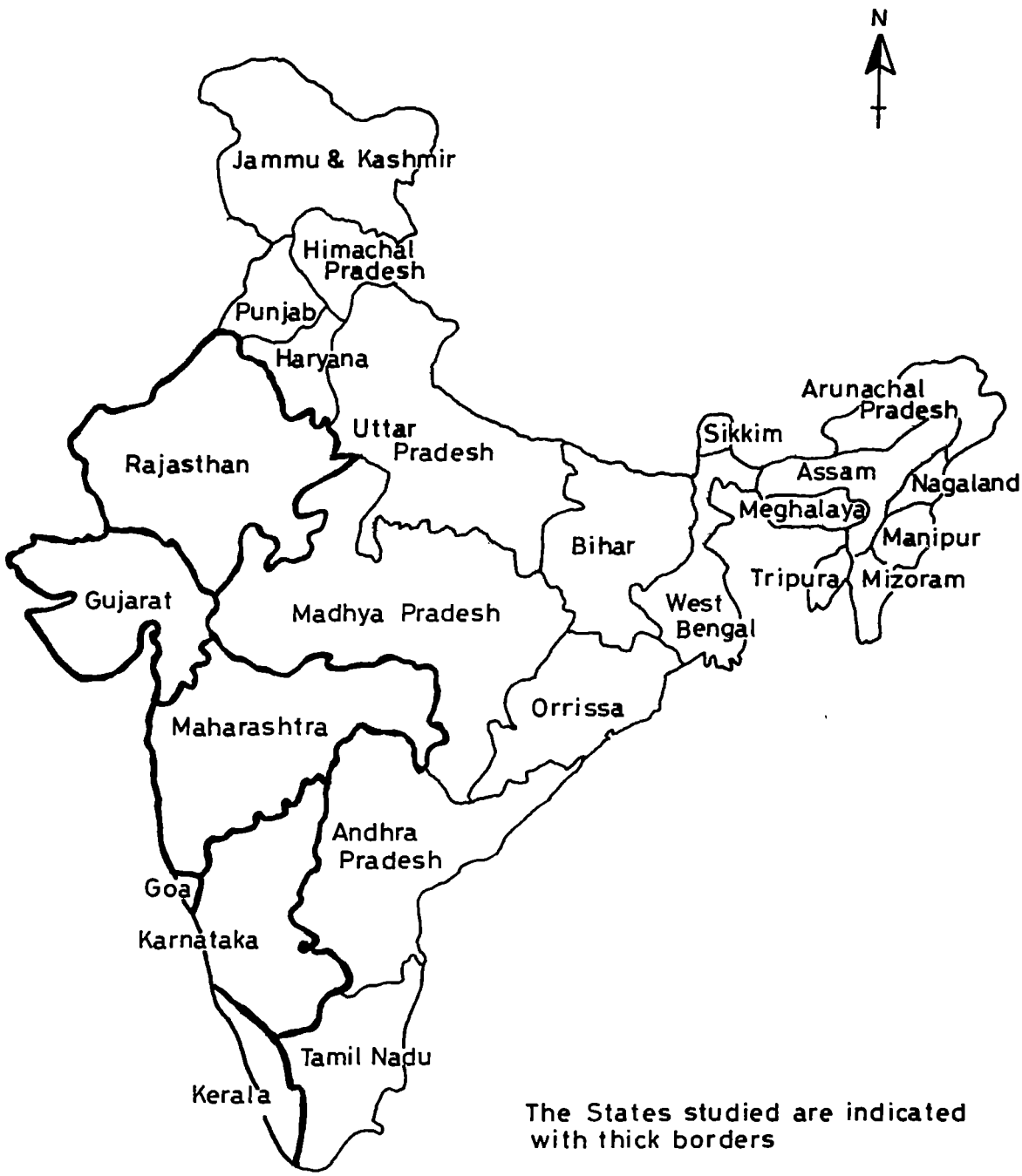
35. Sanitation facilities are delivered entirely through ZPs. For environmental sanitation, the project has constructed cattle troughs, washing slabs and drainage.

36. As an experiment in one village, the implementation of environmental sanitation was entrusted to an NGO, Action Aid Karnataka Project (AKP). Some other small NGOs were also involved in a limited way in activities such as training, health awareness building and demand mobilisation.

37. A small group called Project Advisory Group (PAG) with an expatriate social scientist as its head and an expatriate Chief Engineer, a training expert, a social scientist and a water supply engineer was created for this project with Danida funding. This group assists the Project Steering Committee of the State Government in planning and monitoring the project, and functions as an advisory body. It also organises the mobilisation, training and R&D programmes. De facto, it has become the managing body of the project.

Exhibit 1

MAP OF INDIA



The States studied are indicated with thick borders

Exhibit 2

MAP OF GUJARAT

Exhibit 3
MAP OF MAHARASHTRA

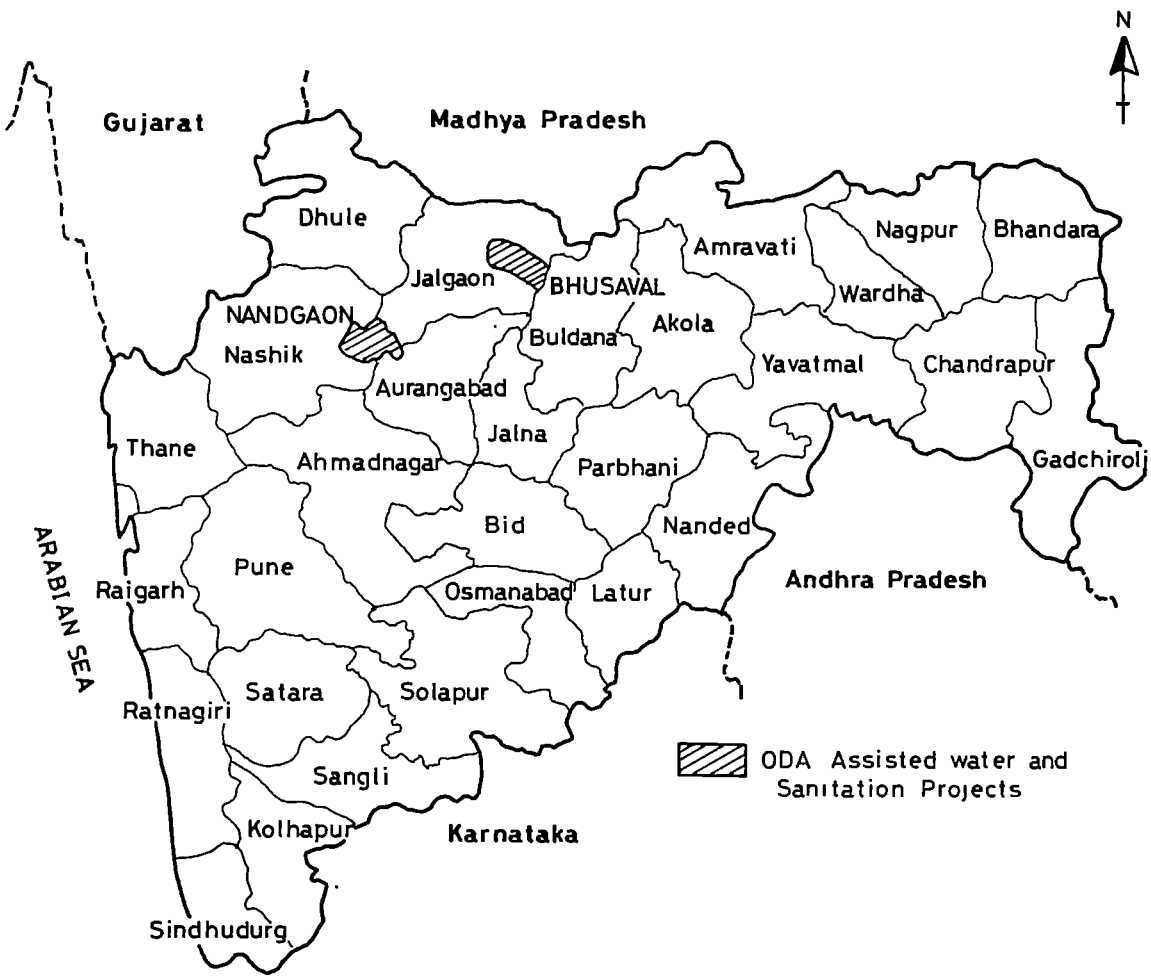


Exhibit 4

MAP OF RAJASTHAN

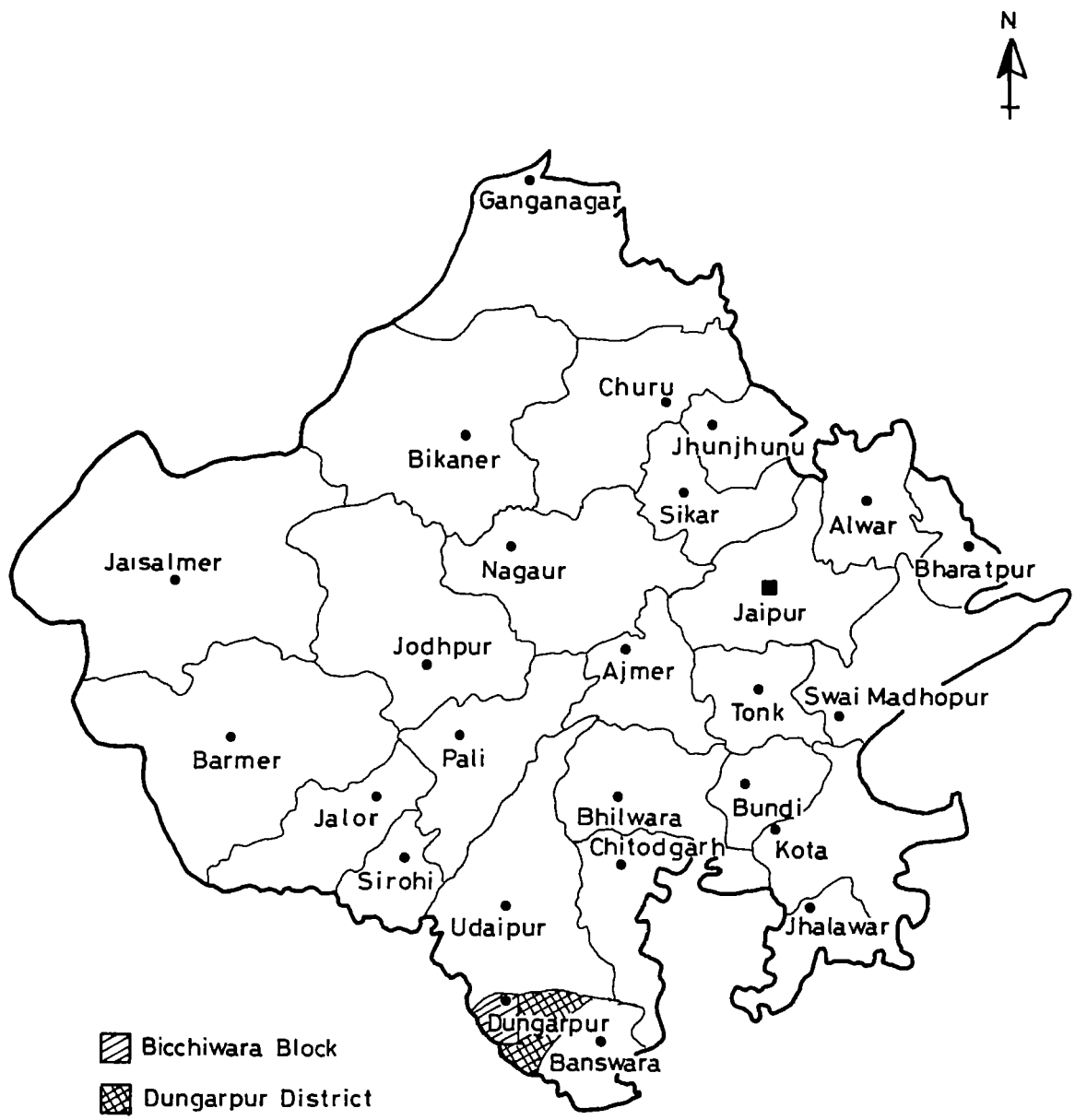


Exhibit 5

MAP OF KERALA

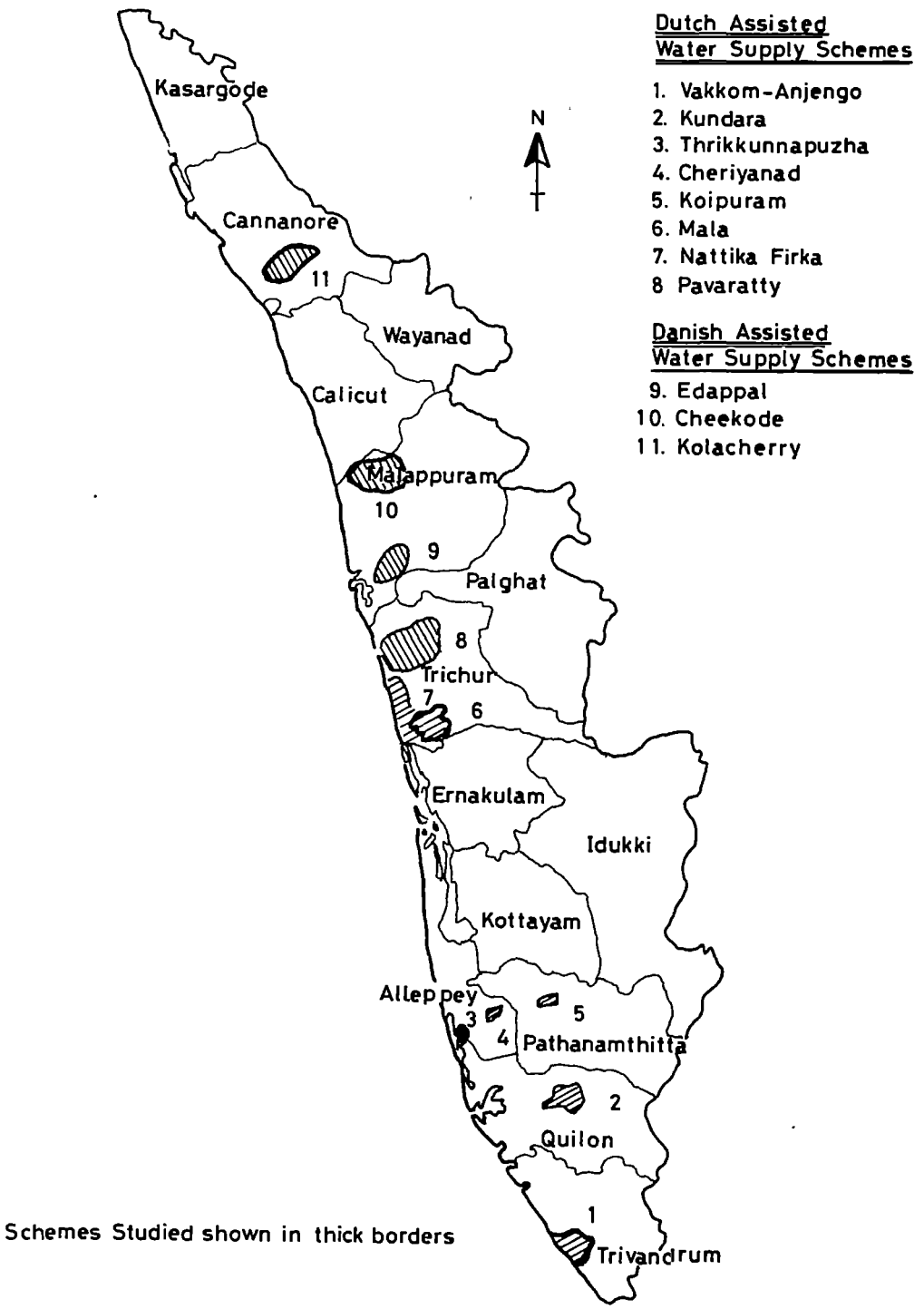


Exhibit 6
MAP OF KARNATAKA

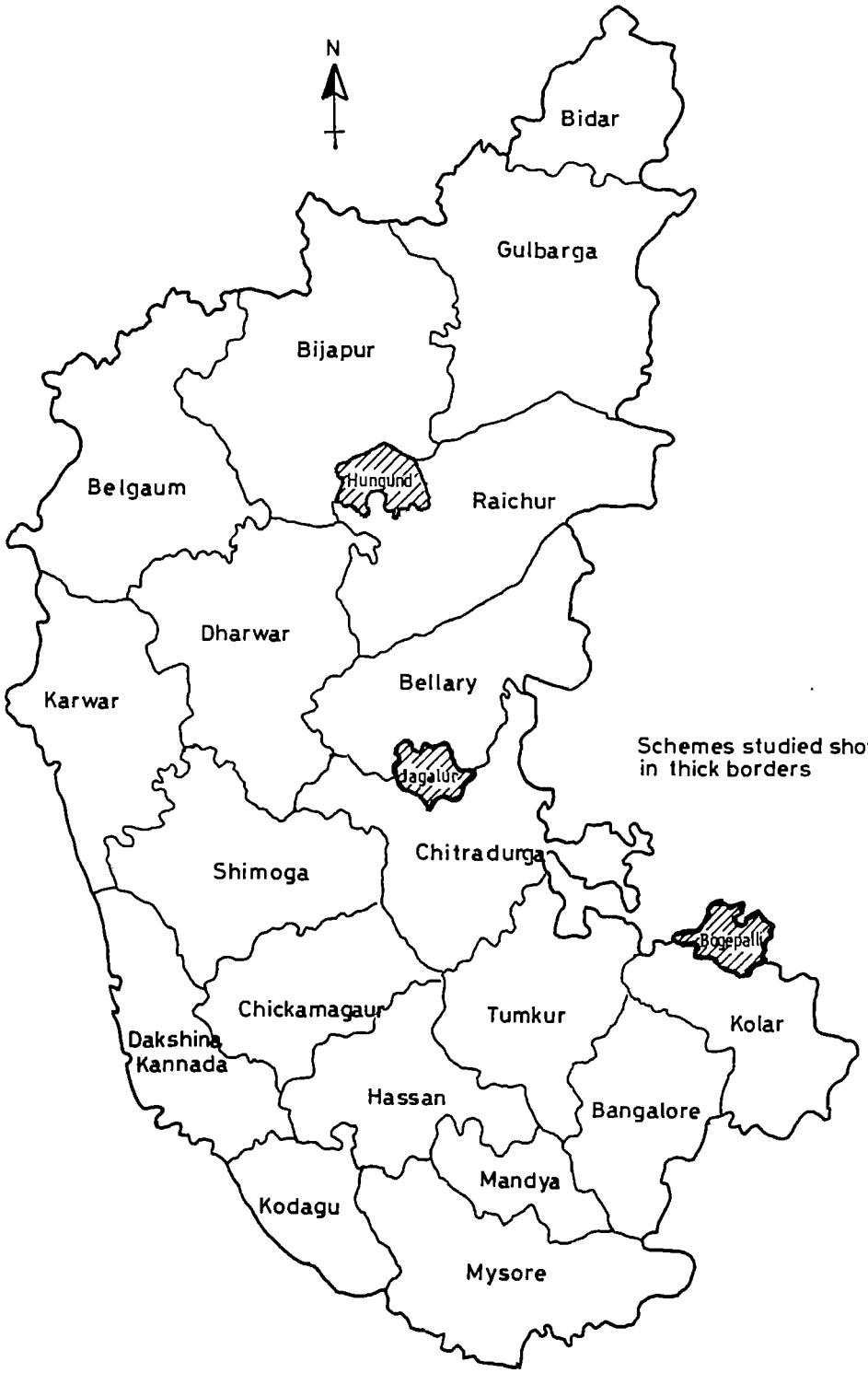


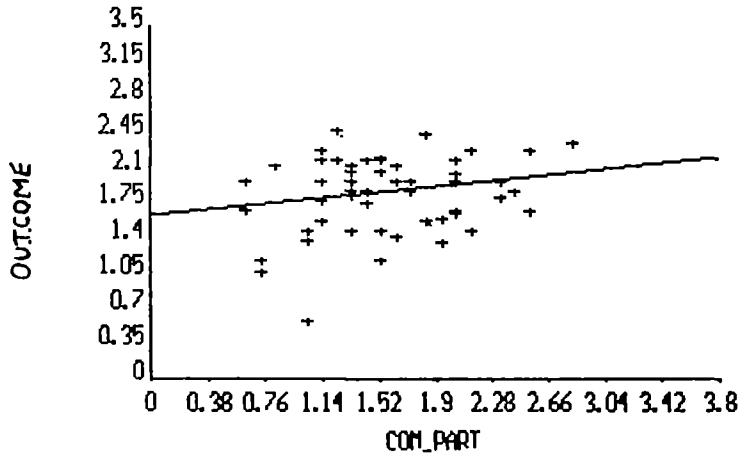
Exhibit 7

NUMBER OF PEOPLE INTERVIEWED

Category	Gujarat	Maharashtra	Rajasthan	Kerala (wards)	Karnataka No. of
Villages/Wards	12	13	12	27 (Wards)	16
Village leaders	23	26	24	47	35
Beneficiaries (including women)	909	598	474	1032	250
Women	454	299	237	464	133
Caretakers	11	12	11	46	8

Exhibit 8

COMMUNITY PARTICIPATION vs OUTCOME :
SCATTER DIAGRAM



Correlation coefficient: r = 0.21
r^2= 0.04
95% confidence limits: -0.05 < R < 0.44

Source	df	Sum of Squares	Mean Square	F-statistic
Regression	1	0.6161	0.6161	2.53
Residuals	56	13.6516	0.2438	
Total	57	14.2678		

B Coefficients

Variable	Mean	B coefficient	95% confidence Lower	Upper	Std Error	Partial F-test
OUTCOME	1.8616	0.2808149	-0.065396	0.627026	0.176638	2.5274
Y-Intercept		1.0100072				