The Best of Two Worlds?

Methodology for Participatory Assessment of Community Water Services

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Methodology for Participatory Assessment of Community Water Services

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Preface

The MPA - the Methodology for Participatory Assessment - is a new methodology for community women and men, project support staff, managers and investors to assess community-managed water services. It is new for two reasons. First, the MPA makes it possible to quantify and correlate, at program and international level, qualitative information generated with participatory rapid appraisal (PRA) methods. Second, it combines the assessment of sustainability with the analysis of gender differences and equity for the poor.

In November 1997, a group of water and development specialists came together to discuss why participatory approaches with a gender and poverty focus had not caught on in large water programs. The group concluded that one of the reasons was that most evidence of the value of these approaches is qualitative and specific to individual projects. There has been no quantitative investigation into the relationships and factors at a global level. Hereupon, the Water and Sanitation Program in the World Bank decided to undertake such an investigation together with the IRC International Water and Sanitation Centre and projects in the WSP program regions.

When seeking to assess the linkages between participation, demand-responsiveness, sustainability, use and equity for women and men and poor people, one is bound to choose a methodology which is participatory and gender and poverty sensitive. The problem was that in the water sector such a methodology did not exist. It had therefore to be developed. The development, use, and evaluation of this new methodology - the MPA - are the subjects of this book. It has been written it to describe, and critically analyze, what the scientific basis of the MPA is, why it has been developed, how it has been used and with what results, where it needs further improvements, and what potential it has for wider use in the drinking water sector as well as in other development sectors.

The title of the book, 'The best of two worlds?' refers to several pairs of 'worlds'. The first pair is that of the field practitioner and the social scientist. Michael Cernea, a leading sociologist in the first generation of social scientists in the World Bank, once said that sociologists and anthropologists who work in development have two major tasks: to make agency projects more participatory and to formulate methodologies for social analysis and action. Having worked for thirty years in the former, I spent the last four years on the latter. Doing so has been both exciting and useful as it helped me to see where the two meet and reinforce each other. The second two worlds are the two epistemologies, constructivism and positivism, on whose foundations the MPA rests. Rather than making a choice for methods that belong to either school of knowledge, I have aimed at developing one instrument that combines methods from both schools and can meet knowledge needs at all levels: from (often still non-literate) women and poor community members to managers of large-scale programs. The third 'two worlds' are thus the methods of the MPA - the PRA methods used with and by local groups and the statistical analysis previously confined to large social surveys. The fourth pair of worlds relates to two earlier evaluation methodologies for community water services: the Minimum Evaluation Procedure of the WHO and the World Bank's Participatory Evaluation Toolkit for managing change in water supply and sanitation. In the MPA, the strengths of either methodology have been combined. Finally, a fifth world is the already mentioned combination of assessing sustainability and gender and poverty perspectives through the same methodology.

The development and use of the MPA were made possible by dedicated teamwork. The core team, which designed the global study, consisted of Rekha Dayal and Nilanjana Mukherjee, the social development specialists of the WSP regional offices in New Delhi and Jakarta, and me from IRC. Rose Lidonde, in the Regional WSP Office for East and Southern Africa, Noma Musabayane in the Institute of Water and Sanitation Development (IWSD) in Zimbabwe, and Bruce Gross, in the WSP head office in Washington D.C., were involved from the start. The core team was also responsible for the study implementation and trained the facilitator teams in South and Southeast Asia, with Karen Jacob assisting in the Philippines. Jennifer Francis and Maria Lucia Borba from IRC, Rose Lidonde from WSP in Nairobi and Noma Musabayane from IWSD trained the facilitator teams in the other regions. Within the core team, Nilanjana Mukherjee prepared the guidelines for the participatory methods and material. Rekha Dayal, with Harminder Paul and Shalini Sinha, managed the work from the WSP's Regional Office for South Asia, the first time that a WSP global project was managed from outside Washington D.C. Bruce Gross mobilized the required funding and, with Suzanne Reiff, co-ordinated the project at WSP headquarters. Uday Mehta and A.J. James did the statistical analysis.

With Nilanjana Mukherjee and Bruce Gross, cooperation continued for the publication of the overall findings of the study as it did with A.J. James and Nilanjana Mukherjee for the adjustment of the training program and field guide. Special thanks go to these colleagues for the way in which we could work together in harmony across so many visible and invisible boundaries and bring the work to fruitful conclusions.

Implementing the MPA in the global study involved the close co-operation of the Regional WSP Offices in East and Southern Africa, East Asia and the Pacific, and South Asia, the IRC, and two regional partners the Interregional Centre for the Supply and Removal of Water (CINARA) and the Pan African Institute for Development (PAID). Eighty-eight communities in fifteen countries took part. In each community, groups of women and men with different backgrounds assessed the degree to which they sustained and used their water service and rated the participatory processes and agency approaches, with their gender and poverty focus, through which the results have been achieved. In East and Southern Africa, South Asia, and East Asia, social development specialists at the regional WSP offices organized the assessments with the help of local consultants. In Latin America and West Africa, IRC and its regional partners, CINARA and PAID, carried out the implementation together with project staff and the community teams. The International Training Network (ITN) Philippines and University of Indonesia were field-testing partners in East Asia.

The sheer magnitude of the number of contributors makes it impossible to thank everyone by name. Here I would like to mention those with whom I have been in direct contact during preparations, fieldwork and/or follow-up: Anibal Valencia, Astrid Reyes, Jacqueline Gavarito, Luis Sanchez, Mariela Garcia, Sandra Bastidas and Silena Vargas of CINARA; Andrew Tayong and Rosetta Thompson of PAID, K.A. Abdulla, Kochurani Mathews, Mariamma David, Rema Devi, Suma Mathews and Thresiamma Mathew of the Socio-Economic Unit Foundation, and Ratna Indrawati Josodipoero, Amin Robiarto, Alma Arief, Dea Widiastuty, Devi Ariandri, Herry Widjanarko and Kumala Sari of the Indonesian team.

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Special thanks go in particular to my Promoters, Professor Dr Patricia Howard-Borjas and Professor Dr Ir Niels Röling in the University of Wageningen, for their inspiring and supportive guidance. I also thank the members of the promotion committee: Professor Dr Joske Bunders, Professor Dr Ton Dietz, Associate Professor Dr Richard Franceys, Associate Professor Dr Lisa Price, and the chair, Professor Dr Akke van de Zijp.

The IRC International Water Supply and Sanitation Centre supported the work in many ways. In the final stages, Kathleen Short reviewed the manuscript and gave constructive criticism. Bettie Westerhof assisted with the references, Michel van der Leest with the processing, and Sascha de Graaf with preparing the publication for the printer.

Being able to share and discuss your work with your family is a privilege and a pleasure. I have been fortunate in that Arndjan, Maarten Siebe and Jakomijn have felt close to a subject on which I spent four years of hard work. Each also contributed in some way: with knowledge on scoring based on work in variety testing in France, with assistance in using the electronic version of SPSS based on work in the participatory monitoring of soil nutrients by women and men small-scale farmers in East Africa, and with literature on community participation in environment-related projects in the Netherlands and Costa Rica.

Something of value deserves it to be validated. With this book, I have sought to validate the MPA. This will, hopefully, not be the last step. As a methodology, the MPA has the potential to be developed and improved for wider uses than evaluation alone, in the water supply sector as well as in other development sectors. May this happen with the same good cooperation and constructive criticism that have brought it to its present place.

Delft, 1 October 2001 Christine van Wijk-Sijbesma

1 Setting off: Rationale, route, and objectives

> *One must learn by doing the thing: though you think you know it, you have no certainty until you try* (Sophocles, *Trachiniae*).

1.1 Introduction

In 1980 in Alto de los Idolos, a small community in the Colombian Andes mountains known for its pre-Colombian giant statues, a group of community women and men and an engineer of the National Institute of Health evaluated the local drinking water supply. They found that the quality of its water was inadequate because at every rainfall cattle droppings were washed into the source. The engineer proposed that the community fenced the intake area to keep the cattle out or that the households herded their cattle or grazed them in fenced pastures. The local women and men realized that the water was unsafe and action was needed, but pointed out that locally the proposed measures would not work. Barbed wire at the intake would be stolen, their children no longer herded cattle, but went to school, and their farms were too small for pastures. They did, however, come with their own solution. One Sunday, all local men transplanted a large number of prickly bushes along the intake and the upstream area. This forced the cattle to shift their watering places to sites below the intake and solved the contamination problem.

This case was one of the first of many personal experiences of how a combination of local and external expertise can effectively diagnose and solve local problems in a way which either party could probably not have achieved on its own. Unfortunately, in national or regional drinking water programs - here defined as a continuing series of socio-organizational and technical activities for establishing community drinking water services - such case-specific studies are seldom possible on a large scale. The managers of such programs generally use external technical and social surveys to learn about the problems and effectiveness of the program's individual water projects. The quantitative data of large surveys allows planners and managers to analyze the outcomes statistically and draw conclusions on the nature and frequencies of successes and problems and their relationship with factors that the individual projects have in common.

Drinking water projects are here understood as all the activities that are carried out to establish and run a single drinking water supply service. Used in this way, they differ in meaning from agency projects which, as discussed in detail in Section 2.2, refer to the establishment of many such services within a given time and place. The term 'drinking water service' has been used to express that a community water supply is a complex system of administrative, financial, socio-cultural, technical, health, and environment-related activities. The goal of such services is the continued, and reliable, daily provision of sufficient amounts of water of an acceptable quality to all community members in such a way that economic, social, and health development objectives, including those of equity, are met. As such, a drinking water service is much more than a water supply technology.

A centrally designed survey by trained teams of national experts was also what the management of the World Bank Water and Sanitation Program had in mind for a global evaluation of small, community-managed, and mostly rural, drinking water services. The objective of this survey was to improve its advice and support to national water and sanitation policy-makers and program planners and managers, in particular regarding the approach on participation, gender, and poverty. The consequence would be that in a survey the interpretation of the local realities would be by outsiders only. There would be no cross-fertilization and no possibility of local action and problem solving by the managers and users of the participating services.

As a member of a multi-country and multi-disciplinary team regretting these consequences I therefore designed and used a new methodology, the Methodology for Participatory Assessment or MPA. The MPA has been the outcome of a search for a methodology that allows women and men community members *and* program staff to jointly evaluate domestic drinking water services and the approaches through which these have been established and are now run. Its practitioners use participatory rapid appraisal (PRA) tools to determine the strengths and weaknesses of the processes and service results, and may use this information to identify areas for improvements. The difference with conventional participatory case studies is that the MPA gives numerical values for qualitative characteristics. This is particularly useful for policy-makers and for managers of large water programs as it permits the aggregation of data and the comparison between services and across factors. The methodology, while using PRA tools and techniques, thus permits to establish relationships at program level and graphically present results. A second new element of the MPA is that it includes a gender and poverty perspective in both the assessment process and in the collected information.

As mentioned above, the MPA was initially developed for a global study of completed rural water services by the World Bank Water and Sanitation Program, but it is now being used as a comparative evaluation tool in large domestic water projects and programs. The purpose of this book is to describe the origin and nature of the methodology and determine its validity, feasibility, and usefulness based on its application in the global study. The global study assessed the relationships between, on the one hand, the sustainability and effective use of 88 rural community water services and, on the other hand, the demand-responsive, gender- and poverty-sensitive participatory approaches used in the establishment and management of these services. Both the methodology and the study should be placed in the context of the continuing need to provide enough and good quality domestic water to all households in rural communities in the South through services which can be sustained with the available resources.

1.2 Domestic water supply: a major societal problem

A recent series of program evaluations shows that, as services, many water supplies are unsuccessful and so require more inputs, despite the fact that new funds should go to serving other poor people who are still unserved. Failure to adjust technologies to different socio-economic conditions, to recognize differences in demand of better off and poor households, and to give people in communities and households informed choices on technology and levels of services are common to many large domestic water programs. The

studies that are reviewed in Chapter 2 conclude that a lack of user participation in, and influence on, design choices and local planning, maintenance, and management of services are major reasons for the disappointing results.

The sustainability of community-managed domestic water services (which here goes beyond ecological sustainability of clean water as a resource and is defined as the continued and dependable delivery of enough water of an acceptable quality to all households) is the main topic of this book. In it, I describe a methodology for the self-evaluation of such sustainability. The methodology has been developed to enable community women, men, staff, and managers of water programs to assess how well services are sustained and used and to assess the participatory processes and agency approaches with which specific results have been achieved. The major concerns can be framed around four broad issues. The first is the availability of drinking water services: despite more than forty years of worldwide development of agency projects and programs, there are still not enough drinking water services to provide all people with at least a minimum amount of safe drinking water. The second is the fact that service access is least available to poor populations who are most vulnerable to the negative consequences of insufficient and poor drinking water. The third is the low dependability of the services that have been established: when many services are not sustained, new investments have to be made to serve the same populations, to the detriment of serving the as yet unserved poor. And the fourth is the lack of participation of women and the poor, with negative implications, not only for functioning, access, and use, but also for the distribution of benefits: water and its uses, improved hygiene and health, new knowledge, skills and confidence and new jobs and positions of management and control.

The inadequacy of establishing sustained drinking water services for the poor in rural and urban areas should be seen against the broader social problem of a continuing bias to provide the better-off populations in the urban areas with drinking water supplies with a high service level. A reliable supply of domestic water with a sufficient quantity and quality to meet basic household demands has long been a priority of people and policy makers in developing countries. To help meet this need, the United Nations launched the International Drinking Water Supply and Sanitation Decade at the Mar del Plata Conference in Argentina in 1977. During this Decade, which lasted from 1981 to 1990, much progress was achieved. More people gained access to safe drinking water in this period than ever before. By 1998, improved water systems had become available to an average of 72 percent of the population in the South. Yet, regional differences remain great: in Africa, for example, only 54 percent of the population has access to improved water services (UNDP, 2000). Conditions are worst for rural populations: access is better for urban populations in 89% of the 71 low income countries for which comparative data on access to safe water for urban and rural populations are available for the period 1990-1996. Only in Bangladesh, Benin, the Ivory Coast, Guinea Bissau, Mozambique, Myanmar and Niger, where external support agencies have been major investors, is access to safe water better for rural populations (World Bank, 2000).

National governments' investments in improved water services have met mainly the needs of the non-poor. Some 80 percent of the annual investments of approximately US$ 13 billion for the improvements during the Decade have come from the developing countries themselves. Multilateral and bilateral donors

contributed $ 2.7 billion in grants and loans. The investments have benefited mainly the urban middle and upper classes. In the 1980s, the use of high-cost technology serving the more affluent urban neighborhoods accounted for eight out of every ten dollars spent. The remainder went to rural populations and the urban poor. Shifting the technology mix in urban areas from 80 percent high-cost to a mixture of 50 percent high, 25 percent intermediate, and 25 percent low-cost technology and using only low-cost solutions in rural areas would save sufficient funds to cover the remaining population (Majumdar, 1994). However, the required policy changes have not yet taken place. Only about 30 percent of the money invested is currently being recovered for re-investment and expansion of service coverage. Major reasons are the use of high-cost, high-subsidy technologies and the low prices charged to middle and upper class users (WSSCC, 2000).

Bilateral support to agency water projects and programs, as a component of overall development cooperation, does not fill the gap. Its size is modest and has declined over time. In 1986/87, all but three member countries of the OECD Development Assistance Committee reduced their financial assistance to the developing world as a percentage of their GNP in comparison with the percentages for 1981/82[1]. The averages dropped from 1.14 percent of the Gross National Product in 1981/82 to 0.57 percent in 1986/87. In 1993, the trend in spending went up again, increasing from 0.72 percent in 1993 to 0.86 in 1997, but averages remain lower than before (OECD, 2000a). The support is nevertheless substantial in absolute terms. Between 1993 and 1997, the annual net flow of financial resources to developing countries and multilateral organizations for all sectors ranged from U.S. $135 billion in 1993 to U.S. $188 billion in 1997, with a peak of U.S. $196 billion in 1996 (figures are based on 1999 exchange rates). The percentage of total investments that went to the improvement of drinking water supply and sanitation in that year was 6.6 percent for the bilateral agencies and 5.8 percent for the multilateral agencies (the European Commission, the World Bank and the Regional Development Banks).

Moreover, the poor and women participate insufficiently in planning decisions and management, with negative implications for functioning, access, and use. In particular, a considerable amount of evidence from case studies, surveys, and project experiences is available which shows that rural water services are better sustained and used when women community members directly participate in, and have influence on, the planning, construction, and management of these services. This is reviewed in detail in Chapter 2, which gives the state of the art in the drinking water sector.

1.3 A global study on sustainability, participation, gender, and demand responsiveness

Changing large programs is taking time, even though there is by now a considerable amount of evidence which demonstrates that rural domestic water services are better sustained and used when both women and men community members take part in planning, maintenance and management. Qualitative data from

[1] Members of the OECD/DAC are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States. Finland, Luxembourg, and Portugal increased their contributions to between 0.1 and 0.7 percent of their GNP.

individual case studies and agency projects on the positive effects of gender and poverty sensitive participation do not easily convince policy makers and managers of large programs to adopt a different approach (Thomas et al., 1998). More comprehensive studies that compare the presence and quality of participatory approaches with the subsequent performance of the established services exist, but are rare. They furthermore have been blind to gender aspects in participation and management and to the effect which the presence or lack of a gender approach has for the continuity of services. Neither have they considered the effects of gender and poverty approaches for equity, or the degree to which women, men, and the poor have equitable access to, and benefit from the services and the participation process. 'Gender' is a term coined in the 1960's to refer to those differences between women and men which are socially constructed, in contrast to the physical and biological distinctions between them. Gender relations are the "socially, culturally and economically determined relations between men and women that vary according to phenomena such as age, kinship affiliation, ethnic group, religion, caste and social class" (Howard-Borjas, 2001, p. 1). Other than biological differences, gender relations are open to change and vary over time and across places, yet also share a number of characteristics. Gender relations are manifest in the knowledge, roles and responsibilities, rights, and ownership of resources of women and men, as well as the legal and political responsibilities and rights that each sex enjoys.

The lack of quantitative data that link participatory, demand-responsive, and gender- and poverty-sensitive approaches in agency projects with results on sustainability and use stimulated the Water and Sanitation Program of the World Bank to undertake a global study of domestic water services run by, or with, rural communities in the South. Two earlier desk studies and two field studies, reviewed in Chapter 2, showed that domestic water services, which are the result of (national or bi- or multilateral) external interventions are better sustained, or have a higher chance of sustainability, when they have a higher degree of participation and responsiveness to user demand. However, as already mentioned above, all studies had been carried out without considering gender and gender relations.

The objective of the new study was to test whether participatory approaches that are more demand-responsive and gender- and poverty-sensitive (independent variables) result in water services that are better sustained and used (dependent variables). A 'service demand' refers to the provision of a water service that communities and potential user households want and will pay for in kind, by devoting time and work to planning, construction, maintenance, and management, and in cash, by paying for construction and/or maintenance. 'Demand responsiveness' refers to the degree to which project agencies respond to that demand and give male and female users in the community an informed say in decisions related to it. It also refers to the degree to which the established services continue to meet the demand of the different user categories and to the level and nature of satisfaction of different user groups with the services that they support.

The global study had six assumptions, which are presented schematically in Fig. 1. First, it was assumed that the degree to which a community sustains an installed water supply service (variable cluster A) is positively related to the degree to which its population (male and female, rich and poor) uses the service (variable cluster B).

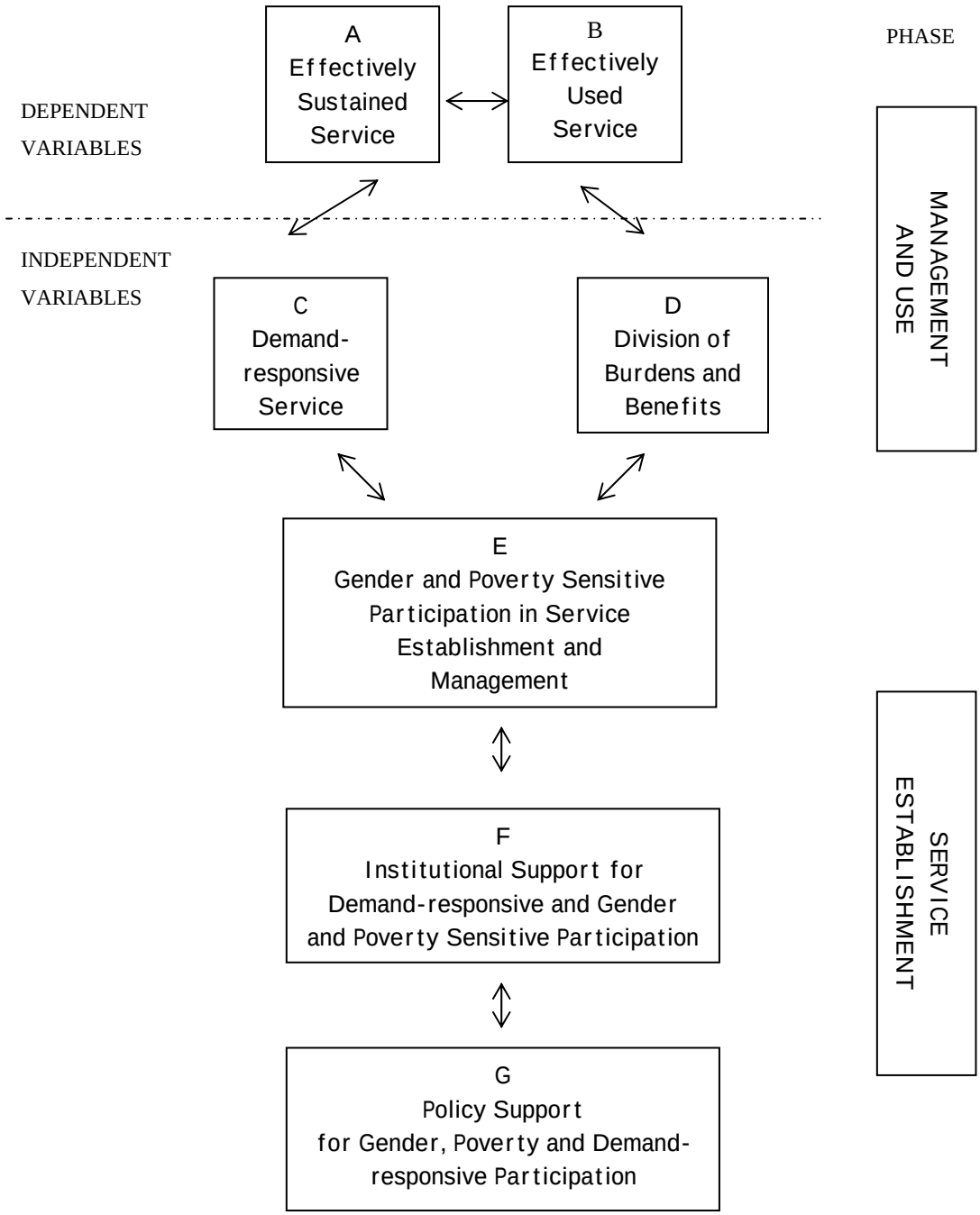


Figure 1 Assumptions on associations in the global study

These two variables were in their turn considered dependent on, among other aspects,

- the degree to which the service meets the demands of the respective population categories (here: women and men, poor and rich) (variable cluster C);
- the way in which burdens and benefits of the service and of the participation processes are divided between men and women, rich and poor (variable cluster D), and
- the degree of gender- and poverty-sensitive participation in the establishment and management of the service (variable cluster E).

Variable clusters F and G were chosen as influencing variables at the institutional level. The underlying assumptions at this level were that:

- the degree to which communities sustain and effectively use the service is also positively associated with institutional support for demand-responsive and gender- and poverty- sensitive participation approaches by the project agencies (cluster F) and with
- the presence and application of demand-responsive, gender-, and poverty-sensitive participation policies in the project agency and the country (cluster G).

In case significant differences were found, a further assessment would be made of the factors that play an essential role. The study was designed and implemented as a joint project of the World Bank Water and Sanitation Program and the IRC International Water and Sanitation Centre. It was carried out in the period 1998-1999 in 88 community water services established by 18 agency projects in 15 countries in the South.

1.4 The study methods and the problems, objectives, and questions of this research

The envisaged methods for the global study were a social and technical survey of a sample of community managed water services created at least three years earlier through agency projects for rural water supply. However, when participatory water projects and services are the subject of study, participatory methods are preferable over employing the extractive methods of a social and technical survey. In such a survey, external researchers and development funders become the sole owners of the knowledge generated. They do not consider that for community women and men and their local water management organizations, the knowledge generated may also be of direct relevance and use. Normally, researchers do not share findings of large surveys with communities. At best, they give an initial feedback to the local leaders, who usually are men. In such a survey, local women and men would be passive participants who would give their time free of charge so that, in this case, the World Bank and the WSP might use the data for policy formulation and the IRC for information services and training. The effects of such research are returned to those directly concerned only indirectly and after a long time, or not at all. In planning the design of the global study, the WSP/IRC team therefore decided to look for a methodology that would be participatory and deliver directly usable information to the women and men in the communities. While the study itself was not action-oriented, the information should at least allow the participating communities to share in the knowledge gained. It should also allow them to draw their own conclusions about the strengths and weaknesses of the participatory processes and the results of these processes in terms of service management, performance, and use. The methods should further assist them to obtain insight into the equity aspects of the services. The insights gained then might constitute first steps for problem-solving action.

The first research problem to be confronted was the absence of a methodology that is participatory and useful for communities, yet that also produces quantitative and comparative data at the global or program level. Although participatory methods for assessing sustainability, use, and participation are available and work has been done to integrate gender and poverty aspects, no methodology was found that allowed these

methods to be used comparatively and generate information that is suitable for statistical analysis. It was, therefore, decided that a new methodology had to be developed. It should result in data that would be useful for analysis at community, agency project, country, region, and global levels and allow statistical testing at the global (or program) level.

The second research problem was that the new methodology had to incorporate a gender and poverty perspective, which were absent in the methods that already existed. Although the importance of a gender perspective in drinking water projects has long been recognized and gender analysis frameworks exist that help assess gender issues in a wide range of interventions, a gender perspective had not yet been integrated systematically into existing methodologies for evaluating community water services.

Consequently, while having been asked to carry out a comparative global study to test the above-mentioned assumptions, the main research objectives as reported here became:

1. To develop a participatory methodology for data collection, the Methodology for Participatory Assessment (MPA) which includes gender and poverty perspectives in its contents and process and which, when proven valid, communities members and program managers and staff can continue to use to monitor and evaluate domestic water projects and services;
2. To determine the validity, feasibility, and usefulness of the MPA by analyzing its theoretical basis and its application in and results from the global study.

Box 1 sets out the distinction between the global study of the World Bank Water and Sanitation Program and the IRC and this book on the MPA.

In addition to these two general research objectives, the book addresses five specific objectives:

1. To validate the concepts of the MPA and its methods for data collection and analysis. Topics of specific attention are the choice and definition of the variables, the acceptability of using qualitative participatory methods, tools for quantitative data collection and analysis, and the integration of gender and poverty aspects in sustainability monitoring.
2. To describe the MPA and its development and application in such a way that its principles, content, and application are transparent. This should make it possible for others to assess its quality from the account and the global study that served as its field-test and it should permit its replication.
3. To draw conclusions regarding the importance of gender and poverty-sensitive participation for sustainability and use of the services from the findings of the global study, which applied the methodology in 88 rural water supply services in 15 developing countries.
4. To study how others have used the MPA as a tool to assess and predict sustainability and to draw conclusions regarding its use, diffusion, and quality control. The focus of this part of the research is on the scaling-up of the use of the MPA vis-à-vis experiences with scaling up of other participatory methods.
5. To identify how communities and programs can use the MPA as a tool in planning and implementation

of demand-based, community-managed and gender- and poverty-sensitive domestic water services, and to make recommendations for follow-up.

Box 1 The global study and this book

On seven and eight October 1997, a workshop of the Water and Sanitation Program (WSP) of the World Bank and the Gender Issues Network of the Water Supply and Sanitation Collaborative Council (GENNET)[2] took place in The Hague, the Netherlands. Its objective was to define the way forward to advance gender and participation in the operations of the WSP. Participants were WSP staff from headquarters and the regional offices, representatives of key financing partners of the WSP and members of GENNET. The guiding principle for the deliberations was to take the issues of participation, gender, and demand out of the advocacy mode and link them with the sustainability of investments in water supply and sanitation. The participants agreed that the first activity would be a global study. This should determine whether the use of more demand-responsive, gender-aware approaches in projects and programs of water agencies is linked with better sustained and used services. They also agreed that the study would use participatory methods and tools.

The approach and outcomes of this global study have been reported in a manual (Dayal et al., 2000) and a synthesis report (Gross et al., 2001). This book has been written because during the global study it became clear that the new methodology had a much wider applicability than a single policy study. In particular, it provided researchers and program managers with two new elements: the generation of PRA community data that can be aggregated and statistically analyzed at program and global level and the integration of a gender and poverty perspective in the analysis framework and process. This book describes the origin of the methodology and places it in the context of social research development. It critically assesses its use in the global study and in other studies that were carried out afterwards. It further contains a report of the detailed findings from using the gender and poverty analysis frameworks. Finally, it relates the use of the methodology to the new demand-responsive planning paradigm for rural water supply services and the way this paradigm has been operationalized with World Bank-support in Uttar Pradesh, India.

The specific research objectives addressed in this book gave rise to four sets of questions:

1 Can a participatory methodology for monitoring and evaluation be developed that can be used in a global study and that at the same time is of use to women and men in communities as well as to the staff and managers of large programs? Can a manageable number of essential variables and easily measurable indicators be identified that explain the variation between high, medium and low sustainability and use of domestic water services? How can this methodology provide locally specific qualitative information and also provide the comparable, quantitative data that managers want and can integrate into MIS (Management Information Systems) and GIS (Geographic Information Systems)?

2 Can gender and poverty aspects and their analysis be built into the methodology and the participatory tools and processes that are used for measuring the indicators? What essential indicators capture the main aspects of gender and poverty equity in establishing, sustaining and using domestic water services? How can local women and men take part in the assessment and analysis of the findings in ways that are gender-, poverty-sensitive, and meaningful to them?

3 If the methodology meets its objectives, how can it be diffused? How can the capacity for application be built? In addition, how can quality be ensured when application is scaled-up? What are the means to prevent the methodology from being used extractively, to collect only data for managers and policy makers, while its other possible functions (making it easier for local women and men to assess the strengths and weaknesses of their water service and participation processes, make improvements and

monitor their effects) are neglected? How can it be ensured that the gender and poverty components in the process and contents of the methodology remain incorporated? Moreover, can adjustments be made to the methodology to meet the particular requirements of communities and program agencies? When is the MPA no longer the MPA?

4 How does the MPA fit within the adjusted approaches to planning and implementation of rural water supplies that are currently being adopted in large programs such as those financed by World Bank loans? What are the implications of approaches, in which communities may formulate and submit their own plans for improved services and the programs will allocate funds based on a combination of needs and demands?

1.5 From users to managers: one tool for all to assess domestic water services

The MPA is the result of efforts to develop a participatory monitoring and evaluation tool that combines several functions: visualizing some of the essential variables for success or failure of community-managed water services to women and men in communities, agency projects, and programs, stimulating them to undertake actions for improvements, and allowing program managers to compare between cases and validate strategies. Managers can use the community-level findings because the methodology allows for aggregation of outcomes from village-level participatory monitoring efforts to the program (macro) level. This applied work for large, community-based water supply programs has been linked with broader developments in social science research, in particular to debates between constructivist and positivist researchers as well as to research on gender perspectives.

The development of methodologies for participation is part of "putting people first" (Cernea, 1991a, p. 7). He stressed that sociologists and anthropologists working in development agencies and programs should not only make agency projects more participatory and attune the technical and economic team members to this process, but also formulate methodologies for social analysis and action. Both requirements are still under development in the water sector. Domestic water programs have started to include social specialists on their staff, but this is not yet a common phenomenon in large government programs implemented with national funds and multilateral loans. In these programs, administrators, economists, and engineers are often still the only ones who are in charge of the initial stages of identification and formulation and the methods used during these crucial stages are still predominantly non-participatory. If expertise on participation, gender, and the use of participatory methods and tools is included, it tends to happen mostly in the implementation stages. Dore therefore speaks of social specialists as "afterthought appendages of economist-dominated teams" (1994, p. 143). The reluctance to change agency project approaches made the Water and Sanitation Program in the World Bank decide to globally assess the relevance of participatory and gender- and poverty-sensitive approaches and search for significant factors as part of its support to policy adjustment and large scale program implementation.

[2] The WSSCC is a global voluntary organization of professionals working in or for improved water and sanitation services in developing countries. Its niche is in the headquarters of the WHO in Geneva, Switzerland. IRC is the coordinating organization for the gender network.

Implementing more participatory approaches in large programs also requires participatory methodologies for social analysis and action that are gender- and poverty-sensitive. Although technologies and social processes differ with local circumstances, they also share some basic characteristics irrespective of their specific environments. Consequently, both analysis and action are open to some generalization and allow the formulation of more general methodologies. A more general analysis can, however, not be applied when planners and managers lack the necessary methods and tools.

The developed social analysis and action methods and tools should systematize, conceptualize, and codify the accumulated experiences from agency project work to make them systematically applicable in large programs. To be useful as development planning and management instruments, they should also be greatly simplified. Complex managerial methods do not work in development projects in rural areas. Rural people ignore them and project agency officials who understand and control them, may use them for manipulation. New style agency projects and programs require new modes of participatory learning and flexible and transparent management at all levels (Cernea, 1991a; Cernea, 1991b; Chambers, 1994c). The search for a relatively simple, participatory and systematic procedure for monitoring community water services and agency projects that does not require literacy yet allows for the aggregation of village data at project and program level, fits into these developments. The use of the MPA in a global study of a large number of community water supplies provided not only information that is relevant for policy development and program planning, but also served to test the soundness of the methodology and its underlying concepts. Without the study, there would be no basis for adopting or rejecting the MPA as a monitoring and evaluation tool.

1.6 The place and structure of this research

The here presented research is the outcome of a process of developing, testing, and using the MPA that I carried out as a member of the core team that designed and implemented the global study. The overall work has been documented in several other publications and reports. Besides this publication with the validation of the methodology and the global study, there is an initial guide that describes the methodology, the participatory tools, and the scoring system (Dayal et al., 2000). A field guide (WSP & IRC, 2001) contains the detailed steps of the PRA sequence, the operationalization of the gender and poverty perspective in the assessment process, the revised scales for scoring and questions for the analysis of findings with the prime actors: the community members and project agency staff. Other published and unpublished documents include a synthesis report of the global study (Gross et al., 2001), a report on the adaptation and use of the methodology for the evaluation of a peoples' based catchment area development project (James, 2000a), a research paper on the specific management situation in water services in Latin America (Garcia Vargas, 1999), several articles on the use of MPA in Indonesia and India (James, 2000b; Mukherjee, 1999) and case study reports on a follow-up action that one of the two communities that pilot-tested the methodology undertook as a result of the local assessment (Dayal et al. 1999; Mathew, 2000; SEUF, n.d.).

The book consists of eight chapters, which are presented as a flow diagram in Fig. 2. In the present chapter the broader societal problems of the continuing lack of access of the rural poor to improved and sustained

domestic water supply services has been described. The chapter also contains the assumptions of the global study, on which this book draws. This has been followed by the presentation of the general and specific objectives of the dissertation and the research questions that have been investigated.

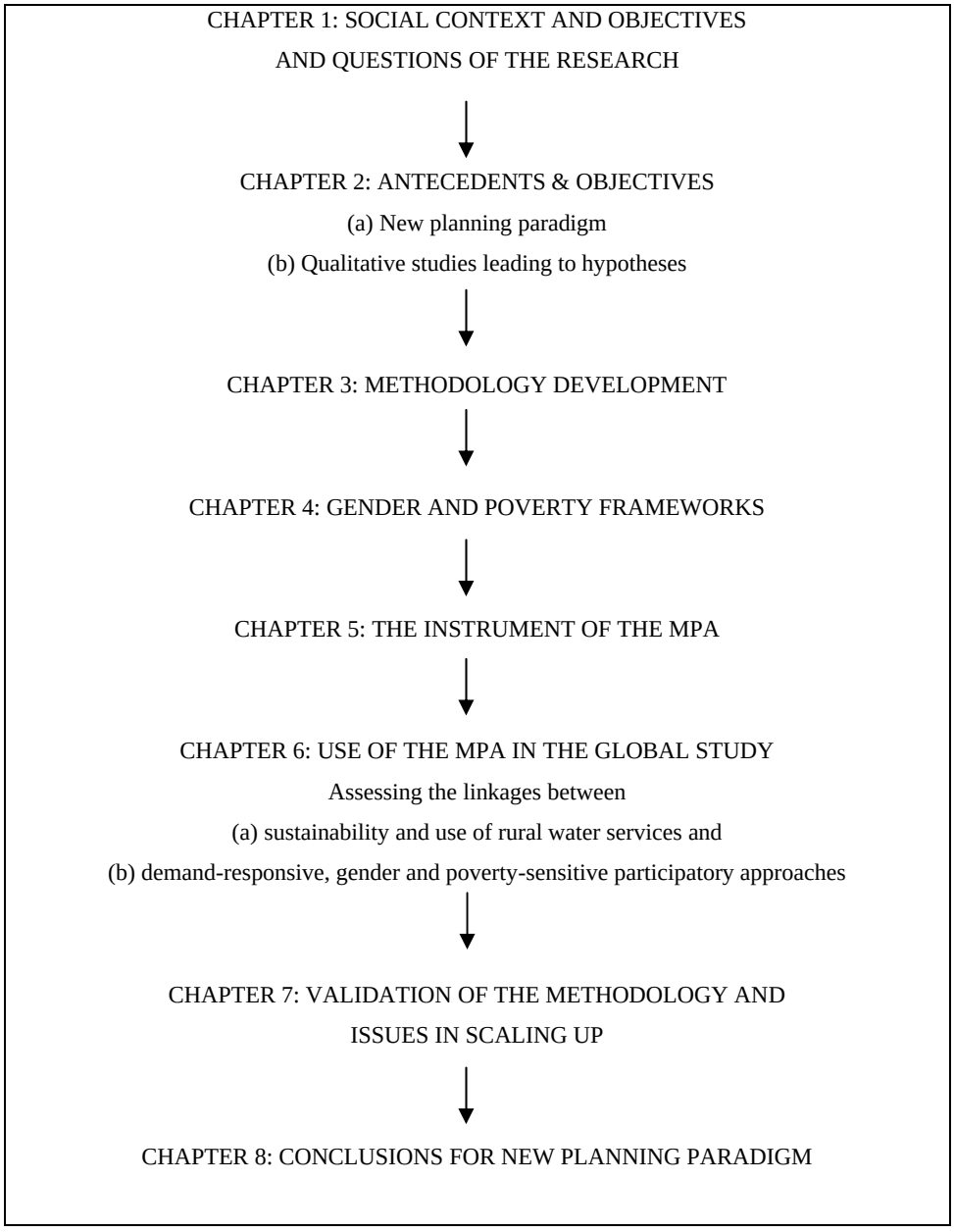


Figure 2 Outline of the research as presented in this book

The next chapter, Chapter 2, lays out the antecedents and state-of-the-art that provided the point of departure for the global study and contains the analysis of the earlier studies that have been carried out on the same topic. The chapter first presents the shortcomings of the existing domestic water supply situation, with the failure of national, bilateral and multilateral development programs to serve the poor and ensure the sustainability of the services. The failure is linked to the paradigm of planning agency water projects as 'blue prints' and using a 'blanket approach'. Alternative approaches, through agency projects and otherwise, for establishing community water supply services have been reviewed. It then gives an overview of the qualitative studies that link the effectiveness of agency projects in terms of the degrees to which

communities sustain and use the resulting services, with the participation of the local users. Subsequently, it describes the demand for, and the paucity and incompleteness of, quantitative studies in these subject areas. The global study is presented to fill some of the gaps, along with the reasons why a participatory methodology had to be developed to carry it out. The implementation of the global study and the testing of the assumptions, which originally was a separate assignment, became at the same time an opportunity to develop and test this new participatory methodology for evaluating and monitoring community water services, the “Methodology for Participatory Assessment” or MPA.

Chapters 3 to 6 cover the development and description of the MPA, its use for the global study and the outcomes of this study. In Chapters 3 and 4, the development and epistemological grounding of the methodology is presented as well as its linkage with gender theory and research. Chapter 5 describes the components and working procedures of the methodology and accounts for the ways in which the assessment of gender and poverty aspects have been operationalized. Chapter 6 contains the planning and implementation of the global study and the outcomes and conclusions in terms of the study's assumptions

Chapter 7 draws lessons on the methodology itself, its test as a means for monitoring community water services by the poor, women, and program managers and the implications for scaling up. Finally, Chapter 8 returns to the new support and planning paradigm that was the subject of Chapter 2. In this final chapter, the findings of the global study and the use of the MPA are linked to the new way of planning and supporting the implementation of rural water services which is under development in several large rural water supply programs that are supported by the World Bank. The chapter presents the contributions of the MPA and the findings from its use in the global study for the new planning paradigm and lists the main areas in which the methodology needs to be developed further.

2 The social context: Domestic water projects under pressure

> *This is not the age of pamphleteers. It is the age of engineers. The spark-gap is mightier than the pen. Democracy will not be salvaged by men who talk fluently, debate forcefully and quote aptly* (Lancelot Hogben, Science for the citizen: Epilogue. New York: Alfred A. Knopf, 1938).
>
> *I always say that if you want a speech made you should ask a man, but if you want something done you should ask a woman* (Lady Margaret Thatcher, at the Annual General Meeting of the Townswomen's Guild, 26 July 1983).

2.1 Introduction

This chapter introduces the rationale for the global study (the relationship between project approaches at the community and agency level and community service performance results) and justifies the objectives of the present research (the development and testing of a quantitative participatory methodology that combines sustainability measurement with the assessment of gender and poverty perspectives). The study has been initiated in light of the continuing failure, well documented in the literature, to provide reliable domestic water supply services with sufficient and safe water to meet at least basic household requirements in economically less developed countries. Neither the increased effort during the International Drinking Water Supply and Sanitation Decade, nor the inputs thereafter, have been able to close the gap between those with and without service, and few services have proved to be sustainable. Five paradigms have been used to improve rural water services through agency projects: supply-driven blueprint projects, more participatory government water projects, water supplied by the private sector, water projects by the non-profit NGO sector and projects for self-reliant development, including the so-called people's projects. In rural areas, participatory services have been the most promising. However, while a considerable amount of qualitative data exists showing the positive relationship between participation and sustained services, quantitative data about such linkages are scarce and incomplete about gender relations and equity for the poor. The absence of such statistics prompted the Water and Sanitation Program in the World Bank to determine, in quantitative terms that meet the needs of managers and funders of large programs, if services established by participatory approaches that are more gender and poverty-sensitive and that have been planned to meet demand, are also better sustained and more effectively used. The study team itself added the objective for the current research: the identification of an evaluation methodology that is participatory and may be meaningfully used in any water supply program by all stakeholder groups: female and male community members, program staff, program managers, and policy makers at national program and policy making levels.

2.2 The defeat of supply-driven blueprint projects

In rural areas in developing countries, investments for improving domestic water supplies increased in the 1960's, when many national governments began to undertake agency projects for drinking water services as part of national rural water supply programs. Agency projects are development interventions that are systematically planned and executed. They are designed to attain clearly defined objectives and outputs

over a specific period, at specific costs, and in a specific location. Results are achieved through activities and resource inputs that are described in a pre-determined plan (Rondinelli, 1983). Initially, engineering interest in projects was restricted to piped water supplies[3]. Many of them introduced technologies that were beyond the capacities of rural populations to operate, maintain, and manage. The new systems meant total user dependency on technical and political administrators, who did not themselves suffer from problems in the water services that they installed. Only piped water supply systems that relied on gravity (which are relatively easy to maintain and repair and have low recurrent costs) had as one of their aims to organize rural communities to maintain and manage their own domestic water supply provision (Glennie, 1979).

Technical breakthroughs made low-cost technologies that communities themselves are able to manage more widely applicable, but seldom led to more community autonomy, because external agencies continued to plan, build, maintain and manage the services in large 'blanket approach' programs. Especially the introduction of rig-drilled and, in softer soils, hand-drilled wells topped by handpumps stimulated the large-scale construction[4]. In India, the first country with a large handpump program, handpumps brought a rapid increase in access to a better domestic water supply for the rural poor through a close cooperation between the government, multilateral development and the private sector. When the program was threatened because the family-type handpumps were not suitable for community use and a survey found that 75% of them were out of order, UNICEF supported the modification of two NGO-designed, community-type handpumps into one new and standard model, the India Mark II. Because the demand from Government agencies for the new pump was high, UNICEF contracted a private company, Crown Agents, to help private producers set up local production and join a system of internal quality control. By 1984, 36 Indian manufacturers had a production license and, in 1998, some three million India MKII handpumps provided water to rural and urban populations across India. Local production was also started in Africa. Ghana, Nigeria, Mali, Sudan and Uganda included the India MKII pump into their program for rural water supply (UNICEF, 2000). In Bangladesh, Indonesia, Tanzania, Kenya, and most countries in West Africa, large handpump programs have also been carried out.

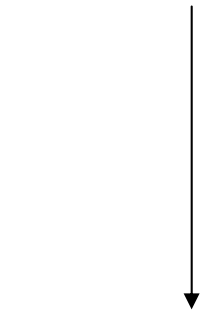
Although newer and simpler technology made it possible to move towards people's projects, many rural domestic water programs continued to be fully controlled by technically oriented agencies which implement a 'blueprint' project paradigm. Technical and non-participatory agency projects, which aim at 'bringing water from A to B', are often called blueprint projects because of the rigid way in which they are planned and implemented. A blueprint project "gives predetermined detailed indications of what has to be done, by whom, how, when and where. It gives very little scope for adjustment during implementation" (van Dusseldorp, 1993, p. 307). It is supply-driven, when external agencies control all or most of the financing

[3] Community development programs, women's programs and programs for primary health care, constructed simpler technologies, such as protected wells and rainwater harvesting structures. These programs had a much lower status, coverage and financial support than the programs of the engineering agencies (van Wijk, 1985).

[4] Handpump wells use groundwater, which other than most surface water does normally not require any treatment to guarantee its bacteriological safety, provided the wells are properly sited, installed, and used. The development of low-cost, community manageable treatment systems for surface water, in which natural biological processes purify bacteriologically contaminated water to drinking water standards, dates from a later period.

and decision-making. Many agency projects that were called 'participatory' or 'self-help' were in practice supply-driven blueprint projects, because people's participation was limited to providing physical contributions into strictly planned top-down government interventions. Such agency projects usually fell into category one or two on the scale on participation in community water supply projects in a compendium paper prepared for the OECD Development Assistance Committee (Table 1).

Table 1 Degree of community influence in rural water projects

Low level of community control  High level of community control	The community is asked to contribute labor, land, or locally available materials.
	The agency delegates certain management and/or operation and maintenance tasks to the community and trains community members for these tasks.
	The community is involved in discussing various options during the planning phase of the project, but final decision making power remains with the agency.
	Options are discussed and decisions made jointly. Compromises help to adjust the project to the community and agency realities.
	Final decision making and authorization rests with the community. Agency technical support and advice is provided at the request of the community.

Source: IRC (1988)

According to van Dusseldorp, agency projects for water supply are typically suited to a blueprint approach because goals and processes are known and widely supported, and the physical environment can be controlled. In supply-driven projects, the aim is to construct new facilities, irrespective of whether communities and users have an (economic) demand for their installation and use. It is typical for such projects that they are conceived, initiated, and planned by governments and external agencies with no influence from the users who will decide on whether they will use and support the resulting services.

The supply-driven, rigid, and non-participatory character of project interventions has come under much criticism. The finding that many of the conventional agency projects have not been able to sustain their results over time has intensified the debate on the abandonment of the agency project approach. According to the OECD-DAC, "development is sustainable, when a recipient country is willing and able to provide sufficient means and resources (financial, managerial, ecological and so on) for an aid activity after the donor has phased out its assistance" (van Pelt, 1993, p. 27). Doubts about the way agencies have designed and implemented development projects began in the 1980's and have intensified over time. A World Bank study of 550 agency projects, including many water supply projects, concluded that sustainability was unlikely for 15 per cent of the projects, marginal for 9 per cent, and uncertain for 24 per cent. Only 52 per cent were judged to have successfully achieved sustainability. A study by USAID was even more gloomy, with 26 per cent of the agency projects getting a negative rating, 56 per cent rated as marginal and only 11 per cent considered to have strong prospects for continuity (World Bank, 1990, and Kean et al., 1988, both reported in Brinkerhoff & Goldsmith, 1992). A major reason for the failure of World Bank financed infrastructure projects was that political prestige and interests determined project planning. Consumers had no influence on planning decisions and quality of service delivery (World Bank, 1994a).

Agency projects are an oversimplification of far more complex processes and have therefore been considered unsuitable for development. When implementing them, both financing agencies and politicians and managers in the host countries press for moving too much money too quickly in time-bound, pre-planned processes and for short-term results (Korten, 1981; Honadle & Rosengard, 1983). They are 'boxed in' by time, space, and subject and shift the lead in development from the local people to state agencies and development funders. Local initiatives have to conform to the interests and perspectives of public authorities. Technical support to development projects has become 'big business'. External agencies introduce normative strategies and evaluations that define the problems, solutions, and means and suppress autonomous development processes (Long & van der Ploeg, 1989). The specific position and resources of such projects may make them a-typical. They remain 'hothouse plants' that cannot survive on their own (Cernea, 1991b). Planned interventions are also often highly political within communities, which may make them a source of conflict instead of progress. Except for those outsiders who show genuine interest and critical expertise, question vested interests and help local planning by posing questions, expatriate technical advice in agency projects is too costly, imposes its own values, and has become "brutal bargaining" (Dore, 1994, p. 1431).

Not only technical assistance projects have come under increasing criticism. A recent World Bank study even questions the effectiveness of development cooperation in general and the effectiveness of bilateral cooperation in particular, but other empirical studies have countered its findings. The study of Burnside and Dollar (1997) and the ensuing World Bank 1998 report *Assessing Aid: What Works, What Doesn't, and Why*, which stated that assistance should only be given to countries with a good economic policy as only there development cooperation is effective, have received much publicity. However, three years later, Hansen and Tarp presented an analysis of 131 empirical studies on the relationship between aid and growth, which spanned a much longer time frame, from which they concluded that positive evidence on the economic effectiveness of development cooperation was convincing and economic policies did not make the difference that the World Bank study claimed (Hansen & Tarp, 2000). A subsequent OECD/DAC Seminar on Aid Effectiveness, Growth, and Policy supported the concerns expressed by these authors that:

> .... the Assessing Aid report and previous studies led to conclusions in influential publications such as *The Economist* about aid being a waste of public funds "down foreign ratholes" unless restricted to countries fulfilling certain policy standards set by influential international organizations, but far from controversial even within these (OECD/DAC, 2000b, p. 1)

Participants of the seminar concluded that in general, development cooperation had enhanced growth and poverty reduction through investments and that rather than cutting out countries hit hardest by poverty and poor policies combined, supporting countries should investigate *which* policies in each specific situation are most likely to succeed. "Econometric analysis is not sufficient to establish whether aid does or will work in different situations, nor will it be a decisive factor in determining aid allocations" (OECD/DAC, 2000, p. 1)

In later publications, the World Bank has nuanced the one-sided emphasis on national economic policy as the key determining factor for effective aid and has conceded that the situation is more complex. Economic crises, social conflicts and civil wars, the kind of government, the length of time that the same rulers have been in power without interruption, the degree of corruption, the degree of dependability on external funding for national development, and the level of public participation all play a role as well (Collier & Dollar, 2001).

Whether such nuance has come too late to prevent damage from being done is to be seen. In a report in 2001, Collier and Dollar refer to the 28% allocation of the world's aid to countries with a high poverty and a poor economic policy in 1998 and state emphatically that their recommendation was *not* to give zero assistance to these countries. However, at the same time they reported that in the last two years, "there has been a notable change in donor behavior, in the direction that we have advocated" (Collier and Dollar, 2001, p. 9). Whether this is indeed so and whether those in the worst situation will be hit most can only be seen in the coming years, when the effect of bilateral and multilateral support becomes visible in the new allocation statistics.

Adversaries to these ideas, such as Hansen and Tarp, state that, taken over a longer period, the overall impact of development support has been positive and that more allocations to the *poorest* countries, *including* those with less good (but not: worst) policies will have the greatest positive effect. Beynon (2001) points at evidence that over time aid effectiveness has been reasonably good and that also in the World Bank study up to 20% of poverty-efficient allocations have gone to countries with high poverty levels and a poor economic policy. He concludes that the evidence that the impact of aid has in fact been reasonably good warrants more, rather than less, development support, but that, more than in the past, it should go to low-income countries, which have both the greatest needs and the greatest potential for positive impacts.

There is less controversy over the need to change agency project approaches in order to make development cooperation more effective. Short-term expenditure of aid funds aiming at immediate physical outputs through specific projects, which has dominated the approaches in the past, has become less acceptable. It is increasingly replaced by sector-wide approaches. Based on the experiences with this approach as reported by Brown et al. (2001), such approaches consists of:

- a national sector strategy
- which is costed (i.e., it has a budget for its implementation)
- in a realistic manner (i.e., matched to the internal and external resources available)
- is translated into a program with a workplan, including sometimes locally prepared plans
- tackles also tricky issues
- has a system to account for the use of funds as intended, the progress and results
- and has been formalized into agreements between implementers and funders
- including one or more multilateral and bilateral funders that wish to support the strategy and the implementation program.

Under the sector-wide approach, all external support thus goes to the one national program; in principle, there are no more separate agency projects implemented with support from international or bilateral agencies. The national program may, however, still use a project approach.

The need for a change in approach had also become apparent in the rural water sector, where poor sustainability of services has had a negative impact on the effectiveness of investments meant to benefit especially low-income populations. Evidence comes from a series of evaluations of large bilateral support programs for rural domestic water supplies. Between 1989 and 1998, the Dutch development cooperation agency, DGIS, allocated the largest share of its funds to India – 42 per cent of a total of 1,221 million guilders (ca. US $ 600 million). Between 1980 and 1992, almost 90 per cent of this share went to the water sector. One third of it was used for rural water supply and sanitation (IOB, 2000). The majority of projects (140) were for piped water supplies, with a total design population of over five million people. Two handpump projects had a design population of another 2.5 million people (IRC, 1995).

An evaluation of Indo-Dutch investments in water services for the rural poor concluded in 1992 that the functioning, in particular of the piped water supply systems, was far from adequate. Financing was insufficient to keep the services operational and progress in getting the participation of the users in local decision-making and management for more effective services had hardly been made. Consulting women about the location of water points had led to better use when facilities functioned, but such consultations had not become part of the general procedures for rural water projects. Declining water resources due to overextraction of water for irrigation was a further threat to sustainability of some of the domestic water services (Jansen et al., 1992).

Danish development support experiences were very similar to those of the Dutch. Between 1980 and 1990 the Danish government invested DKK 400 million to provide drinking water to about 7.5 million rural people in India. Achievements concerning user participation were the same as in the Indo-Dutch projects. The best project results came from joint experiments with government agencies. These had also the best prospects of sustainability because the agencies had adjusted existing implementation strategies after evaluating the results of the new approach. Projects with the worst sustainability prospects had been developed in parallel to the existing structure and implemented strategies that had not become part of the regular Indian implementation procedures (Danconsult, 1991).

Concerned about the poor sustainability of rural water supplies and the re-emergence of ‘no source’ villages (that is, no water source meeting government-defined criteria), the Indian Government carried out its own evaluation in 1996. It found that breakdowns were frequent because construction standards had not been observed and controlled, preventive maintenance was not carried out and repairs were not attended to in time. External factors were lack of a regular supply of electricity (most piped water supplies have electrical pumps) and overexploitation of groundwater for irrigation. Users did not feel supportive and protective towards water supplies in whose planning they had had no say and on whose functioning and management they have no influence. Even when systems functioned, 12 per cent of the households surveyed used other sources regularly, because the new waterpoints had been located inconveniently, did not have good or

enough water, were often out of order or had long queues and waiting times (Government of India, Planning Commission, 1996).

Evaluations of water projects supported by Finland taught that target-driven construction without much user participation had high construction outputs, but poor results in maintenance and use. The evaluation synthesis included water projects in five countries, of which those in Kenya, Tanzania, Nepal, and Sri Lanka are in rural areas (Koponen & Mattila-Wiro, 1996). Projects in Kenya had an excellent output, but use of the services was low. Managed by outsiders, the projects built water points that were not accessible for all and could not compete with the sources that existed already. "The overriding concern of the Program with achieving coverage has resulted in a minimal strategy of community participation, whereby users (women) have hardly a role to play in the design of their own water supply systems" (Heijnen & Hoffman, 1991, p. 16). In Tanzania, a separate construction unit, set up in 1978 and managed by expatriates, had a high output, but by 1987, the breakdown rate of the waterpoints was over 50 per cent. In 1993, a mid-term review noted that the expatriate engineers had been phased out, but that the Tanzanian engineers applied the same technology-dominated project approach. A survey showed that three out of four handpump wells were in working order just before the completion of the project. One year after completion, the proportion of functioning wells had dropped from three-quarters to one third. Fifteen years after the start of the project, the Tanzanian government had not yet employed any socially specialized staff. FINNIDA still paid for the user participation program and its two national consultants (Porvali et al., 1995). In Sri Lanka, where the first two projects were also target-driven construction projects, efforts to change the approach were more successful. The teams adopted a participatory and capacity building strategy, but outsiders still made the main choices on services that users and their organizations were expected to maintain, manage, and finance. The complete change in orientation of both expatriate and Sri Lankan engineers was hard to attain, but there was "an evolutionary change in thinking accompanied by appropriate action...and activities were driven less by the traditional 'construction first' reflex of many engineers" (Koponen & Mattila-Wiro, 1996, p. 116). Whether this change also resulted in better-sustained facilities for all was, however, not established.

The lack of participation of the users in planning and maintenance was also the main reason for the low sustainability of seven rural water projects supported by the British government between the 1970s and the 1990s. After completion, most of the projects either had a substantial number of non-functioning facilities or high percentages of non-use. White concludes:

> The projects were primarily engineering-led, with emphasis on the provision of infrastructure...A standardized package was offered to communities, even when a wider range of options existed. Communities were involved to a very limited degree in project design. Operation and maintenance issues were sketchily addressed. Very little attention was paid to gender, poverty and environmental issues. (1997, p. 32)

A 1991 synthesis of evaluation findings for rural water supplies in five countries (Bangladesh, Lesotho, Nepal, Nicaragua, and Mozambique) for the Swiss Development Cooperation (SDC) has put it as follows:

> Analysis of the five evaluations clearly shows that the programs will hardly satisfy sustainability criteria. Governments in the developing countries do not have the means of maintaining the institutions we [sic] have painstakingly built. They cannot guarantee the serviceability of the installations and are unable to contribute enough to their operation and maintenance. The existing systems are falling apart or must continually be renovated with further projects. Some villages have reverted to the traditional means of supply used before the DWSS-project. (Pozzi & Wolf, 1991, p. 4)

2.3 Searching for more effective paradigms

When it became clearer that in the longer run, supply-driven blueprint projects were no solution, alternative paradigms have been sought: more participatory government water projects, projects for self-reliant service development, including the so-called people's projects, water supplied by the private commercial sector, and projects supported by non-governmental organizations.

In the domestic water supply sector, more participatory government projects began already in the 1960s, when a small number of governments in Latin America went beyond voluntary local contributions (the first level of participation in Table 1, as presented earlier) to the second and third level. In these projects, rural communities maintained and managed their own services and future users were consulted on local design and willingness to join and pay. Peru initiated such a program in 1961, Colombia and the Dominican Republic in 1964. Guatemala, Mexico, and Panama launched comparable programs in the same period. Malaysia, South Korea, and Kenya also began more participatory rural water programs in the 1960s (Pineo, 1976), although in Kenya conventional engineering projects for domestic water supply continued as well. In all of these programs the government still decided the type of technology and set standard design criteria that did not allow users to make choices. However, because each community project had to lead to a self-reliant service, the users were encouraged to initiate the intervention, take part in local planning and design, and form their own water management organizations. The organizations organized, collected, and managed local financial and labor contributions and later ran the services. In some programs, training was provided in administration and management, including financial management (Espejo, 1989). Within these standard approaches, *some* flexibility was sometimes present for villagers to make local choices in response to local conditions. In Guatemala, for example, households that could not afford private patio or house connections could opt for shared taps and could choose the locations amongst themselves (Elmendorf & Buckles, 1980). In Colombia, local committees set their own tariffs and sometimes adjusted household contributions to the varying economic capacities of user households (Mora Ramirez & Salazar Duque, 1979). In South Korea, the village committees also set their own tariffs (Pineo, 1976).

In countries where the national drinking water programs did not use participatory strategies or limited participation to scale I in Table 1 in Section 2.2 (voluntary labor in construction), bilateral development agencies began to negotiate that in the bilateral cooperation agency projects, scale II and III forms of participation would be introduced (voluntary community maintenance and management and consultation of

community members during project planning). This happened particularly in Sub-Saharan Africa, where national governments lacked the financial means to provide improved drinking water services[5].

A large amount of qualitative evidence is available, which shows that especially the higher levels of participation in rural water supply projects (local maintenance and management of services combined with a say of the users in local planning decisions) contributed to the effectiveness and sustainability of the services. Although ample room for improvements remains, user participation in local planning and decision-making and a capable local management organization have contributed to the quality of functioning and use (Chauhan, 1983; Elmendorf & Buckles, 1980; IRC, 1988; Mandl, 1976; Mandl, 1982; White, 1981; van Wijk-Sijbesma, 1981; World Bank, 1984). Nevertheless, low levels of participation have continued to be common and donor-financed initiatives have not noticeably changed implementation procedures, as the above-reported evaluators of external support projects have shown.

Other paradigms have been no alternative for achieving that the rural poor have access to basic domestic water services. Rejecting the agency project approach, Long and van der Ploeg (1989) claim that self-reliant development is the only realistic alternative for development progress:

> Previous to the 1950s, no country in the world developed through development projects. Progress resulted from a long process of experiment and innovation through which people built up the skills, knowledge and self-confidence to shape their own environments (Nyoni, in Edwards, 1989 and quoted by Long & van der Ploeg, 1989, p. 233).

In the past, the present type of purposively planned government projects, financed nationally, or by cooperation between two states or a state and a development bank, did not exist. However, there is no reason why the earlier development of domestic water and sanitation services should not be called projects, when a project is defined as an organized activity for promoting social and economic change (Rondinelli, 1983). In such cases, planned development may mean nothing else than "the deliberate regulation and intelligent mastery of the relationship between objects or institutions...[in which] separate spheres – technology, economics, politics, health – are seen to interact" (Mannheim, 1940, p. 151 & p. 153). Projects have neither been invented by development cooperation, nor is a project approach exclusive for development cooperation. The ancient Roman administration, for example, undertook individual domestic water supply projects that resulted in municipal water services which functioned for over 500 years, while sanitation improvements were a mixture of public and private enterprise (Box 2).

It is the government programs which have, as seen in Chapter 1, led to the greatest growth in access to domestic water services, but they have also given a much lower access to the poor than to middle and upper class households. Yet the alternative, autonomous water projects by poor communities, has been no solution

[5] Examples are domestic water projects supported by CIDA in Ghana, USAID in Togo, Malawi and Burkina Faso, DANIDA, DGIS, NORAD, Sida, FINNIDA and AusAID in Tanzania, Sida, DGIS and FINNIDA in Kenya, Sata-Helvetas in Cameroon and DGIS in Guinea Bissau.

Box 2 Roman domestic water and sanitation services

Drinking water supplies in Roman-occupied Western Europe were part of a comprehensive program for political, socio-economic, sanitary, and military control. Latin 'manuals' contain advice on medical, geohydrological, and geomorphologic investigations to assess whether the environment for new settlements was healthy and the sources for the water supply were clean and had a sufficient capacity. Technical works provided freshwater supply, wastewater removal, and drainage.

In the city of Rome, a special body, the Cura Aquarium, with a director equal to a consul, and with its rights and responsibilities regulated by law, administered the domestic water service. The system was adjusted to socio-economic differences as besides supplying water to private connections it also supplied public bathhouses and 1352 public fountains, where poor people collected water. In some countries, public taps are still called public fountains today.

The Romans transferred the experience gained in the Italian cities and the countryside to the provinces, where garrison cities such as Cologne and Lyon had technically more advanced systems and a higher degree of public access to piped drinking water than the citizens in Rome. In Rome, it took the outbreak of epidemics to bring about the reorganization of the water service. For the first time, distribution was expanded to poor neighborhoods. This ended the scandal, that, in the words of Plinius the elder, "this exquisite water is wasted for luxury purposes in private country homes to the detriment of public health". (Ververgaert, 1985, p. 57)

The public sector also implemented projects for sanitation services, although the private sector was active as well. Public latrines (from the Latin word *lavatrina* that originally stood for a combination of public bathhouse and toilet) were constructed by the municipality or by private entrepreneurs and were sometimes rented out for exploitation (Waslander, 1994). Rome alone had 144 of them in 284 BC (Kalbermatten & McGarry, 1987). Adult users had to pay for their use. Further income came from the sale of feces as manure to farmers and of urine as bleach to cloth manufacturers and tanneries. The practice made emperor Vespasianus, who introduced a tax on urine, remark that "pecunia non olet" (money does not stink, quoted in Dolmans, 1994, p. 8).

About the socio-cultural aspects of water management, little is known, but public latrines had separate buildings for men and women. The men's latrines could accommodate more users at the same time and both design and materials were adjusted to a more intensive use. Public and private latrines were built with specific attention to convenience and hygiene, although flooding of streets from overflowing latrines, stormwater, and surplus water at public fountains was a common phenomenon. Roman flats or *insulae* inhabited by low-income families had communal toilets on the groundfloor, which were connected to a municipal sewer. For the sewers, the Romans adjusted the underground channels which the Etruscans had built around 600 BC. The famous Cloaca Maxima constructed by Tarquinius Priscus to drain the valley in which the Forum Romanum and Circus Maximus stood, became the main sewer of Rome. A continual stream of surplus water from the aqueducts flushed the sewers. One of the duties of the censor was the surveillance of the sewers. (The censor was the highest magistrate of the Roman Republic and also appointed the members of the Senate, who were its rulers). Agrippa (63 -12 BC) was praised for his cleaning and repair of the sewers and is recorded to have inspected them by boat. During the Roman Empire, special urban sewer caretakers, *curatores cloacarum urbis*, were appointed to maintain them (Chambers & Chambers, 1908). The Roman-established water and sewerage systems, maintained and expanded, remained in service for over five hundred years (Salariya & Kerr, 1995).

either. White (1981) presents endogenous development and autonomous community water projects as the highest forms of participation and people's control. In endogenous development, local people make all decisions, from project initiation to management, and carry out or control all implementation activities. Also called people's or grassroots projects, they were for some time seen as an alternative to top-down, supply-driven development, but they have their own limitations and constraints. Even low cost technical improvements such as wells and handpumps need considerable investments. Governments have supported village self-improvements with funds, information, and technical assistance in, for example, programs for village technology in the 1980's, including programs especially meant for women (Huston, 1979; Langley & Ngom, 1979; O'Kelly, 1973; Prosser, 1963). However, they have been marginal and have not made a significant difference (van Wijk, 1985).

The mandate of conventional water agencies is not to assist community people to develop autonomous water services. Such agencies deal with large infrastructure programs and consider people's projects uninteresting and unsuitable for use on a large scale because the installed works are simple, bring no prestige, and require a different staff mixture and a change of skills and interests. Staff of conventional water agencies have incentives for their careers and personal interests which differ from the interests of community members. They are therefore hardly interested in community-managed service (IOB, 2000).

Autonomous community projects have also not been as free from centralized influences as their supporters would like to think, if nothing else, because they obtain their funding from central sources. Van Dusseldorp even goes as far as seeing all development interventions, including people's projects, as variations on the same scale: "In reality there is always some mix of bottom-up and top-down planning" (1993, p.19). Moreover, some communities can meet the requirements from higher levels in such conditions better than others or have better contacts and relationships. Evaluation of the use of the Tanzanian village development fund revealed that allocations went predominantly to better organized communities with strong leadership and networks; those without such conditions often did not even manage to formulate and submit a proposal in time. Another problem has been the speed of response of the authorities to demands and initiatives from the grassroots level. In the Lesotho national rural water supply program, villages raised funds for their share far more quickly than the government. The effect was that local payments had lost most of their value through inflation by the time construction of a water supply began (van Wijk-Sijbesma, 1981). People's projects also do not work when external professionals do not recognize that theirs is not the only knowledge and that local women and men have knowledge of local conditions and processes that they miss (Chambers, 1997).

Water services that are established and run by the commercial private sector (also known as the formal private sector) are another possibility, but so far this sector has mainly been interested in providing higher service levels which are more profitable but are not affordable to poor households and communities. The World Bank estimates that $25 billion is the current total of private investments in water and sanitation in developing countries and that they have been lowest in the regions with the largest percentages of unserved populations (WSSCC, 2000). Recognition of the need and opportunities of women as main users and managers of domestic water and the development of a gender strategy in service provision are rare in the formal private sector. A case such as the domestic water supply company in Santiago de Chile which under its former woman director developed a gender sensitive strategy that helped to achieve access for all, including for the city's poor, is still an exception[6].

In contrast, small entrepreneurs have been more effective in providing infrastructure for the poor in areas where a market for their services has emerged. In rural India, where three-fourths of the income poor live, the cooperation between such entrepreneurs and the government was the basis for that country's handpump

[6] The enterprise trained women in poor areas as plumbers who make and repair private connections and facilitated payments by creating a system of mobile vans which allowed women to pay their water bills in their own neighborhoods.

success, although poor households and especially women and girls in these households pay a relatively high price in water collection (UNICEF, 2000). According to the World Bank, more than three million people in Pakistan use pumps installed by local enterprise (Serageldin, 1994). Information is lacking, however, on how many of these people are poor. In Bangladesh, privatization and liberalization of the sales and installation of mechanized pumps not only increased the number of water pumps to meet productive and domestic household needs, but also increased the share of small landowners in their ownership from 13 to 27 percent (IMMI and BAU, 1996 quoted by van Koppen, 1998). Through NGOs, also women have secured some access to this market and some groups have made an income from using the water for crop irrigation and selling of surplus water to neighbors. However, one in three groups has made a loss and the poorest members have born the greater part of these losses (van Koppen, 1998).

The informal private sector is however most active in low-income *urban* areas, where it is the main source of autonomous progress. Between 70 and 90 per cent of the providers to the urban poor are independent entrepreneurs (Vezina, 1999). Providers include women's enterprises for water supply, waste collection, and recycling programs (Arrais, 1998; Cornips, 2000; Schmink, 1984; Nelson, 1980; Meyer, 1993). If this part of the private sector is to become a real alternative, current constraints such as administrative red tape, unfair competition from subsidized public enterprises, and lower access for and biases against women entrepreneurs must be removed. Regulatory functions must be adopted that protect consumers from financial exploitation and health risks.

Non-governmental organizations often support communities in establishing improved domestic water supply services, but their combined impacts on domestic water services at the global level remain to be estimated. Generally, non-governmental or voluntary organizations that assist local people with rural development activities are small and work in a limited number of communities. Provided that they do not introduce water supplies as a charity, the strengths of these organizations are that they tend to work in a more participatory fashion than large government agencies and defend the interests of the poor (Gorman, 1984, as cited in Hardoy et al., 1994). In consequence, international and bilateral development agencies began to channel more development funds through networks of voluntary organizations in the North and the South and their own cooperation programs with southern NGOs. Between 1970 and 1989, the number of international NGOs grew from 2300 to 24,000 (Hardoy et al., 1994). The same authors quote a report by the OECD which gives a flow of funds from public and private sources to voluntary organizations in the South of over US$ 4 billion in 1989. Percentage-wise, aid by international NGOs has remained small: its share of 0.03 percent of the Gross National Product of the DAC countries in 1998/99 was the same as that in 1988/89 (OECD/DAC, 2000c).

Meanwhile, mutual mistrust between national governments and non-governmental organizations within countries in the South has decreased. Consequently, some national public-private cooperation programs have also developed. No sources could however be found which estimate the cumulative effect of the work of non-governmental organizations on the access of the poor to sustainable and used domestic water services. Individual evaluations indicate that voluntary organizations have their own problems. In the cooperation program of the Indian Government with Indian NGOs under the Council for Advancement of

People's Action and Rural Technology (CAPART) for example, about 60% of the NGOs succeeded in helping rural people create sustained and used domestic water services. The others has not performed well and some 500 NGOs were blacklisted in 1995 for simply subcontracting rural water projects out to incompetent or unscrupulous private contractors or otherwise creating high cost and low performing water services (Jaitly & Daw, 1995).

Despite the growing pressure for privatization and the emergence of a greater space for NGOs, most infrastructure improvements are still undertaken through government projects and programs. Neither autonomous community improvements nor the formal and informal private sector have replaced the role of the government. Governments will continue to play a role in the alleviation of poverty and sub-human living conditions. There is, however, a fairly wide consensus that the character of all projects should change: national governments, donors, and development banks should give local people the opportunities to plan and implement the kind of development they want and can manage. As Shepherd has summarized it,

> [Its problematic nature] has stretched the project as a form of organization to breaking point. An alternative approach to development organization is needed. The learning organization in rural development should be more evaluative, adopt a holistic perspective, be managed strategically, and be close to the rural society it serves (1998, p. 14).

Conditional to such a different approach is that the normative role of the agencies changes and that implementers seek to know and build on the knowledge, resources, capabilities, and organization within communities. Initiation, design, planning, and installation of water services can become much more flexible, participatory, and gender- and poverty-sensitive. External planners and project managers should not control the planning of community services, but the community women and men who are expected to sustain and use them. Time and expenditure schedules can be adjusted to local conditions. Implementers and managers should become accountable for the immediate and longer-term quality of work to those who (co-) initiate, establish, run and use the service, not only the opposite. Planning and implementation processes should have as one of the aims the enhancement of local knowledge and capacities of women and men users and managers. But this means that implementing institutions should themselves define projects differently and abandon a style of planning and management which relies primarily on control of detailed planned budgets and activities by governments or a government and banks.

2.4 The transformation of rural water projects in the World Bank

As a major provider of loans for and planner of rural domestic water supply programs in the South, the World Bank has not remained unperturbed by the poor sustainability of the established services and the critique of the conventional project approach. In consequence, the Bank has developed a new approach to the improvement of community water services, which it is piloting in Uttar Pradesh in northern India. More new style projects have been started in southern India (Andhra Pradesh and Kerala) and in Bangladesh, and are under preparation in Indonesia.

The Swajal project, which is the agency project in which the new style for rural water services is piloted, is located in the two regions of the state where water is scarcest. Its budget is US$ 71 million and is financed through an 84% bank loan and a 6% grant of the state government. Participating communities contribute 10% of the investment costs as a sign of demand and pledge to bear the costs of keeping the service operational. Between 1995 and 2002, the loan is being used to enable one thousand communities (less than 1% of the state's 110 000 rural communities) to plan and build their own improved water service and improve local sanitation, hygiene and the position of women community members. Individual community projects are financed in four batches, covering 90, 260, 325 and 325 communities respectively. (Recently, the total target was raised to 1220). In principle, all communities in the region that fall under the national water project allocation criteria[7] qualify for funding. An extra 15% is accepted per batch to compensate for communities that drop out or whose plans are rejected (Iyer, 1998, 1999).

Local support organizations play a central role in helping communities plan improved services and implement them after Swajal's Executive Committee has selected the community proposals that will be funded as part of the particular batch, and has paid the funds into the communities' bank accounts. Support organizations may be local non-governmental organizations, consultancy firms, or legally recognized community-based organizations such as co-operatives. The recruitment process, which is described in Box 3, aims to minimize the risks of nepotism and participation by inexperienced or malafide organizations.

Box 3 Recruitment of community support organizations

The Project Management Unit of the Swajal project (which is registered as an independent society) recruits potential support organizations through advertisements in the local papers and trains them (with the help of trained local training organizations) to help communities carry out the pre-feasibility studies.

Selection criteria for support organizations are: legally registered for minimally three year, a track record of at least three years in water supply and sanitation and/or community development, at least one successfully completed, women-sensitive water/water and sanitation project, the demonstrable use of participatory approaches, and demonstrable financial management and human resource capacities.

PMU staff rank candidates on a pre-announced scale of 0-100 points. The local Chief District Officer reviews the shortlists. After reviewing the comments, the Project Director prepares the list of pre-qualifying support organizations. The Executive Committee of the project society must approve the list. Apart from the Project Director, this consists of high-ranking government officials from nine departments. Community representatives are not involved, although there are some representatives of the field level among the members of the general body that steers the overall implementation. They are a minority however: against 15 high-level government officials, the general body counts four members who represent the field-level: one Community Development Officer and three NGO representatives. The breakdown by sex has not been given.

Each support organization fields one or more teams consisting of one social specialist and one engineer to assist the communities with the pre-feasibility studies. After training on the agency project approach, the teams visit communities in their area that qualify as 'no source' community and gauge their interest in and need for a community water project. (A 'no source' community has no or only one water source that meets nationally set criteria of water availability, water quality and distance).

If reactions are positive, the teams help carry out a local pre-feasibility study for a possible community water and water related development project. Technical and social staff of the PMU that administer the

Swajal fund verify the submitted data and shortlist communities with the highest combined scores for need, demand and technical and institutional potential. Other factors that influence eligibility are the possibilities of the geographic clustering of individual community projects and economies of scale of the technologies.

The Staff Technical Appraisal Committee, which consists of the subject specialists who manage and monitor the work of the support organizations, reviews the pre-feasibility reports and selects the communities that may prepare and submit a detailed project plan. For implementation support, the support teams of the communities whose feasibility reports have been accepted first receive training in participatory planning methods (all team members), hygiene and sanitation education and women's development initiatives (social specialists), and design options and participatory designing (technical specialists). Subsequently, each team helps the communities in the group that have qualified to start the detailed planning of their projects. The communities form water and sanitation committees, open a bank account for the community project, begin depositing their share of the investment costs, and formulate community action plans (Box 4).

Box 4 Community action plans

After the first approval, community members form Village Water and Sanitation Committees, taking on average some three months for decision-making. Minimally 30% of its members must be women and 20% must come from scheduled castes, tribes, or other subordinated groups. The committee is inaugurated in a community assembly. It formulates the community action plan after discussing the various technology and service level options and their costs with village meeting.

An action plan must consist of nine sub-plans: (1) a water supply plan, with the proposed water system and its layout, its technical design and bill of quantities and costs; (2) an environmental sanitation plan; (3) a plan for changing health, hygiene and sanitation behaviors; (4) a plan for women's development initiatives, e.g., for income generation; (5) a plan for non-formal education activities; (6) a plan for protection of the catchment areas and community environment; (7) a plan on how the community will finance its 10% share in the investment costs of the water system and the catchment area protection and its 40% share in the cost of sanitation; (8) a plan for the operation and maintenance arrangements of the water service, and (9) a plan on how the community will monitor and evaluate its project. The planned household access to water and sanitation must be 100%.

Action plan forms have sections in which the NGO or community representatives record which planning decisions have been discussed in community meetings, how many of the households were present, and how many of the participants were women (PMU, n.d.).

In a second allocation round, the fund's administrators and subject specialists evaluate the detailed community plans and assign the construction funds to the communities that score best on the combined criteria of need and demand. Because one in every 6-7 villages has to drop off and the number and costs of the submitted plans may still surpass the maxima set for each batch, allocation is through an internal competitive process. In this process, each 'portfolio manager' (i.e., the subject specialists that monitor and supervise the work of the community support organizations) presents the respective community plans to the staff meeting with her or his opinion on the degree to which each plan meets the overall project selection criteria and warrants to be funded[6]. The group decides by consensus which plans have the best mix of economic viability, needs, and benefits.

[6] Criteria are a combination of need and economic viability criteria: a per capita cost of Rs 2000 for piped systems and Rs. 500 for handpumps, a minimum time saving of two hours for women or a very poor quality of existing sources, a shortage of water (less than 15 l/c/d) or a high benefit/cost ratio, the technical feasibility of the proposed design and the community's willingness to pay all service costs after construction.

Qualifying communities get 90%/90%/60% of the estimated implementation costs (for the water service, sanitation, and catchment area protection) paid into a newly established community project account. The communities open these accounts together with the support organization that they work with. During construction, the communities do their own local procurement and choose their own craftspeople and contractors. A program for training the members of the village water and sanitation committees and the support teams for their work during this phase and monitoring of the construction process by the portfolio managers aim at ensuring a good construction quality within the agreed time and budget and prepares the village water and sanitation committees for their later service management. The total community project cycle lasts 33 months: 7 months pre-planning, 12 months of planning, and 14 months of construction (Iyer, 1998, 1999; PMU, n.d.).

Gender and poverty approach.

The agency project recognizes that rural communities are not homogenous and that certain groups, notably women and the poor, are often excluded from information, decision-making, control, and benefits. It has therefore adopted a strategy of inclusion. Women participate through (1) separate meetings, (2) preparation of their own sub-plans, and (3) membership of village water and sanitation committees:

> The support teams begin the planning process by undertaking project familiarization visits to villages, during which they talk with small neighborhood groups, one at a time. Usually, mainly women participate. The discussions center around the project objectives and the inventory of local needs, problems and priorities. Participatory materials are used mostly in relation to water and sanitation. One of the flash card series used is 'Women's Time Use Analysis', which makes women aware of the division of labour between men and women, the relatively larger share of work done by women, including for water supply and the inversely proportional recognition and compensation they receive. The social specialist then helps the women in each cluster to form multipurpose women's cluster group. A group usually consists of one woman from each household in the cluster. The cluster groups become the focal points of action in the village. There are two types of members: "those who are willing to indulge in saving and credit activity and the others who are interested only in realizing the benefits of safe water and sanitation..... [Its members] analyze and discuss their situation, they assess what skills and information they require to empower themselves so that they are able to participate effectively in the project planning and implementation activities and improve the quality of their lives. They also enumerate various possibilities regarding what they will do with the time saved from fetching water" (Personal communication, A. Sinha, Women's Development Specialist, Swajal project, 27 October 2000) .

The women's groups draw up three special women-related development plans:

- A non-formal education plan. When the village pre-qualifies, the support organization may run up to two literacy classes for women during the six months of the planning period;
- A hygiene and sanitation awareness program. This is an education and action program for the

cluster groups, women teachers and traditional birth attendants. Education covers the usual topics to make women better homemakers and mothers. It is followed by an action program, consisting of a "Healthy Homes Survey" and a "Clean-up Campaign", both of which are to be conducted in each cluster and ultimately in the whole village;

- A plan for women's income generation. This usually includes establishing loan and savings' groups and requests for craft training.

Through the cluster groups, women are informed on the planning of the community water project. The social specialist encourages them to attend and participate in discussions about the project during general community assemblies and advance women candidates for the village water and sanitation committees. The committees usually have 7-12 members. The committees are formed in long decision-making processes and must have a minimal representation of disadvantaged groups (see Box 4). The agency project also encourages that the treasurers on the committees are women.

To protect the interests of the poor, there is not only a quorum for committee members from subordinated groups, but poor communities may also qualify for a lower share in construction costs, and households that opt for a higher service level must pay extra. Communities that are significantly poorer than the others in their batch pay a share in the investments costs of 8% or 9% instead of the prescribed 10%. To qualify for the reduction, the percentage of their population below the poverty line must be the average plus more than 1,5 times the standard deviation in the whole group. If, for example, an average 40% of the population in the communities in a batch lives below the poverty line and the standard deviation is 10%, then a village with 40%+10%+5%= 55% of its population below the poverty line may negotiate a payment of 9% of the investment costs in the hills districts and 8% in the non-hills districts (PMU, n.d.). Households that are willing and able to pay for higher service levels (in practice this means a piped water supply with a private tap) must contribute Rs.1000 (c. US $ 25) as connection fee and pay at least three times the service fee of standpost users. The connection fee is part of the investment costs: "Amounts of this fee collected prior to beginning construction will be considered in the required up-front payments of 2% of capital cost" (PMU, n.d., p. 49). The agency project prescribes the system of community financing after the installation: payments must be made monthly and amount to at least Rs. 30 (US $0,75) per house connection and Rs. 10 (US $ 0,25) per household for public tap users to pay for the operating costs, plus a 5% surcharge to establish a maintenance fund. If communities want to arrange for cross-subsidy, that is up to them (PMU, n.d.).

In earlier World Bank supported agency projects in the area, participation was limited to the politically elected village chairpersons. The communities were total dependent on external engineering decisions and contractors with no forms of accountability and social control. Only one standard type of service was installed, based on national design standards, and not influenced by local needs and demands. Sanitation and hygiene behavior were not considered and women were excluded throughout the process (Dhawan & van Wijk, 1980). In the new approach, communities themselves formulate locally specific projects, assisted by social development workers and junior engineers from civic society organizations selected for their trackrecord in development work and water projects. These facilitators get extra

training in participatory planning methods and tools for water, sanitation and hygiene and are accountable to the communities they serve. The communities may even decide not to continue working with them. Community members also have full control over procurement and construction. An engineering colleague who paid a visit to several of the services in 1998 concluded that this has resulted in a much better quality construction (Erich Baumann, personal communication, 3 September 1999).

It can be concluded that the new approach is an improvement over the earlier paradigm with regard to agency project goals, planning, financing, management and accountability, the greater equality for women and the poor, and the shifted roles and authority of the external administration. The project's ambition is not the technical improvement of the water supply, but the establishment of fully autonomous and self-sustained community *services*, maintained, managed, and financed by local committees that have been chosen for their specific tasks by consensus and have received training. The approach is also more holistic as, beside a water supply, community projects include the measurable improvement of local sanitation and hygiene conditions and practices, which is needed for an impact on health, and the protection of the catchment area for a better environmental sustainability of the water service.

Planning now takes up a larger part of the community project cycle than construction (60% vs. 40% of the duration of the entire cycle) and is more participatory, flexible, and gender and poverty-sensitive. Within the planning process, a considerable amount of time is available for crucial decisions: the communities in the first batch took, on average, three months to form their water and sanitation committees. The communities and user households make informed choices on water and sanitation technologies and designs. They may opt for lower or higher service levels by weighing the material and immaterial costs of the various options against the benefits. (In this sense, it is strange that the agency prescribes that after construction, tariff payments must be monthly as monthly payments are not always the most appropriate (van Wijk, 1987). Women have better access to information and may organize around common interests through separate meetings at neighborhood level. This goes especially for poor and otherwise marginalized women, for whom attending and speaking up in general assemblies is even harder than for other groups. Poor men have also better access to information when preparatory meetings take place in poor neighborhoods. In addition, women's projects for literacy and income-generation aim to improve their disadvantaged educational and economic position vis-à-vis men. Quota for the poor on committees, the condition that for eligibility the planned services must provide access to all households, and the requirement that those who want a higher service level must also pay more during construction and operations all make the services more equitable for poor people.

Financing, accountability, and administration of community projects are very different from the conventional approach. Support organizations and rural communities compete for the available funds, based on rules that are made known publicly and adherence to which is peer-controlled. When the local plans have been accepted, the administrators transfer the total implementation funds to the communities, which from then onwards are in full charge. The community water and sanitation

committees procure the materials and hire local contractors, who are accountable to the committees and not, as is normally the case, to the overall project administration. Also the support teams, although they are paid by the project administration, are accountable not only to their principal, but also to their clients, the communities. Transparency and peer control during construction (budgets and costs are made known to the whole committee), and the knowledge that any misuse will have repercussions for their own lives in their household and as community members, reduce the possibility and attraction of misappropriation and misuse of funds which are so common in infrastructure projects. Finally, the agency project administration no longer directly implements the community projects. It recruits support staff and trainers, allocates and administers contracts, disburses funds, and monitors the progress and quality of the contracted training and support work, but does no longer directly plan and implement the services.

Other characteristics of the agency project approach, which have received so much criticism, have, however, changed only partially or not at all:

- The project still has externally fixed objectives, timings, and locations. There is no reason to criticize the objectives, as they do not differ from what the participating communities choose to buy into. More open to critique are the externally fixed time and location of community projects. The time for pre-planning (7 months), planning (12 months) and implementation (14 months) for every community means that less homogenous, co-operative, and/or capable communities may have more problems to produce a successful action plan within the given period. Iyer (1998) reports indeed that of the 10% dropout in the first batch (nine communities), four dropped out because internal conflict prevented the formation of a community water and sanitation committee. (Four others were not willing to pay and one plan was rejected for too high overhead and maintenance costs). Furthermore, the location of potential community projects is a choice of the hired support organizations as they, and not the communities, determine which communities they will visit for feasibility studies. Because the number of successful allocations of community projects determines the future work and payment of these organizations, it is possible (although there are no signs that this has ever been investigated) that the teams approach especially communities with high demands and potential, and so ‘take the cream off the milk’. Approaching especially communities with a high demand and feasibility in Colombia in the 1970s meant that ten years later the environmentally and socially most disadvantaged communities with the lowest technical and economic opportunities had remained unserved (van Wijk & Heijnen, 1981).

- Implementation is by a parallel and temporary agency project organization. Swajal is organized as an independent pilot project with specially hired staff with better labor and salary conditions and a limited lifetime (seven years). The state government meanwhile continues its own supply-driven, non-participatory blueprint projects in the same region while at the same time a centrally-initiated process of decentralization of basic services establishment and management to locally elected governments is going on. The World Bank has recognized the

risk that such a parallel pilot project will die as soon as it has to survive under 'normal' conditions and that valuable expertise of the field teams will disappear. The Bank counts on the transforming effect of concurrent pressures from below (the communities) and above (the World Bank) on the state's water sector. Pressure from communities has indeed changed state policies and approaches in another Indian State. When in Kerala, neighboring communities saw that a bilaterally supported sanitation program organized in the 1980s-1990s along similar lines as the Swajal water project (community prepared plans, direct funding, community managed implementation, adjustment to differential payment capacities, and a procedure to bring women into management and men into hygiene education) had resulted in better facilities and services than the state sanitation program, they put pressure on the government and achieved that the alternative strategy was adopted as the new "Clean Kerala" state program (Government of Kerala, 1997). However, this happened in the context of an overall reform process initiated by this state's government in which, in 1998, 40% of the State's Annual Plan fund of Rs. 1.178 crore or approximately US$ 300 million has been allocated to the elected local governments to maintain basic services and realize the development improvements defined in a People's Planning Campaign.

- Allocation of community planned projects is still a top-down internal process, which is not accessible to the other stakeholders. Although there are clear rules and peer control, and decisions are accounted for by a letter to the support organizations, the process itself is not public and no representatives of the communities or support organizations are present.

- The current financing model has negative implications for the poor. Although individual households that wish and are able to spend more for a higher service level pay more, communities pay 10% regardless of the technology they choose. This implies that if communities prefer a more expensive piped water supply, which allows for private connections, they pay a higher absolute amount. However, the other 90% paid from the water fund is a much larger amount as well. In consequence, fewer poor communities can be served with the available resources than would be the case if the share that communities pay increased with the level and cost of the chosen technology. Moreover, the 10% payment to the piped water supply can be in cash and labor. This has a further negative effect on equity as illustrated by the case of Laxmipur in Dehradun district. The inhabitants had a choice between three options: individual rainwater tanks (but they did not like the idea of storing drinking water for six months), six handpumps, and a piped water supply with house connections and standpipes. The cost for six handpumps was INR 300,000 and the cost for a piped system was INR 2,600,000. The village had to make a down payment of 1% for the piped system and could contribute the other 9% in labor for digging drenches, whereas for handpumps they would have had to pay the full 10% in cash. The economics were clear. The piped system required a down payment of INR 26,000 and provided the chance of water within the house; handpumps required INR 30,000 and meant waterpoints were shared and water still had to be carried. Not surprisingly, the village chose to dig and got a system nearly ten times more

expensive than the handpumps[8]. Equality for the poor within communities is also limited. The policy of the Swajal project is that households that want, and can pay for, higher service levels (a private tap) pay more. For labor contributions and for cash contributions by standpost users local differences in capacity to contribute (e.g., in income and availability of labor) and the level of benefits (e.g., reflecting that households that live closer to a tap or have a higher quality of living have a lower labor cost and a higher water consumption) are not part of the policy.

- The 'boxing in by time and place' makes that services are planned as activities 'here and now' and not as activities that are part of a longer and geographically wider process. New domestic water services are not created in a vacuum. All communities already have existing water systems. All have traditional water sources since no settlement can exist without water. Many also have improved water supplies that have been built earlier, but are no longer adequate. The planning of the new water service does not take this history into account by basing the planning of the new service on the participatory evaluation of the establishment history and the management approaches and results of the services that were already present. It is also not clear if the planning of the protection of the catchment areas in the individual community project plans involves inter-community catchment management in those cases where several communities draw on the same catchment area for their domestic and productive water and land use. With more community projects carried out in the same catchment areas and more and larger groups of people using the same catchment area for different and often competitive uses, it is likely that area-level planning and management of such areas has become necessary.

- The gender approach will benefit not only from a more cohesive program, but also from a clearer strategy which is more explicitly focused on gender relations and gender equality. Three and a half years down the line, the Swajal project has modified its gender approach.
  Internal review had shown that the participation of women in the water projects and the three sub-projects for women and were all implemented as separate and unrelated activities. The women's projects also lacked the professionalism needed to improve the position of women who in age, position in the household and economic status have the weakest positions. Each sub-project worked with its own and separate target groups and specific groups of women were left out of the process. Participants in non-formal education, for example, were mainly older women and *not* young adult women, who had a subordinated position in the households and needed empowerment education, and young girls, who are the future change agents.

[8] Erich Baumann, who provided the cost figures, comments: "I have never come across an implemented project that lived after the idea that the Worldbank once floated: the level of subsidy should be fixed regardless of technology (based on the lowest level of service) and all additional comfort due to the choice of a higher service level would have to be borne by the communities, i.e., in above project 90% of 300,000 would have resulted in a subsidy of 270,000. Therefore, a piped system would have cost the village 2,330,000 and not 260,000. You could imagine which option they would had chosen under that regime." (Personal communication, 3 September 1999).

> Women's income generating projects were based on what the support organizations could arrange for (skills training) and not on what the women wanted (income). As a result, most women sat through cutting and tailoring classes which did not help them earn an income as the programs did not address the whole range of requirements that women need to set up a profit-making enterprise (Sinha, op. cit.)

Under the new gender strategy, the women form only one multi-purpose women's clusters organization. This group plans one women's community project only. Its members may choose to join the water, sanitation, and health-related activities or go for income generation (savings, credit, and economic enterprise activities). Apart from support under Swajal, the groups also become eligible for grants under the Private Rural Initiatives Program. The new approach leaves, however, the nature of the gender strategy undecided as it mixes goals of women's welfare, poverty alleviation, project efficiency, and project effectiveness. (The evolution and characteristics of, and differences between, these strategies are discussed more specifically in Chapter 3).

A welfare strategy can be noted in the Healthy Homes Survey and Cleaning Up Campaigns. Although the predominant participation of women householders, teachers, and midwives in these activities recognizes that in sanitation and hygiene women are key actors and transmitters of knowledge, the approach places the responsibilities and burdens on women only and does not address the division of work and authority between women and men. There is no mention of men's practices, responsibilities and decision-making in sanitation and hygiene, and women's extra work in the healthy homes surveys and the cleaning up campaigns is not linked with the time analysis exercises done with them earlier. Nor do men have their own hygiene and sanitation education program.

As noted by Swajal's women's development specialist, the support organizations lack sufficient expertise and experience with the creation of financially viable micro-enterprise for women to implement the poverty alleviation approach consisting of sub-projects for women's economic development. Nor is it clear which type of women participates in and benefits from the economic projects and how participation and results affect women's positions in the households and the community. Iyer (1998, 1999) reports that the new paradigm has been effective in terms of integrating women and the poor in the establishment of self-reliant water services. The achieved membership of women and people from scheduled castes and tribes was higher than prescribed: in the first batch women constituted 42% of the members of the village water and sanitation committees and people from scheduled castes and tribes 35%. Three more communities managed to install services than had been considered feasible and the sustainability of completed systems has so far been adequate. The paradigm has also been more efficient than conventional water projects as far as average investment costs are concerned. Women have contributed considerably to this effectiveness, though at a price:

> Often women have proved excellent motivators and collectors of these amounts [cash contributions to construction, CS] because they have an inbuilt peer pressure system, which does the trick.... As far as labour contributions is concerned, the women of the community are

> in any case used to doing back-breaking work both in the fields and at home, therefore they are not the ones to cow down from contributing their free labor towards the cost of the scheme. If and when mistakes have been made, they have corrected them without hesitation even if it meant digging up a number of kilometers of pipeline and relaying them again! (Personal communication, A. Sinha, 27 October 2000).

However, in assessing gender and the effectiveness of a gender approach, the approaches summarized above do not compare the work, contributions, and benefits of women and other disadvantaged groups with those of men and groups that are better off to see if they are equitably divided. Nor does membership of water and sanitation committees by itself ensure that women and the poor have the same voice in decision-making and control as other, more powerful committee members. Both the fieldwork and training of the support organizations would benefit from a more explicit and systematic focus on gender and gender equality (rather than on women) and on poor people as outcomes of a gender and social equity strategy. Innes gives the following definitions of gender equity and gender equality:

> Gender equity is the process of being fair to women and men. To ensure fairness, measures must often be available to compensate for historical and social disadvantages that prevent women and men from otherwise operating on a level playing field. Equity can be understood as the *means*, where equality is the *end.* Gender equality means that women and men enjoy the same status within a society. It does *not* mean that men and women are the same, but rather that their similarities and differences are recognized and equally valued. Gender equality means that women and men experience equal conditions for realizing their full human rights, and have the opportunity to contribute to and benefit from national, political, economic, social and cultural development (2000, p. 3 & 4, emphasis added).

A gender equality approach thus aims at the same rights and status for all women and men and thereby also puts an end to discrimination based on class, marital status, race, religion and ethnic group. With a gender equality approach, the agency project not only looks at whether women and the poor are members of water and sanitation committees, but also what their influence and work burdens are *in comparison with* other, more influential groups represented in the committees. Such an analysis may also lead to a different perception on the desirability of all-women's committees. At present, the agency project presents all-women village water and sanitation committees, such as the one in Kamtoli in Almora district, as a 'best practice', but without reporting what the new patterns of management mean for the workload of these women and their support from and gender relations with men.

The next section goes into the reasons why it is important in domestic water projects to look at a large range of gender patterns and relations in water and water-related development. A gender equality approach is important to ensure that both women and men have the same opportunities to influence and control the new services and share its benefits. Gender-sensitive approaches that enhance such equality aim to make domestic water projects more effective and avoid unintended negative impacts on specific groups of women and men.

2.5 The relevance of gender sensitivity and equality

Gender divisions and relationships influence the welfare of women, men, and families and the success of water projects. They play an important role in the domestic and productive uses of water, in the domestic and public management of water supply systems, and in the local knowledge and learning systems on water and preventive health. Looking at the many ways in which women are associated with water and the influence of gender relations on these associations, it is hard to believe that in the past these aspects have been totally overlooked when planning and implementing domestic water services. Not all women in households deal with water in the same way, however, nor can their dealings with water be seen without considering those of men. A gender approach that distinguishes between and within both groups is needed to understand existing behavioral patterns and analyze the consequences of change.

The drawers of water

In their roles as housewives performing domestic tasks, women are in virtually all cultures the collectors of domestic water (Rodda, 1991). 'Domestic tasks' refer to work that is carried out at home and is not directly paid for, but is fundamental for the reproduction of the generations and of entire societies (Howard-Borjas, 2001). As the main drawers of domestic water, women greatly benefit from improved water services and co-decide their success. Who in the household do the work and what meaning this has for them varies culturally and according to other variables such as the size and composition of the household. In nuclear families, the female head of household will do much of the water collection herself. In extended families with a hierarchy of women, younger and lower placed women such as daughters-in-law usually do the work (Abdullah & Zeidenstein, 1982). Boys help especially when they have no other productive tasks, but time budget studies in Indonesia (White, 1973), Nepal (Acharya & Bennett, 1983) and Burkina Faso (McSweeney & Freedman, 1980) showed that girls worked more hours than boys. Boys also attended school more often and to a higher age than girls, so improved water supply conditions may reduce their collection work first. Men rarely collect domestic water unless as water sellers or when women are highly secluded or the sources are very far. In all these cases, men generally had some means of transport so that, unlike women and children, they seldom had to physically carry water (van Wijk, 1985).

As bearers of the family's water, women have a direct interest in any intervention to improve water services and in keeping the services operational. Both Hecht (1995) and Kwaule (1994) report more effective service management by women. Quoting Meehan & Viveros (1982), van Wijk reports that in Panama,

> each of the 26 communities visited had at least one woman on the water sub-committee....women had important roles in maintaining the water systems. In several communities that were having problems collecting water fees, women emerged as local leaders and successfully managed the collection process (1985, p. 173).

Whether, and in what ways, women benefit from and contribute to water services depends also on the relationships between women and men and between the women themselves. Tokenism (when women are

members of local water management organizations in name only, but have never participated or had a say) and cases in which women did the physical work while men made the decisions have been common (Chachage et al., 1990; Fong et al., 1996; Groote, 1990; Madougou, 1995; Yacoob & Walker, 1991). Gender relations and benefits have also played a role in the siting of water points. Men have repeatedly welcomed a closer water supply for their wives not because this reduced their workloads, but because public water points in central and public locations meant that they could then more easily control what the women were doing. Women, on the other hand, have objected against central locations when this prevented them to bath and wash or grow vegetables at the source and forced them to carry much more water home (du Toit, 1980; Hannan-Andersson, 1984; van Wijk, 1998; Wiley, n.d.). Who benefits among the women themselves has also varied. Poor women have had no access because male decision-makers did not serve their neighborhoods (Job & Shastry, 1991; Mlama, 1995; PRED, 1991) or because the wealthier households monopolized the available waterpoints (Dhawan & van Wijk, 1980; Huysman, 1994). Abdel Kader (1993) and Schuurmans (1994) point out that in more secluded cultures going out for water collection and excreta disposal often constitute the only forms of mobility for especially younger women that are acceptable to men and to older women in their family. The introduction of an improved water supply may eliminate or greatly reduce the opportunities of these women to get out of the house and meet other women, especially when the new waterpoints are located inside the home or compound.

Domestic services, productive uses

A common misconception about women is that they use water only domestically - for drinking, cooking, washing, and cleaning - and so other uses need not be considered. However, women also work in agriculture, trade and/or small enterprises and they also have their own production within the home, e.g., they run homegardens, raise and keep various kinds of livestock, brew beer, process food and do the catering work for the family's agricultural labor (Deere & León de Leal, 1980; Kirimbai, 1981; Senders, 1983). In addition, they may carry out a great deal of community work (Jakobsen et al., 1971; Schoeffel, 1982). Mbithi and Rasmussen found, for example, that in the 311 self-help community projects that they investigated in Kenya in 1977, 41% of contributors were women and that they contributed most of the labor and time (5,000 hours in two community water projects alone). All of these activities require time and many of them require extra water and water collection.

Women face conflicting time demands from these triple gender roles, placing them in awkward dilemmas. In a program in the Philippines, mothers who were income earners and at the same time had to collect water and do many other domestic tasks reduced their care of children. Older siblings took over the care for their younger sisters and brothers so that the total time spent on childcare in the households remained the same. The quality of the care was lower, however, and this was reflected in a significantly lower nutritional status of these children in comparison with children of the same age in households where women were not confronted by such conflicting time demands (Popkin, 1980). Others have reported how women faced with a similar difficult choice have given priority to reproductive over conflicting productive tasks. Kirimbai (1981) and Mascarenhas and Mbilinyi (1983) found that in Tanzania women could not meet agricultural labor demands due to their domestic workload and that here the time conflict had a negative effect on agricultural productivity.

Water services that meet women's needs can thus make a great difference for all three gender roles. Jakobsen et al. demonstrated this in 1971, when they compared two randomly chosen household samples in central Kenya, which differed only for their domestic water supply conditions. In households in the area that had piped water with yard connections, women spent on average one and a half hours less per day on household water collection. They used their time gains and the easier access to water to improve domestic hygiene and for animal care and were more active in women's organizations. Households with a yard tap in the study area had an average income from the sale of milk that was almost three times higher than that of households in the control area. Furthermore, in the area with piped water, twice as many women were members of a women's organization. Systematic observations on domestic hygiene in the two areas showed that the easier access to water and the resulting time savings had also enabled the women in the area with piped water to improve domestic hygiene.

Whether women themselves will benefit from their productive use of domestic water and timegains depends largely on the prevailing gender relations and the gender approach taken by the agency project. The establishment of a piped domestic water supply was one of the factors that encouraged rural households in Nalgonda district in Andhra Pradesh, India to keep more dairy cattle. This practice greatly increased the work of the women as they cared for the animals and did all the milking and water collection. They did not, however, benefit from this work because the men sold the milk and used payments for their own purposes (Mitra, 1983). In contrast, when women's groups in a drought area in Gujarat began to use water and time gains from a domestic piped water service for income generation, they not only increased the family's income but also changed the gender relations. The women formed their own enterprises with the help of the Self-Employed Women's Association. The income from the eleven enterprises that were investigated boosted the income of the families especially during the dry season when income from other sources was absent. It also measurably improved gender relations: in times of scarcity, these women got significantly more help for water collection from the other family members, including husbands and sons than the women in the five control villages. They also almost invariably controlled the income that they themselves earned and had a greater say in how the overall income of the family was spent than the women in the control communities. Both the women and their husbands said that women had improved their status in the family and community. Moreover, the husbands remarked that rather than having weakened their position by the greater freedom of the wives, the income and improved status of their wives had also raised their status as men (IRC et al., 2001).

Women are, however, not the only ones who use domestic water supplies productively. Men also do so, especially to water cattle, but also to make bricks, wash coffee, irrigate, etc. In such cases, competing interests between women and men over the location and use of water facilities have occurred in which often the interests of men have prevailed over those of women, either because the women had had no chance to express their interests or because in decision-making the interests of men prevailed (Boesveld, 1994). Men have, for example, wanted new water points located outside the village so that they could use them for cattle while women have wanted them inside the community for easier access for domestic use. Alternatively, as mentioned in the section on water drawing, women have wanted new water points outside

the settled area but with sufficient privacy from men and without use by cattle in order to be able to use them for washing and bathing, to meet with other women, or to grow green vegetables during the dry season for a balanced family diet (van Wijk, 1985). When the water supply had to serve different interests which had not been taken into account during service design, tensions and conflicts have occurred not only between women and men, but also between women who used water only for domestic consumption and women who also used it for productive purposes. Failure to recognize and address such differential interests has brought continued conflicts, exclusion of weaker groups (usually women in poorer households), and damaged and abandoned water facilities. Awareness of the different gender interests and a guided dialogue on alternatives has, on the other hand, made it possible to find an acceptable compromise with the groups concerned (Murre, 1989).

Domestic and public water management

Women collect and use water for domestic and productive purposes not only as consumers. As domestic managers and decision-makers, they greatly influence the use and health benefits of a domestic water service. The female household head determines which water sources will be used for the collection of drinking and cooking water and which for other purposes such as bathing and clothes washing. She also decides how much water will be collected for each use. If a large number of local women decides to not use an improved water service or to use it only sporadically because it is not adjusted to their needs and possibilities, the chances that the service will continue to flourish and will contribute to an improved public health are much reduced. It is certainly not so that women will automatically appreciate and use a new water service just because it has been installed or because outsiders tell them that this is a better source to use, for example for health reasons.

The generation-long use of the water sources in their environment has given women three types of criteria for selecting or rejecting a water source for different purposes: economic criteria (such as distance, time, and effort), water quality criteria (such as clearness, color, taste, smell, and protection from what they perceive as contamination), and social and cultural criteria (such as ownership, user rights, and religious values). Especially where women have more sources to choose from, they tend to choose different sources for different uses based on weighed decision-making. For drinking water, preference is generally given to the nearest source of a quality considered acceptable. In so doing, women may bypass other sources of a less acceptable water quality, provided the next acceptable source is not so far that its use is no longer acceptable to them. A plentiful supply of water of sufficient softness, a steady flow in case of streams, and opportunities for meeting are common requirements for water for clothes washing, while privacy is important for bathing. However, in all cases decisions are made based on local conditions and gender relations and so what is still acceptable, used, and sustained in one community and for some groups may not be so in other communities and for other groups (Andersson, 1984; Fernando, n.d.; Kebede, 1978; Rebers, 1990; van der Ploeg, 1979).

Women's concepts of water quality are based especially on sensory perceptions such as clearness, color, taste, and flow, as well as on safety from contamination, poisoning, and sorcery. Cultural concepts of health and disease, such as cold water being healthier than water with a higher temperature, also play a role.

Drinking water generally has to be clear, sweet-tasting, and cold and its sources must often not also be in use for bathing, washing, and cattle watering. However, local choices of what to an outsider constitutes unsafe water sources may become perfectly understandable when it is realized that in many places gender restrictions limit the mobility of women, so that they see any water source within the boundaries of their own user community and not as part of a wider eco-system:

> In a discussion about possible contamination of the river water, their only source for domestic use, the women pointed out that drinking water was always collected early in the morning, before polluting activities such as bathing and washing clothes took place. They had not considered the effect of the activities of women in villages upstream which were unknown to them. Through discussions, the group concluded that these women would do the same as they, and therefore their water in the morning would not be as clean as they had thought and that they needed an improved source after all (van Wijk, 1998, p. 37).

Although based on common sense and experience and using criteria of taste, color and smell and observations about clarity and safety, ratings of water sources by women have nevertheless been quite accurate in situations where they could compare different types of sources. In such cases their rankings based on their own experiences have matched the rankings of the same sources based on results from bacteriological tests (Drangert, 1990; Feachem, 1973; Feachem et al., 1978). If women do not accept a better quality source, they often have serious reasons for doing so.

Where discrimination based on caste, class, ethnicity, or religion occurs, social access criteria play an important role along with time and cost implications. In Bangladesh, for example, poor and low caste women and rich and high caste women tended to choose different sources to avoid problems. In the dry season when water is scarce, poor and low caste women accepted sources which were closer, but which other women would not use due to their poorer quality. Rich and high caste families had their own source of an acceptable quality and/or had paid domestic labor for water collection. In the wet season, when more options were available at a closer distance, the rich would go farther for drinking water because the sources that they normally used had merged with sources used by other groups and had therefore become unacceptable to them (Briscoe et al., 1981).

The price of water plays a role as well. Use and maintenance of the service may be considerably reduced, if in comparison with other available alternatives women consider the price of the water too high in relation to the experienced water quality, the collection distance and, in hilly areas, altitude, the efforts of drawing, the waiting time, and conflicts with other user groups or when they simply cannot afford the costs. Lack of affordability is not necessarily caused by too high water tariffs only; it may be that the connection fee is too high for poor households to pay as a lump sum or that the mode or location of payment is inconvenient for them. Connection fees, for example, have been made affordable by adding them as a small surcharge to the water tariff over a longer period. Payment of tariffs has been made easier for women by making it possible for them to pay the charges in their own neighborhoods, pay by week or when buying water or make payments in alternative modes, e.g. in grain to a grain bank.

Stereotypes on gender divisions that position women as managers in the home and men as managers in the public domain are an oversimplification where community or neighborhood-level management of water sources is concerned. Van Wijk (1985) has pointed out that in indigenous systems, the tasks and authority for managing water in the public domain are often shared between women and men. Such arrangements have been found to exist especially in areas where water is scarce and needs to be shared between women and men for different uses (e.g., in the Sahel zone, Roark, 1984 and in the drier parts of East Africa, White et al., 1972), in areas where a matrilineal system exists as for example in Polynesia (Fanamanu & Vaipulu, 1966; Schoeffel, 1982), and in areas where water has religious meanings as in areas Sri Lanka and Nepal (Kelles-Viitanen, 1983; Bennett, 1973). However, the arrangements have often remained invisible because new projects seldom bother with, and build on, existing management systems. Moreover, women's studies have concentrated on women's domestic and economic roles and their exclusion from formal decision-making which has caused more informal decision-making processes, where women may play a greater role, to remain underexposed. Finally, shared gender-specific water management remains hidden when gender institutions (that is, long established customs and rules that sanction the prevailing gender practices and concepts) mean that, when asked, both women and men will ascribe decisions in water management to men. Investigating the actual participation processes and tasks has revealed that women are also involved in the work and decision-making (Roark, 1984). Kabeer calls attention to this phenomenon when she states that "male power operates through the organizational logic of public institutions, which, by favoring certain kinds of actors, skills, bodies and capacities over others, are typically constituted as class and gender-based hierarchies" (1994, p. 226). Conformity to gender-biased norms, rules, and procedures not only means that discrimination against women can be hidden behind references to the way things are always done, but in this case also implies that greater gender equality remains hidden because the same gendered institutions prescribe that women and men both attribute decision-making power only to men.

Knowledge and learning systems

Women's generation-long management of water has given them much knowledge and has made them build up local learning systems that are relevant for new water services. Knowledge on changes in water flow and discharge, on criteria for the acceptability of water sources, on local management and financing arrangements, on factors which make some women more suitable candidates for water maintenance and management functions than others, and on perceptions on health and hygiene are all relevant for the sustainability and use of new water services. In local learning systems, women and men have different areas of knowledge and expertise (van Wijk, 1985) Recognition and use of such learning systems helps two-way communication with women and men during the planning of new water systems and improvements in sanitation and hygiene. In many cultures, the two sexes also have separate channels of communication and men (or women) will not communicate with members of the opposite sex about topics which they consider to be male or female (Drangert, 1993; Karp et al., 1990; Olsson et al., 1990; Thomas, 1994; Tunyavanich, 1987). It is therefore not realistic to assume that information to men will reach women and vice versa. In the same way, women (and probably men) with different positions within the household and the community do not necessarily have the same access to information. In extended families in Yemen and India, mothers-in-laws had great influence on the possibilities of their daughters-in-laws to participate in meetings and

practice new behavior (Crawford, 1990; Sörensen, 1992). Moreover, at community level, the women who got information through, for example, women's organizations often belonged to the elite (Hale, 1977; Hannan-Andersson, 1984; Muller, 1983; Sjafri, 1981; Sumbung, 1990).

Improved water services and improving health

Improved water supply and water use, sanitation, and hygiene practices are keys to better health. Diseases linked with a poor environmental quality of the household environment and unhygienic behavior are responsible for nearly 30% of the total burden of disease in developing countries. Within this group, lack of proper water supply, sanitation, and hygiene account for 75% of all life years lost (van Wijk & de Walle, 1995). For achieving positive impacts on public health, a gender approach is required. Within the household, women administer water, waste, and hygiene and provide the first forms of primary health care. Within the community, they manage water and health-related local learning systems among women. Agency projects recognize the central role of women in domestic hygiene and communication, but they recognize far less that the health and hygiene concepts and practices of local women are not based on some kind of primitive beliefs, but make a lot of sense in the circumstances of the women concerned. It is therefore not realistic, as is still commonly done, to try to impose externally defined health and hygiene practices on local women by giving them health information and by promoting externally defined behavior. As seen above, women's water use practices make sense in their local environment. Change comes not from imposition but when the women themselves decide to change, either because such changes improve their position or because they have themselves come to the conclusion that the benefits of changing outweigh the costs (van Wijk & Murre, 1995)

Overlooking the influence of gender relations on improving hygiene is a common bias. Although women are essential persons in the local health system, relations between women themselves and between women and men have a great influence. Agency projects do not always recognize this and expect adult women and girls to make changes that they cannot carry out under the prevailing gender relations because they do not have the required authority or means or because men traditionally do some of the work involved. Women in an arid area in Tanzania could not, for example, wash children's faces more frequently and thereby reduce incidence of trachoma, which causes blindness, because mothers-in-laws and husbands saw such behavior as wasting precious water. The issue was resolved when, in a competition on who could wash more children's faces with one liter of water, mothers-in-laws and husbands discovered through practice that washing children's faces actually required very little water and stopped blaming young mothers for 'wasting' water on children's hygiene (McCauley et al., 1990).

From the above emerges that young mothers and girls cannot always exert influence on unhygienic beliefs and practices of older female members and any male members of the household and do not have the control over resources, financial and otherwise, that allow them to improve hygiene conditions and practices that fall under their own responsibilities. Moreover, poor women or women who are marginalized for other reasons often lack the opportunity and status to attend the same meetings as other women and so have less access to local learning systems. Programs that expect women in a weaker position to realize improved water use and hygiene practices without recognizing and addressing the related gender constraints may

actually increase women's workload and frustration. In addition, they often do not address men on their own practices and responsibilities.

Although a growing number of agency projects and programs have adopted some kind of a gender approach to plan and create new water services and water service management systems, blindness to women's roles and gender relations in water, health, and hygiene is still common. In the next section, it will be shown that also recent global studies on the effectiveness of participatory approaches to domestic water services have been gender-blind.

2.6 Scarcity and gender blindness of comparative studies

While qualitative proof abounds that rural water services in participatory projects are in general better sustained than those in non-participatory projects, quantitative data is much rarer. Dasgupta (1990) carried out an analysis of macro-level data and showed a statistically significant association between participation in (political) decision making and per capita income and certain health indicators. Because the Gender Development Index (UNDP, 1995) did not yet exist at the time, Dasgupta could not investigate his data disaggregated by sex. Neither could he, as would be possible now, link this data to statistics on access to rural and urban water services.

A more interesting study, both statistically and in terms of findings, is that of Finsterbusch and Van Wicklin (1989). Between 1982 and 1987 they analyzed evaluation reports of 52 USAID supported development projects. The projects included, but were not limited to, rural water supply projects. The limitation of the statistical analysis of this study is discussed in Section 3 of Chapter 7. Its approach and general findings are summarized here. The study concerned typical bilateral development projects: fairly large, focused on the construction of facilities, and implemented by national government organizations without explicit participation policies. Finsterbusch and Van Wicklin investigated if, and in what phases, participation made a significant difference to the effectiveness and sustainability of these projects, and what characteristics of participation played a role. The authors defined participation as "contributions of the beneficiaries to the decisions or work" (1989, p. 575). Effectiveness of projects was defined as a combination of delivering social benefits, equality in access, cost-benefit ratios (including social costs) and continuity of benefit delivery. The overall score for sustainability was based on maintenance performance, benefit-cost ratios, and continuity of benefit delivery. Sustainability data were either based on actual data or, where absent, on the (rich) discussions of sustainability prospects in the reports.

Although the transparency of their research report is not optimal, the results of their study show that more participatory approaches were positively and significantly related with the sustainability and effectiveness of the projects. Finsterbusch and Van Wicklin looked at *when* people participate (i.e., during which project phase), *how many* participated and *in what ways:* in labor and/or decisions. Their results are very detailed, but, even for those familiar with participatory projects, it is not always clear what is included in their indicators and what not, which makes it hard to pinpoint exactly what is included in the relationships and what not. The same problem also applies to the studies reported hereafter. Others have also commented on

the poor understandability and readability of statistical studies on participation[9]. Accepting that the indicators which Finsterbusch and Van Wicklin used for measuring project effectiveness have not been defined in detail, their findings can be summarized as follows:

- A project's *overall effectiveness* combined scores for social benefits, community capacity building, net cost benefit ratio, maintenance performance, and prospects for future continuity. This overall score was positively and significantly related to the degree of participation. The associated participation indicators were: the presence of user commitment to the project, access to information, capacity building inputs, and user control/ownership of the assets after construction.

- The presence of a user organization and reliance on local knowledge for maintenance were also significantly and positively, but not as strongly, associated with project effectiveness.

- Where people have participated in more project phases, the number of local people involved has increased and the participation process has had significantly better results in terms of community capacity built and social benefits or the project has had less social costs.

- Social benefits in projects were associated with capacity building inputs, user organization, and user control of assets. Equality benefits were associated more with democracy and equality in the user organization and capacity building.

- The presence of a user organization and its indigenous origin, democratic formation, and representation of all user categories went together with a higher user participation in all project phases.

- Sustainability was *not* associated with the presence of organizations to manage the facilities. There was even a negative association with organizations that were locally initiated and/or democratically formed and equitable. Apparently these factors related with who benefits and how, but not with whether a service would be sustained.

- Better sustainability was associated only with a high commitment of the users to the project, their financial contributions (not indicated is whether this was for construction, maintenance or both), the provision of information by the project team and, though less strong, the beneficiaries' control/ownership of the facilities after construction.

- People's participation was further strongly associated with the use of more simple and low-cost technologies. Where such technologies were used, both participation and reliance on indigenous

[9] Although he praises the initiative, Thomas remarks on the OECD field study on participatory projects and sustained water services: "De la Barra Rowlands study of Mexico tries so hard to be rigorous in terms of presentation that it becomes hard reading and the conclusions are so cautiously drawn that they tend to present the obvious" (1980, p. 24).

knowledge contributed a great deal to project effectiveness. Where users had participated in more project phases, 'beneficiary' commitment, 'beneficiary' organization and local control/ownership were significantly higher. The size of the projects, as measured by the size of their budgets, made no difference for project performance, but small projects were more participatory and had more local control than large projects.

Narayan (1995) used the same method of analyzing evaluation reports of development projects, but studied only rural water supply projects. She commented that the correlation found by Finsterbusch and Van Wicklin is rather low. She ascribed this to the composition of the sample, which included projects that did not require participation in order to be effective. In her study, she analyzed the results of 121 rural water supply development projects in 49 developing countries. All were large agency projects with, as main donors, multilateral agencies (26%), bilateral agencies (26%), international and national NGOs (15%). Three percent were completely nationally financed. In her definition of participation, physical and cash contributions were not included. "Participation is defined as a voluntary process by which people, including the disadvantaged (in income, gender, ethnicity, or education) influence or control the decisions that affect them" (1995, p.7). To measure the degree of participation, each agency project was scored on a four point scale of participation, with information sharing (level I), community consultation (level II), community decision-making (level III), and self-initiated actions (level IV).

Her analysis gave a much higher correlation between user participation and overall project effectiveness: .62, against a correlation of between .24 and .29 in the study of Finsterbusch and Van Wicklin. Narayan measured effectiveness by combining scores on system functioning ('downtime'), reported benefits for economics ('women's time savings' and 'income generating activities') and health; population coverage ('percentage of the target population who used the improved system'), equality of access ('whether everyone had equal access to the water system') and environmental effects (from negative effects of water logging to positive effects of reforestation around the sources) (1995, p. 17). Not clear is whether these benefits are net benefit-cost relationships, as in Finsterbusch and Van Wicklin, or only benefits as text and table, on p. 22, are contradictory. Controlling for external factors did not change the significance of the differences found. Narayan concludes: "the estimated impact is still large and strongly significant ...[and] implies that an increase of 1.0 point in participation is associated, all else constant, with about a 0.3 increase in effectiveness" (1995, p. 24).

She also found several major determinants of the correlation within the project communities and the implementing agencies. In particular, a higher degree of user influence (and through this factor a better score on project effectiveness) occurred when:

- users contributed financially through downpayments;
- there was two-way communication between the community and the agency (Finsterbusch and Van Wicklin only investigated one-way communication);
- communities had control or ownership of the service after completion;
- user dissatisfaction was low.

Furthermore, community influence scores were higher when:

- implementing agencies had participation as a goal;
- they planned and monitored participation;
- they rewarded staff for being participatory.

Both desk studies, of Narayan and Finsterbusch and Van Wicklin, demonstrated that participation and project effectiveness are significantly related. The findings of contributing community and agency factors are quite similar for the two studies, but relationships are stronger when all projects are rural water supplies. (The methodological validity of the methods is discussed in Chapter 6). The difference in the definition of people's participation has not affected the results. Narayan sees people's participation for project effectiveness especially as a function of the delegation of power to communities, while Finsterbusch and Van Wicklin see project effectiveness as related to a combination of local power and a demand based approach, i.e., that people have to contribute to the services they want. In the detailed analysis this difference disappears because also Narayan finds that community influence is strongly and significantly related with community contributions (r=.75 and .58 for downpayment and recurrent cost payments, respectively, while downpayment and contribution to capital costs have a correlation of .63). From her publication it is not clear whether she also counted community labor contributions, which in water and sanitation projects are very common as substitutes for cash payments, especially for poor communities and households.

Given the great interest in people's participation, it is surprising that in the drinking water sector there have been only three large field studies, in which the relationships between community participation in and effectiveness of water services have been directly investigated. Two such studies have been carried out in the 1970s and one in the 1990s. At the end of the 1970s, de la Barra Rowland assessed the effectiveness of domestic rural community water services, in terms of functionality, maintenance, and cost recovery for participatory and non-participatory water projects in rural Mexico. A random sample of 137 communities was drawn from 458 communities with a rural water supply. Of these, 94 communities had participated in the planning and construction of the water supply and 43 had not. A survey showed that during the planning stage, people had participated in decision making through a pre-construction committee. During construction, they had contributed to the investment in cash, in kind, or both. After the completion of the service, a local water committee managed the service, its maintenance, and the financing of the recurrent costs. Data on these forms of participation and the effectiveness of the services have been summarized in Table 2.

Just as in the two desk studies, de la Barra Rowland found that water services in participatory projects were more effective than those resulting from projects without such participation. Where local committees took part in planning and managed the service and users contributed in cash and/or kind, technical functionality was better. Data on payment of recurrent costs were only available for services established in participatory projects. In those projects, payments for services after construction was better when users had paid cash to construction or when a committee was present, but contributions in kind, without or with a committee, made little difference. The author did, however, not test these differences for statistical significance.

Table 2 Participation and the performance of domestic water services in 137 communities in Mexico

Degree and form of participation	Does water supply function?			Have deficiencies been corrected?			Do users pay water service quotas in time?		
	% Yes	% No	% Unknown	% Yes	% No	% Unknown	% Yes	% No	% Unknown
No participation	51	49	0	0	49	51	-	-	100
A committee (1)	60	38	2	20	11	69	52	28	20
Labor (2)	73	26	1	23	9	68	42	43	15
Materials (3)	68	21	11	18	15	67	26	71	3
Cash (4)	78	22	0	26	2	72	71	19	10
2+3+4	83	15	2	13	2	85	47	44	10
1+2+3+4	71	23	6	12	16	71	43	48	9

Source: de la Barra Rowland, 1979 and Miller, 1980

Because he did not give the number of communities with the different forms of participation, it was not possible to apply such a test to his data.

Miller (1980) reworked the findings from an OECD study of eleven water projects in 97 villages in seven African countries to obtain some more quantitative data. He examined the frequency and duration of breakdowns and compared this with data on participation. Participation was divided into participation in decision-making (on, respectively, project initiation, overall project design, and location of facilities), in construction (in labor or cash), and in management (involvement of an existing village organization or an organization specially created for the project). For decision-making during the planning stage, he made distinctions between decisions taken by the individual people, a local assembly, or the local government.

His re-examination revealed that decisions on project initiation and location of facilities and the presence of an existing, or a specifically created, local organization that managed the water service were all associated with considerably lower breakdown figures. Self-help labor in construction made little difference, but villages that paid cash (without specifying whether this was for construction, maintenance, or both) also had considerably lower frequencies of breakdown. Cash payments were not associated with shorter duration of breakdowns and Miller regrets that the reasons for the discrepancy were not investigated. In half the sample, maintenance had been mandated to the villagers. These projects performed much better, with over 60 per cent reporting repairs generally done within a week and 10 per cent mentioning breakdowns of over a month. For the villages with outside repairs, these figures were 45 per cent and 40 per cent.

The author concludes that the data from the study is conclusive both on the value of participation for sustained water supplies and on the forms of participation that are the most important. However, he did not calculate correlation coefficients. He stated that the sample size, 97 villages, was too small for that. Unfortunately, and like de la Barra Rowlands, he did not give a detailed enough report on his data to yet carry out such an analysis. De la Barra Rowland described his sampling procedure, however, which Miller has also failed to do.

The most recent quantitative field research on community participation and sustained rural water supplies is the global study of the Water and Sanitation Program (WSP) at the World Bank (Sara & Katz, n.d., c. 1998). This study assessed rural water services in ten projects in six countries and four world regions. The sample size was 1875 households in 125 communities or 0.16 per cent and 1.35 per cent of the total project population. Indicators for effectiveness and sustainability were the physical and financial performance of the service, the users' satisfaction with the service, and their willingness to sustain it.

The best results for sustainability were found again in the more participatory agency projects. A significant difference was made when all users had initiated the water service, rather than only the local leaders, and when the households had had a say in the design of the service, including the level of service and the location of facilities, and knew that they had to contribute to construction and pay for maintenance. Good quality construction, the existence of a formal community organization for managing the service, and training community members were the other factors that contributed most to better results. However, the study has several flaws. As was the case with Finsterbusch and Van Wicklin's study, it combined already completed systems and systems that were still under construction. In the latter, the prospect for sustainability was substituted for actual sustainability after completion. Sampling was random within the communities, but the report does not give information on how the communities themselves have been sampled. Thirty-five of the 160 communities were dropped, because the work could not be finished or data were incomplete.

None of the reviewed studies have included a gender perspective in their analysis and reporting. The studies of Finsterbusch and Van Wicklin, Miller, and Sara and Katz do not have sex-disaggregated data at all. De la Barra Rowland collected some sex-disaggregated data and reported on male attitudes toward the participation of women. He also broke down participation in construction (‘self-help') by class and sex. He did not have any theory about the reasons for and benefits from women's participation and did not recognize women's work during construction as a share in investment cost. According to de la Barra Rowland's report, men had carried out 93 per cent of the self-help labor. Yet, 25 per cent of the interviewees in the category ‘housekeeper’ said that they had contributed to construction. Apparently, the author did not count the work and costs of providing food and drinks to all who were building the systems as a contribution to the service investments.

Narayan recorded differences in participation by sex, but did not publish the effect of these differences. In her study, all projects had women as target groups, but only 17 per cent had a high participation score for women. Narayan promised a separate paper “because of the importance and complexity of the findings” (1995, p. 101). This paper has not appeared, but she has reported about the results for women’s participation in an (unpublished) table. This shows that where women had participated in information or decision-making, all scores for agency project results become higher, except for the percentage of recurring costs that users pay and the increased capacity for water related tasks (Table 3).

Table 3 Pearson's correlation between participation in general and by women and reported benefits of 121 rural domestic water supply projects

Reported benefits	Participation in general	Participation by women
Project effectiveness	.70	.76
Water system effectiveness	.70	.76
Quality of project design	.66	.72
Quality of project implementation	.69	.76
Transition of system operation to user community	.64	.71
Quality of project operation and maintenance	.60	.65
Maintenance after one year	.52	.58
Percentage of recurring costs users pay	.57	.46
Reliability of water system	.53	.54
Project efficiency	.51	.59
Community empowerment	.82	.85
Empowerment of women	.73	.88
Increased local capacity for water supply tasks	.81	.79
Perceived health benefits	.51	.57

(Narayan, unpublished data)

Women's participation has thus contributed to the effectiveness of the water service, which is both a goal of the supporting governments and a practical gender need. Participation of women had further 'empowered' them. Narayan defined empowerment in a gender blind manner: an empowered person is anyone "who can take initiative, exert leadership, display confidence, solve new problems, mobilize resources, and undertake new actions" (1995, p. 26). Since her study had no underlying gender analysis, she has not investigated how equitably the tasks in participation have been shared and how benefits have been divided. In addition, empowerment is seen as an issue of individual women and men, unrelated to more structural differences in power between classes, castes, ethnic groups, etc.

In conclusion it can be said that, in general, the expression of a demand from community members and their degree of participation in decision-making are associated with technically and financially better sustained services. In the cases of Finsterbusch and Van Wicklin and of Narayan, equity of access and reported social benefits are also better, as is greater capacity building. However, the studies all fail to assess from whom these demands and participation come and what effect differentiation by sex has on the assumptions under study. Narayan has done so informally, but has looked at women's participation, not gender approaches. Only two of the five quantitative studies are direct field studies; the others either analyzed other peoples' qualitative information (two studies) or quantitative data (one study). Three of them used statistical tests. Two studies, by de la Barra Rowland and Narayan, gave complete information on the methods of data collection and analysis. All reports are gender-blind.

Because of the paucity of gender-sensitive participation processes in large rural water programs, the Water and Sanitation Program (WSP) at the World Bank started a new five-year program aiming at more gender-sensitive water projects in 1997. The workshop of the WSP and the Gender Issues Network mentioned in Box 1 in Chapter 1 identified as a first priority the need to address the absence of statistical evidence for the relevance of gender in the relationship between people's participation and sustained water and sanitation services. Hence, a second global study of rural water supply services, after the World Bank study in 1998, would be undertaken as a first activity.

2.7 The decision to use participatory methods in the new global study

By undertaking this global study, the WSP wanted to determine whether demand-responsive *and* gender and poverty-sensitive participation approaches make for better-sustained water services and what the implications are for planning and implementing agency projects for rural water supply. It was hoped that the study would give quantitative evidence on the effectiveness of these approaches and the common factors in high and low performance of services for managers and policy makers. A related policy issue was whether the Bank, as a co-funder of large water and sanitation programs, should enhance its support for a gender and poverty-sensitive approach in the projects implemented under these programs.

In the previous desk and field studies, external specialists had collected and analyzed the data on community managed rural water services. Both the field studies of the OECD and the WSP used social surveys with household interviews. Initially, the WSP assumed that the new study would also use this approach. However, the core team that prepared the study preferred to use a participatory approach for three reasons. First, rural women and men, who use and sustain their local water services, have as strong a right to, and interest in, the data as the Water and Sanitation Program in the World Bank. Second, they may result in data and conclusions that are more valid as there are additional internal checks. And third, the use of a participatory methodology enables all groups involved - the local women and men and their social organizations in charge of water, or water and sanitation, the social and technical staff who had implemented the projects, the managers who have managed the projects, the policy makers who determine the policies that influence project strategies and implementation procedures and the organizations and individuals who facilitated the field work - to share in, and benefit from the process, as well as the results.

To carry out this intention, the team faced several dilemmas, beginning with the consequences of the use of participatory methods for the participating community women and men. As researcher, one may prefer participatory research methods to more conventional ones, but what does this mean for the community members that take part? Participatory methods, such as Participatory Rural Appraisal, are now so ‘en vogue’ among development agencies, that many of them have started to use these methods in a wide range of sectors. The location where all these activities converge is the rural community. Yet, the members of these communities are not rewarded for the time they spend on them, other than through the future indirect benefits of the research, while the costs and time of outsiders are paid for. Moreover, costs for rural community members tend to weight more on women than men because they often work more hours and do more voluntary community work than men (Moser, 1993). It would therefore be imperative to avoid overburdening of community members and to compensate the time of villagers who became co-actors in the research. The issue of overburdening is further complicated by the scope of the study. Previous field studies have investigated different participation variables throughout the project cycle. This study covers not only participation variables, but also the gender aspects of these variables, in all five sub-areas of sustainability: technically, financially, institutionally, socially, and environmentally. The research could nevertheless not ask too much unpaid time from the women and men who, in conventional research are ‘the respondents’ and in this study the ‘participants’ and, to some extent, ‘actors’.

A further issue that had to be addressed was the assessment and analysis of sanitation and hygiene aspects. While some participating projects included a sanitation and hygiene component, most did not. The analysis of sanitation and hygiene programs is further complicated methodologically, because they can be designed and implemented along very different lines. While community water facilities are generally community based - there were very few projects that install individual family wells, handpumps, or rainwater tanks - sanitation and hygiene programs may either directly target the individual households and their members, without cooperating with a community organization for planning, management, and financing, or undertake sanitation and hygiene improvements as community planned and implemented improvement programs. Both types of approaches require different indicators. It was therefore decided not to include the analysis of sanitation in the analysis of the study. This does not mean that sanitation, and participation with a gender and poverty perspective in sanitation projects, are not very important. They are, because without having also good sanitation conditions and practices, a water supply has less or no impact on public health (Esrey et al., 1991). Sanitation projects are also important for the environment, and gender relations play an important role in them (van Wijk, 1994). With hindsight, sanitation and hygiene programs warrant an analysis in their own right, because of their specific nature and the multiple transmission risks.

In evaluating water services, there was furthermore the need to look into the links between the implementing agencies and approaches and results on the ground. If, as indicated by the previous studies, more participatory projects are associated with better results, but they did not consider gender, it is not enough to investigate only at community level if and how a gender approach is related with such results. One also needs to go beyond community level and look at possible associations between these results and the approaches and characteristics of the agencies. If services that are more participatory *and* gender sensitive are, indeed, more effective and/or better sustained, in the way that this study has defined them, will the agencies that have implemented these projects have specific characteristics as well? Participatory methods have been used much less for assessing project approaches with agencies than for assessing local conditions and practices with communities. Would it be possible to develop the methods, tools, would agencies accept them, and would they work? Alternatively, would it be more realistic to use conventional social research methods with the agencies?

Finally, the team had concerns about the financial and logistic feasibility of doing this study in a participatory way and about finding a methodology that would make comparative evaluation possible. Would it be possible to design and implement the investigations with individual communities and agency projects in five world regions, all with different situations and types of services, within the given timeframe (one year) and budget (US $ 1 million)? It was clear that no lengthy procedure would be possible. Hence, the second objective of the study became to identify a methodology that would make all this possible. In the next chapter, the pros and cons of the different approaches to knowing what people's conditions and practices are – positivist vs. participatory – will be discussed. It will further be shown that, in the drinking water supply sector, off-the-shelf methods and tools were either inappropriate or not available, and that a new methodology had to be developed for the desired investigation.

3 Grounding a new study methodology for community water services

> *If it walks like a duck, and quacks like a duck, then it just may be a duck* (Walter Reuther, attributed, William Safire, Political Dictionary. New York: Random House, 1978).
>
> *Truth, like time, is an idea arising from, and dependent upon, human intercourse* (Isak Dinesen, The Roads round Pisa, in Seven Gothic Tales. London: Putnam, 1934).

3.1 Introduction

Positivism and constructivism present two epistemologies, or philosophies about the nature of knowledge, that are generally considered to be diametrically opposed and unreconcilable. Positivists take the position that there is only one reality, which is known through scientific research. For constructivists, different groups of people (including different groups of scientists) develop their own sets of knowledge of what reality is. In domestic water services, different groups of people are involved who have different relations with the services and so develops different perceptions of what the reality of the service is to them and others. All parties that take part in the assessment of water services, including 'neutral' outsiders, have their own perceptions. Any study of community water services is therefore constructivistic by nature. In this chapter, it is argued that stakeholders at the various levels must nevertheless achieve a sufficient degree of consensus about what the realities of their services are, given the particular circumstances and time, to make decisions on policies and action. For managers and policy makers, it is furthermore important that they can easily use this data in their own planning, monitoring, and accountability by allowing their aggregation and statistical analysis.

A methodology which is grounded in constructivism, but recognizes that methods from positivism help managers and policy makers make choices in large programs, was not found among the existing methodologies for assessing participatory drinking water supply services. A new methodology, the Methodology for Participatory Assessment, has therefore been developed (Box 5) and has been tested in the global study.

Box 5 Aggregating people's data for statistical analysis at program level

PRA methods make it technically possible for all community people, including women and poor people who often still have no or low literacy skills, to assess and analyse their realities and plan actions to improve them. The locally specific and small-scale character of PRA research makes it very suitable for use in local development. These advantages are, however, disadvantages for staff and managers of large programs who need to work with many groups and want figures which they can compare and analyse statistically. It is these needs, rather than the choice for positivism or constructivism, which makes program managers use social surveys. The Methodology for Participatory Assessment (MPA) addressed this particular limitation of participatory methods because it allows community people to use these methods to position their water project and the resulting service on comparable scales of performance. The resulting scores are constructs which program staff and managers can aggregate and statistically analyze.

3.2 The single truth of the positivist researcher

Most social research which tests hypotheses, including the studies on rural drinking water services reviewed in Chapter 2, have used methods grounded that are grounded in positivist epistemology. Positivist research makes several assumptions about reality ('ontology') and the way reality can be known ('epistemology'). Guba and Lincoln (1989) and Röling (1996) describe them as follows:

- A single reality exists which is independent of the human observer[10]
- Reality is governed by laws of nature;
- Scientific investigation, usually within some disciplinary perspective, allows us to know reality;
- There is only one true knowledge;
- Views of the investigators make no difference; reality can be known objectively, irrespective of one's personal experiences with and perspectives of reality;
- Science is the source of true knowledge;
- Scientists discover the truth and people who think differently are incorrect.

Although also more holistic perspectives are possible as in, for example, ecosystems research, many studies with a positivist epistemology are also reductionistic. By choosing to study some concepts and phenomena, and the relationships between them, other phenomena, concepts, and perceptions are deliberately excluded. In reductionism, research is a matter of reducing reality to certain phenomena that can be observed or measured. It can then be investigated whether and how one phenomenon, or set of phenomena, varies with, or is dependent on, another. Reductionists assume that:

- Reality can be broken down into parts;
- The parts can be investigated to determine the characteristics and influencing factors of positive and negative developments;
- The relationships that are found make it possible to predict what will happen on the basis of a statistical correlation and by discovering causal laws;
- Findings can be used in policies, programs and projects to influence reality into directions that are desired by policy makers and program managers (Guba & Lincoln, 1989).

Reductionists want simplification. The aim is to discover the magic bullet or, if one bullet is too unlikely, the five or six bullets that explain all. From a reductionist economic perspective, keeping a water service functional may, for example, simply mean that the supply meets the different economic demands of the users. When demand and supply continue to match, i.e., the users continue to pay the costs and the service continues to deliver the goods, service continuity is assured. Other considerations such as that, in a gendered society, those who have the demand may not have the required freedom and resources to express

[10] Guba and Lincoln use as example the question "If a tree falls in a woods [sic] when there is no one there to hear it, does it make a noise?" (1989, p. 85. For a positivist the answer is, 'Of course'. The question is, how does one know?

and meet that demand by, for example, taking a connection and going out to pay the bill, do not always enter as factors in service adoption and continuity.

A reductionist approach to research is particularly attractive for policy makers and program managers because it allows them to investigate only that part of reality that has particular meaning for them. Both groups want specific answers to specific questions in a given period of time and at costs which can easily be calculated. A reductionist approach to social science provides what, in their eyes, constitute hard data and proven hypotheses on which to base their policies and strategies (Mayer, 1998; Mukherjee & Wuyts, 1998). This goes also for those who provide directions for policies in multilateral organizations such as the World Bank (Paalman et al., 1998). Many researchers and policy makers further appreciate that, in the positivist approach, they have more control over how a problem is defined and investigated than in more participatory forms of study (Bell & Morse, 1999). Pretty summarizes the advantages of reductionist positivistic or rational research for policy makers and managers clearly and concisely:

> The process of reductionism involves breaking down components of a complex world into discrete parts, analyzing them, and then making predictions about the world based on interpretations of these parts. Knowledge about the world is then summarized in the form of universal, or time- and context-free, generalizations or laws (1994, p. 37).

A positivistic approach to social science has as a further advantage that it is the same everywhere and procedures and standards are subject to definite rules. Researchers all over the world have been trained in subscribing to the same set of ideas about how reality is known and to apply the same rules in arriving at scientific knowledge. This is particularly important in global research in which different researchers have to produce results in ways that must be comparable. Because different teams of researchers can investigate the same phenomena using the same methods in different locations, it is possible to collect a large number of data from a large number of settings and to draw conclusions that can be generalized across the population as long as rules of probability sampling and statistical confidence have been applied (Woodhouse, 1998).

However, positivism and positivist research have come under increasing criticism. The criticism has focused on the belief that one universal reality exists, that researchers, above all others, are the people whose work allows them to know and influence this reality, and that they do not have personal values that might influence this knowledge or will not allow such values to influence their work. It has also been argued that reality is too complex for phenomena to be predicted through the formulation of hypotheses and their statistical testing and that this “reduces wholeness to individual parts and bits” (Bell & Morse, 1999, p. 82). Statistical precision can also create an artificial idea of being exact which is neither required nor desirable. “Whether household size is 6.7 or 6.1 has little implication for the community in designing water and sanitation systems. The same is true in trying to assess income by rigorously counting chickens and land plot size” (Narayan, 1993, p.17)

Nevertheless, many policy makers still prefer that some external scientists give their interpretation of reality and causality on which they (the policy makers) can base their decisions. They are less charmed by a kind

of research in which external researchers and local people together construct the particular abstraction that according to the group as a whole comes closest to the different ways in which they experience reality and give their own reasons for why they act as they act. As Potter and Subramanyam (1998) express it, the information systems of yesterday's policies service the policy assessments of today.

Much of the criticism aimed against positivist social research has been directed especially at its methodology, in particular at quasi-experimental research design and quantitative surveys as major mechanisms for knowledge development. Quasi-experiments begin with two groups of people or communities that are initially comparable. One group is subject to an intervention while the other is not. In each group, the situation at the beginning and after the intervention is measured. When, according to the scientists, the situation of the first group has changed after the invention while, again according to the researchers, that of the other group has not, and the researchers see no other factors that may explain this change, the intervention is taken to be the sole reason why the change has occurred. The experiments are called 'quasi' because in studies dealing with human behavior it cannot be prevented that influence occurs from human interaction such as happens in an interview or during observations. As the quasi-experimental design does not feature in the use of the methodology, only the criticism of surveys has been considered here. In social surveys, externally trained interviewers determine which are the aspects to be known through questions and observations and how, and decide how the answers should be interpreted in order to know the reality of the respondents.

Critique on social surveys has an epistemological and a developmental angle. An epistemological critique is the one-sided interpretive nature of social surveys, while from a development perspective the extractive and expropriating character of knowledge use is condemned. Knowledge that belongs to the communities and groups within these communities is taken away and interpreted by outsiders while its owners and providers neither know the purpose for which it is extracted and will be used (since that would influence the results), nor its aggregated outcomes. Yet, the knowledge concerns and affects them and, when known, may give rise to their own conclusions and actions. In survey research, the power over what is known and what it is used for thus goes to the researcher and not to the researched whose knowledge is being used, or, as some will say, knowledge is manipulated by outsiders for uses and interests that are outside the sphere of influence and control of the knowledge providers. The commonly used argument is that the results ultimately benefit the researched through improved policies and better targeted funds, but it is an illusion to think that there is a direct link between the outcomes of the inquiry and the decision by the policy maker:

> Policy (and other plans, such as business strategies) come into being in a fragmented fashion. One person in one location does not draw up plans. Rather, they are the outcome of complex processes in which many different people participate and in which thousands of decisions are taken. This is …why analyses are more likely to have a conceptual rather than an instrumental effect on plans (Grin et al., 1997, p. 13).

Other criticisms refer to limitations which, although relevant, are technicalities which, to a large extent, can be technically addressed. One limitation is the chance that biases from the researchers are introduced to the

design of the questionnaire and the analysis of the data. The researchers usually come from a different background and have had an education that differs from that of the women and men in the rural communities, and either difference may prevent them from correctly understanding and appreciating local conditions and perceptions from a positivistic point of view.

Knowledge, Attitudes and Practices (KAP) studies are a common type of survey research in water, sanitation, and hygiene projects that are sensitive to such bias. Many of these studies simply investigate what is 'right' or 'wrong' from the perspective of the researcher and the outside authorities and do not take into account the local logic and conditions. They do not seek to understand these perspectives as an important basis for improvements and do not perceive that some local practices are sounder and more realistic than standardized measures promoted in a blanket approach. Surveys are also known for their gender bias, although the same type of bias occurs in other forms of research as well. Many surveys routinely report how many of the respondents were men and how many women, but fail to devise a gender strategy regarding who is interviewed on what issues. As Howard-Borjas (2001) states, blindness to gender issues leads to several research errors. The error of *omission* occurs when interviewers only interview men, e.g., when they evaluate a new type of handpump with men and overlook the fact that, as main users, women and children can give important information and that as domestic managers ultimately women, and not men and male leaders, decide on the use or non-use of a particular waterpump. The error of *validity*, which implies that the information obtained is wrong or incomplete, comes from mismatches between the source and the nature of the knowledge sought. Gender relations determine that, within households, men and women of different age groups and positions have different responsibilities and knowledge. When the wrong people are interviewed on the wrong issues, the knowledge obtained will not be valid. Moreover, the same gender relations determine that, when interviewed together, the person with the highest authority in the household, and not necessarily the most knowledgeable person, gives or directs the information, which again means that the knowledge obtained may not be valid. The third error is one of *interpretation* which risks to be wrong when those who interpret the findings do not understand the underlying gender relationships. This may mean, for example, that women in general or in specific groups are blamed for wrong practices of water use or hygiene by other groups while under the prevailing gender relations they have no other choices. The same errors also occur when researchers report differences for, for example, administrative divisions, and not for the different social and economic groups. The high risk of errors from using one's own frames of reference in questionnaire surveys has led Woodhouse to conclude that "while they can provide rigorously defined descriptions, they are notoriously open to misinterpretation, giving rise to the phrase 'lies, damn lies and statistics' " (1998, p. 135).

Yet another disadvantage of surveys is that they deal mainly with knowledge in the form of statements. "Conventional interviewing techniques require that people convey what they know verbally to the questioner who has set the frame of reference" (Cornwall et al., 1994, p. 101). Language use becomes crucial between two groups who may use the same words, but not necessarily have the same understanding of their meaning. Respondents interpret and answer questions from their particular frame of reference, which is different from that of the researcher and from the data analysts, both of whom have their own perceptions and may discard answers that do not make sense to them. As will be seen later, participatory

research methods, such as PRA and SARAR, do not have this disadvantage to the same extent because they rely for the greater part on the use of visual materials. Giving the expected rather than the true answer to be polite (Ascroft, 1974) and adhering to other social norms on answering, such as those on gender referred to above, are inherent limitations of surveys more than of the participatory methods that will be discussed in sections 3.4 and 3.5.

The growing criticism on the assumptions of positivist thinking has led to a number of modifications and the emergence of a sub-school of thought known as post-positivism, or modernism. In Shaw's description, post-positivism is distinct from positivism in at least three ways: it recognizes that not everything is measurable, that theories are not neutral, and that absolute knowledge does not exist even when findings are justified by statistical tests. Certainly social aspects such as participation and sustainability cannot be measured directly: one needs indicators, observable manifestations that reliably point out the presence of the phenomena these are thought to represent. Such indicators can only approximate these phenomena in any case. Nor are measurements theoretically neutral. Every reported finding has some kind of theory behind it, even if this only reflects the personal convictions of the researcher. By choosing one theory and not others, and although part of the assumptions about relationships may be rejected, the investigator already excludes certain aspects from the research. When findings are statistically significant, they can be used to construct not one (the selected) theory, but other theories as well. In social science, there are therefore trends and justification of trends, but there is no absolute knowledge. Insights come from comparing theories with findings, neither of which is static. Findings are volatile, because reality changes. Theories are volatile, because not one, but many social theories exist, which are subjected to dynamic change because their adherents and opponents continuously adjust them in the light of new findings and thinking.

Although practitioners of post-positivism are less rigid as far as their belief in demonstrating one truth from research is concerned, they are not against the principles of statistical rigor practiced in positivist research. Such rigor is expressed in, e.g., probability sampling, where each person or item has an equal chance of being selected; in the reliability of data collection and analysis, whereby data are collected and analyzed in the same way by different people, without personal bias; in internal validity, whereby what is measured represents indeed what was assumed to be measured, and in external validity, which relates to the soundness and defensibility of inferences which come from the political and socio-economic perceptions of the investigator, and are not supported by the data.

They do, however, allow for greater flexibility in rigor than positivists themselves. Thomas, for example, defines rigor as “the ability to show that one has enough evidence to justify one’s conclusions, that the evidence has been obtained properly and that contrary evidence has been sought, but either not found, or found to be relatively unconvincing” (1998, p. 13). Rules for demonstrating this type of rigor are less hard, fast, and global, but Thomas (1998) and Shaw (1999) give specific guiding questions that will help in assessing the acceptability and shortcomings of the methodology for participatory assessment under review (emphasis added):

- Are the findings compatible with *all* evidence? Are no data left out that are conflicting and has contrary evidence been sought?
- Are they *plausible*, that is, "consistent with existing knowledge whose validity is taken to be beyond reasonable doubt?" (Hammersley, 1995, p. 75 as quoted by Shaw, 1999, p. 65)
- Do they reflect a *theory*? Such a theory may be a set of formal propositions, or problem statements, and working hypotheses, but may be also a world view, which may be explicit, but also tacitly understood or purposively hidden.
- Are the findings *relevant* for all those concerned and can those concerned *generally agree* to them?
- Do the findings rely on internal rigor, that is, has the data been collected and analyzed in a *reliable* manner and are they *valid*? Can others *reproduce* and corroborate the findings?
- Can the findings be applied to other situations? Are they *generizable*?
- Can results be *used*, and how?

3.3 An alternative way to understand and enhance development

Constructivists, on the other hand, reject that positivist social research is the only way to know reality and the factors that explain and predict this reality. Outcomes of investigations are not descriptions of the way things are, but are "meaningful constructions that individual groups of actors form to 'make sense' of the situations in which they find themselves. The findings are not 'facts'...but are...literally *created* through an interactive process that *includes* the evaluator" (Guba & Lincoln, 1989, p. 8, their emphasis).

Constructivism has as its ontological basis the idea that social reality does not have a single objective truth. 'Truths' are social constructs, which vary between people and over time. Its epistemology is a logical consequence of this belief in truths as constructs. Since there is no single truth, the only way for people to know about the constructs of others is *through equitable interaction*. The knowledge of the researcher is one of the inputs in this interaction. Interaction should take place with all different interest groups and aim at arriving at mutually agreed generalizations from the different realities which managers and policy makers may use to make adjustments to or radical changes of policies and programs. Surveys are not equitable interactions, because the researchers set the questions and determine what is 'truth' based on their interpretation of different realities. Those interviewed cannot give their own, perhaps very different interpretations of what reality is, and how it is shaped unless the researchers allow them to do so. Constructivists also criticize that the aim of positivistic knowledge is control by outsiders and research methods are the means for control. In positivist and post-positivist studies, the researcher and manager extract knowledge for their own purposes; those who are researched and contribute their knowledge and time do not only have no influence on the research agenda and assumptions, but have also no access to the aggregated information and so do not develop new insights and cannot use it for local development.

Instead of the rigor of positivists, constructivists use their own criteria to demonstrate the quality of the conclusions from their research such as presence, credibility, transferability, and dependability of the data. Data is never objective but their *presence* must be open to confirmation, that is, the investigators must

prove that the findings are neither the product of their imagination nor of their wishful thinking. The method to test this is the careful recording and reporting of the constructs and the changes therein during the process. *Credibility* is the verification of the match between the constructed realities of the facilitator and the other stakeholders. Credibility is verified through prolonged engagement, persistent observation, and debriefing with a disinterested peer. Other means of credibility control are: negative case analysis, that is, the revision of hypotheses until they account for all known cases, progressive subjectivity, in which the evaluator continues to monitor her or his own constructs to see whether they change under the influence of the others, and member checks, when all agree with the conclusions. To know whether the findings are *transferable* to other realities (are 'generizable' in positivist terms), the constructivists determine the degree to which salient conditions overlap or match. To be able to assess transferability, constructivists must carefully record under what conditions and in what locations, times, and cultures the particular consensus findings have been achieved. Constructivists do not pursue reliability or stability of data over time. For them, *dependability* of findings is confirmed by changes over time. Deepening of insight comes from understanding why these changes occur (Guba and Lincoln, 1989).

3.4 The fourth generation approach in evaluation

If social surveys give only the researcher's interpretation of reality and take the power of knowledge away from women and men in communities to whom it rightfully belongs, would it be possible to study the relationships between, on the one hand, participation, gender, and poverty and on the other, sustainability and effective use of community water services using a constructivist approach? For an answer to this question, two options have been considered. The first option is the evaluation approach of the fourth generation. The second one is participatory rural appraisal, or PRA.

Guba and Lincoln developed the fourth, constructivist approach to evaluation in 1989 as a reaction to three earlier evaluation approaches. The first approach was a measurement approach, which used measurement tools to assess the effects of programs on individuals: what did they mean for knowledge, skills, and practices? The second approach recognized that also the characteristics of the programs themselves needed to be evaluated. The focus then was not only on measuring effects, but on describing the programs with which these effects were being achieved: the descriptive evaluations. The third approach criticized the emphasis on description and measurement of effects on individuals without further distinctions and the absence of judgments based on comparison. It was stressed that achievements should be measured not in a vacuum, but against earlier set objectives and standards and evaluations should *compare* the approaches: which approaches have been more and less effective, and for whom? This approach is therefore also known as judgment evaluation.

Although each of these three approaches has incremental values, they are all characterized by their overcommitment to the positivist paradigm of research with its emphasis on quantitative surveys, statistical analysis, and the assumption that the personal views and values of the researcher and financer do not play a role in the design of investigations and the interpretation of results. The fourth approach rejects this paradigm. Because truth is a construct made by individuals, studies that are undertaken to evaluate

approaches or programs should not be the sole responsibility of one researcher or research team with its own particular frame of reference, but be designed, implemented and interpreted together with the stakeholders. Stakeholders are all those who, as individuals, groups, or categories, have a stake in the positive or negative outcomes of the evaluation. All stakeholders, and not only the researcher and the person or organization that has commissioned the study, decide what questions are to be asked and what information is to be collected. The outcome is not a set of results, but an agenda for negotiation and for planning and implementing action, since not only policy makers and managers, but also the direct participants should have the opportunity to use the outcomes of evaluations in which they participate (Guba & Lincoln, 1989).

The methodology to get to know these constructs and arrive at an agreed set of outcomes and agenda for action is a series of dialectic dialogues. In an open interview, each of the persons or teams representing specific stakeholder interests has the opportunity to describe whatever is being investigated or evaluated from her or his point of view. Stakeholders have an interest in the outcome of the evaluation because they have things to gain or loose from it. Hence, the process must include those who are, or may be, a victim of developments. Stakeholders get involved through the initiative of the facilitator, but also through the dialectic character of the process, whereby the next open interview is with a person or group as opposite as possible to the first group in situation and viewpoints. For this purpose, the first participants are asked to nominate the persons or group with the greatest contrast. Subsequently the first person or group is confronted with the construct of the second one and is asked to indicate how the new information changes his or her own construct. This dialectic process goes on, until a consensus has emerged that the set of constructs arrived at is what, at present, comes closest to reality. Only when points of conflict remain will the evaluator try to resolve these, if necessary with information from outside.

Constructivism, as promoted in the methods of Guba and Lincoln, has a number of advantages for ongoing programs and services, which are absent from positivism and conventional social surveys. Carrying out an evaluation as a process with stakeholders recognizes that a domestic water service is a process as well, which normally will continue and can benefit directly from the study results. Other advantages are that, as all participants are equal, at least in principle, each perception of reality has an equal value, and all can bring their life experience, personal as well as professional, into the process, although in reality, and as demonstrated below, this equality may not always be present. While consensus through focused dialogue is the aim, there is furthermore also place for conflict.

In constructivist fourth generation evaluation, procedures are set while contents are open to participatory construction and agreed findings should result in action from all. The openness and participation contrasts strongly with social surveys, where the researcher determines what is reality and what is truth and holds the power of design and interpretation. Constructivist evaluations are also action oriented. They end in an agenda for action, which focuses on local solutions with local means. In contrast, surveys usually end when the investigator leaves with the data to analyze them elsewhere, and draws conclusions and makes recommendations which are solely the product of the researcher and do not stimulate local problem solving. Action, if it follows at all, is only at higher level and takes a long time. The process approach, the -in

principle - equality of stakeholders and their right to know and argue their own reality, the combination of local and outside knowledge, which together may lead to new and better insights ('the whole is more than the sum of the parts'), and the building in of agendas for local action are other strengths of constructivist evaluations that social surveys lack.

As a means to improve self-managed programs and policy research, the constructivist methodology is, however, not free from limitations. The first such limitation is that of time and its consequences. While there is a set procedure, the duration of the process is not certain as it depends on the process of constructing and reconstructing the participants' views of what has happened and to what effects. This, and the need to build up trust, may make evaluations time-consuming for the participants as well as the policy makers and program donors awaiting the results. Time used has a cost, which affects all parties. On the evaluator's side, these costs are met by the donor, or by the donor and the consultant, depending on the type of contract. For the participants, their employer meets the costs of their time input, but when they are self-employed or participate in their own time, they will bear the costs themselves. The latter situation is particularly the case in developing countries, where evaluations are mostly carried out in people's own time. Spending more time, when the process turns out to be a lengthy one, comes for them at a price. The consequences are greatest for women and the poor, who have less leisure time, and for poor women, who often have the least time of all.

A limitation, which it has in common with surveys, is gender and class constraints. Although in principle all stakeholders have equal chances to join, the reality in many cultures is that women and poor people do not have the same opportunities to participate as do men and the better-off, due to practical and strategic constraints. Meetings that are held in central places and at times inconvenient to them make it hard for women and poor people to attend. Not only practical constraints, such as distance, absence of childcare arrangements, and hours that conflict with times that they are working either outside or inside the home, but also gender and class restrictions impede them to move out of their own neighborhoods. A subordinate position in the household and a low socio-economic status related to origin, marital position, religious affiliation, and ethnicity may also limit participation. In Guba and Lincoln's description, no attention is paid to the possible limitations of social and gender circumstances and the ways in which such constraints to equality of participation are overcome.

Another shared disadvantage with social surveys is the centrality of the spoken word. Problems with social norms regarding freedom of expression are the same as or even greater than in social surveys, as the participants are expected to discuss freely and hold their views against those of others. In cultures which are more hierarchical and inequality is a way of life, it is hard for people in a subordinate and dependent position to speak out to a person who is an outsider, often with a different status and background. Open dialogue may be even more constrained, when this takes place between persons from different socio-economic classes and/or the opposite sex, points which Guba and Lincoln do not address.

Because there is no particular procedure other than the one described above, evaluations using this constructivist methodology are more dependent on the good management of interpersonal relations than

social surveys. A skilled facilitator may handle sensitive issues and conflicts well, but what happens afterwards when positions have been explicitly expressed and conflicts have come to the surface that could not be resolved? And, at the end of the process, when the conclusions are written down and presented to policy makers, the power remains with the evaluator, unless these steps are also done in a participatory manner. Although the latter has not been mentioned in the procedure, it made one opponent of participatory assessments call the participatory design “about as sloppy as one can get – short of participatory authorizing of the final report” (Scriven, 1997, p. 486). A question is, further, how replicable the approach is by participants working on their own. When programs or services are ongoing, evaluation is a recurrent phenomenon. However, because in this type of evaluation the evaluator's skills as facilitator are central to the process, it may not be possible to replicate the approach without the paid services of an external facilitator. In such cases, communities and staff do not become the owners of the evaluation methodology.

3.5 The use of participatory methods and tools

While the discussion on positivism and constructivism and their methodologies was going on in academic research institutes, other groups worked on the development of a different set of participatory methods for inquiry and action. Having emerged under the conditions and in the context of the human relationships in the developing world, the methods shared some, but not all, of the characteristics of constructivist methods, as developed and practiced in evaluations by Guba and Lincoln. Like the constructivists, the researchers and practitioners who concentrated on the development of alternatives for surveys as major method of inquiry recognized that the reality of the researched is not that of the researcher and that a more complete insight is obtained by a two-way learning process. In this process, all that have distinct and often different interests must participate on an equal footing and learning should be linked to action. Here also, the investigators are facilitators and participants who realize that there are more truths than those of the outside specialist and are open to adjust their views, and who may also bring others to adjust their the views by sharing their own knowledge.

Other than in Guba and Lincoln, the methods for investigation that were developed do not rely on personal and group dialogue as the only methods, but make use of a wide range of diagrams and other tools for visualizing and sharing local knowledge and experiences. The tools are a means to map, analyze, and judge situations in a group process and arrive at an agreed ‘construct of the truth’ in much the same way as would happen in a dialogue. While the participants present and analyze their situation by making their own maps, models, matrices, and diagrams, they verify, amend, add to, nuance and, in the end, own the information. As in the fourth generation evaluation, the researcher facilitates this process and in principle seeks to ensure that all stakeholder groups can bring in their views of reality, as they themselves experience it, although the same constraints of gender and class apply as set out for Lincoln’s and Guba’s methods.

The use of visualization does not exclude the emergence of local statistics, since numbers, e.g., on the number of poor, middle class, and wealthy households owning improved water supply and sanitation facilities, are produced with the help of local counting material such as seeds. Visualization with the help of local materials is an easier way to contribute and share knowledge for women and other groups who, under

the prevailing power relations, cannot speak out. It has also the great advantage that, other than in surveys, the resulting group outcome is immediately visible and understandable. While surveys need external researchers to bring out and interpret aggregated results, the visual aggregation in participatory methods of the knowledge of individuals allows them to draw their own conclusions and so conveys much stronger messages than when the analysis and interpretation is done by outsiders. Because data gathering and analysis is a public process in which fellow-participants can and do correct faulty information (that is, if the facilitators handle the power issues well, the results are also less open to evasion and denial than when they come from surveys (Schreckenberg, 1995).

The most publicized participatory approach is Participatory Rural Appraisal or PRA. Chambers (1997) calls PRA both a method and an approach used for many other purposes than appraisal. He claims that it presents a methodological revolution because its basis is the recognition of the analytical capabilities of poor people. Many of those who developed PRA were motivated by the same dissatisfaction with the limitations of social surveys as those highlighted by the academics involved in the theory and practice of constructivism in the north. PRA grew from RRA or rapid rural appraisal, which practitioners developed in projects in the south in the late 1970s and which are not very different from social surveys, except for their use of more rapid methods than questionnaires and the emission of the statistical processing and analysis of data. He describes how, in Thailand in 1981, Michael Collinson would conduct an exploratory investigation on small-scale farming in a week, but then feel obliged to follow it up with a formal verification survey just to produce numbers. This survey invariably produced the same information, but took longer, was costlier, and delayed action. Various rapid review methods replaced the questionnaire: observations and semi-structured interviews, written or mental checklists, consultations with key informants, use of key probes (that is, questions that may reveal key issues), case studies and histories, transect walks (systematic walks with local guides and analysts through an area while observing, discussing, mapping, and diagramming the respective zones and the findings about them), and various kinds of group encounters, from informal and random to planned and formal community assemblies. In the mid-1980s, two NGOs, the Aga Khan Rural Support Program in Gujarat, India, and the National Environment Secretariat in Kenya (the latter in cooperation with Clark University), subsequently developed a participatory form of RRA, the PRA.

A true PRA process is one in which the outsider is the facilitator of research, analysis, and planning activities in which local people are in charge, and through which they obtain more control over and can better direct their own development. In this type of assessment, local people are the owners and users of the data, although the facilitator also has access to the data and may use them for exogenous purposes. Apart from using local knowledge better than outsiders can do, the participatory variety of rapid rural appraisal recognized that the most effective development is self-reliant development. Any assessment should therefore be participatory and lead to, or in any case, allow for, analysis and local action, which is the reason that PRA is now also called PLA, or Participatory Learning and Action. Here, the acronym of PRA will still be used, because most of the methods have been developed under this acronym and it is still the one which is known most widely. PRA has evolved and continues to evolve so quickly that definitions keep changing. First, it was “an approach and methods for learning about rural life and conditions from, with and by rural people”. Then it was defined as “an approach and methods for (self) analysis, planning, action,

monitoring and evaluation". When it diffused and local variants were developed, it became "a growing family of approaches and methods to enable local people to share, enhance and analyze their knowledge of life and conditions, and to plan and act". This last definition has now been expanded into '...and to plan, act, monitor and evaluate" (Chambers, 1997, p. 104). Local direction and ownership meant that the research methods and tools used for RRA studies had to be modified and new ones developed to make them suitable for use by people with low or no literacy, to investigate new topics of their choice, and to preserve interest and enjoyment. According to Chambers (1997), the PRA menu now covers sixteen categories of methods and tools[11]. Participatory inquiries and action planning have been applied most in agricultural development, the management of natural resources, people, poverty and livelihood studies, health and nutrition programs, and urban development programs.

In the water and sanitation sector, Srinivasan (1990) developed an approach that reflects the same principles as PRA, but has a different set of participatory methods and tools. Its acronym is SARAR, which stands for Self-esteem, Associative strength, Resourcefulness, Action planning and Responsibility, but because it was developed as part of a project entitled "Promotion of Women in Water and Environmental Sanitation Services" (PROWWESS), it became also known as the PROWWESS method. The methods and tools are based on insights into the ways in which adults learn (Srinivasan, 1992). As with PRA, the aim is the development of a new paradigm in which local people take charge of their own development through participatory tools and techniques for investigation, analysis, planning, and human development in which outsiders are facilitators. The methods and tools differ from PRA in that they are specific for water projects and are also suited to analyze and build personal and group attitudes, facilitate group dynamics, and encourage creativity. SARAR is tied to one sector and one program, the Water and Sanitation Program at the World Bank, which has a much broader mandate than to develop and diffuse participatory methods, and it is used less widely than PRA.

Participatory methods such as PRA have come under criticism for their limitations for policy makers and managers of large programs, their failure to preserve the proper application of underlying principles, and their methodological limitations. Limitations for policy makers and program managers concern in particular the absence of comparable statistics on outputs and results. For policy makers, such information reflects to what extent their policies have influenced reality to move into the desired direction. For program managers, they are one of the tools to check to what extent quantified objectives, and indicators through which the realization of these objectives are measured, are being achieved. Both also like to know whether there are differences in results between communities, regions, and projects and between different population groups and which specific approaches and factors might account for results and variation in results.

[11] Local analysis of secondary sources, mapping and modeling, timelines and trend and change analysis, seasonal calendars, daily time use analysis, institutional or Venn diagramming, linkage diagrams, wealth and well-being grouping and ranking, analysis of difference, matrix scoring and ranking, team contracts and interactions, shared presentations and analysis, participatory planning, budgeting and monitoring of action plans, drama and participatory video making, short-standard schedules or protocols, and on-the-spot report writing.

A quantitative database makes comparative analysis possible and does not require program managers to go through large numbers of qualitative community files or rely on external specialists for comparative research. Once a program team has been trained and a database has been established and is kept up, managers can draw upon the data directly to make particular analyses on whatever aspects and at whatever times they desire. On the lack of comparability in participatory assessments in which communities and groups choose their own subject fields, indicators, and questions, Uphoff has remarked that "This is a price we are willing to pay in order that all groups regarded the methodology as 'theirs' ". At the same time, he recognized that it would be very useful from a management perspective "to have a set of 10-15 items which the program determines are 'core activities'.... Having a common set of 'core' criteria will make the self-evaluation system somewhat less under the control of rural people themselves. But this might be an acceptable compromise to get some degree of standardization" (1988, p. 56).

Threats to proper application come from those practitioners and trainers who have acquired the methods, but have retained attitudes of superiority and arrogance towards local people and have adopted the tools, but have not changed their extractive behavior and the dominance of their own professional interests over that of local development concerns (Chambers, 1997; Guijt & Cornwall, 1995). The ritualism with which PRA is often applied and the extractive purposes of its deployment endanger the understanding of the realities of the different population groups. Assessments are increasingly carried out as some kind of ritual or a prescribed procedure without reflections on its underlying principles of what knowledge is, how it differs between people, who owns it, and how we share it. As a result, investigators that use PRA have used the methods in an extractive way not in order to know the realities of the different groups and arrive at action, but to construct their own reality and interpretations for an assignment or study for their own purposes. To a large degree, this problem stems from the too rapid, widespread, and shallow upgrading of the methodology (Blackburn & Holland, 1998) and its popularity for rapid data collection for third parties (Shah & Shah, 1995). An important factor is also the often short and superficial training in PRA as a 'bag of tricks'. Courses have been single events (some lasting no longer than two days) with inexperienced trainers. They have focused predominantly on the methods without including personal and organizational changes and have been insufficient to achieve the fundamentally different attitudes and practices of participatory development approaches (Biggs, 1995 in Woodhouse, 1998; Mukherjee, 1998).

Protagonists of positivist science have called PRA superficial pseudo-science (Guijt & Cornwall, 1995, p. 3) while, from anthropological side, it has been called "a poor substitute for in-depth social analysis" (Cornwall & Fleming, 1995, p. 8). In view of these accusations, and the continuing popularity of both social surveys and studies using participatory methods, it is surprising that there is hardly any evidence from comparing PRA studies and social surveys. Chambers refers to five studies which tested the reliability of data using both RRA/PRA methods and a conventional survey (Bernadas, 1991; Collinson, 1981; Franzel & Crawford, 1987; Inglis, 1991; Rocheleau et al., 1989), but this data is inconclusive. In three cases, the two different methods brought out the same results, but at less cost and in a shorter time for the PRA methods, while in the fourth the RRA study could identify the real problem, which had been eluded in the survey. In four of these cases, however, the same researchers carried out the two studies, and so the results may not be totally free from bias caused by cross-influences and by the researchers' own preference for participatory

methods. In the fifth case, another researcher replicated a questionnaire survey using PRA methods. Here a discrepancy between data was found, but it concerned issues "where the questionnaire survey's findings were implausible and its validity suspect" (Chambers, 1994b, p. 1258). What these implausibility and validity problems were is not explained, however.

A strong criticism from practitioners is further that, while PRA has excellent methods to explore and deal with social complexity, means to detect, and deal with, conflicting interests and social and economic subordination are not systematically contemplated (Cornwall & Fleming, 1995; Richards, 1995; Shah & Shah, 1995). Public meetings, in particular, are not suited to bring out differences in gender and poverty (Mosse, n.d.; Pottier & Orone, 1995). PRA methods are not automatically gender and poverty sensitive and special field measures, and training, are needed to mainstream these aspects (Guijt, 1993a, 1994; Guijt & Shah, 1998; Johnson & Mayoux, 1998; Mosse, 1995). Practitioners often do not realize that women have different opportunities to join in PRA activities in comparison to men. In inventory, analysis, and planning male interests and concerns may dominate the process, unless women's and men's positions, knowledge, and interests are explicitly considered and compared in training, research, and action. Gender is not a subject to be analyzed only as part of the "analysis of difference" as done by Chambers (1997, p. 118). Like poverty, it is a discriminating factor, which pervades all analysis, planning and monitoring. Hence, both are aspects that must be considered in the design and use of every tool and in all parts of the process. The same omission of gender (and poverty) as a cross-cutting aspect is present in the 1993 manual for participatory methods in water supply and sanitation produced by Srinivasan (van Wijk, 1998) and in the manual for PHAST, the Project for Health and Sanitation Transformation developed for the WHO (Wood et al., 1998). Although the use of visual methods makes participation much easier for women because these methods do not require literacy (women's literacy is still almost universally lower than that of men) and do not require them to stand up and speak in public, women, and especially poor women will not automatically attend any public gathering unless their participation is specifically accommodated. The contents of the tools also do not contain a gender perspective, and so outcomes are not gender-specific, except for those tools that deal exclusively with gender and gender relations.

Chambers has acknowledged the initial omission of gender in PRA. In his foreword to The Myth of Community, he points at inbuilt biases in the composition of groups, the time and place of meetings, women's freedom to speak out and express their own views and reductionism of collective nouns: "gender was hidden in seemingly inclusive terms: 'the people', 'the oppressed', 'the campesinos' or simply 'the community' (Guijt & Shah, 1998, p. xvii). The 1993 workshop on PRA and Gender, on which the book has been based, had already demonstrated the suitability of gender-conscious PRA approaches for dealing with issues as diverse and sensitive as female infanticide, sex education for teenagers, forestry management, local knowledge systems, and poverty in households with a single head. The workshop did not, however, present a framework for gender analysis in PRA. Section 7 of this chapter goes further into the matter.

To deal with the criticism on methodological strength, Chambers (1994b, 1997) and Pretty (1994) have presented several ways of determining the rigor of PRA research. Instead of validity, Chambers considers *trustworthiness* and *relevance* of the data. Trustworthiness depends on applying the process and methods as

intended and going back to the villagers to sort out findings that are inconsistent or do not seem to make sense. Rigor also comes from critical observation during the process and critical reflections and discussions with villagers and peers afterwards. Because information gathering and analysis are done on the spot, the researcher has the opportunity to observe the process for any signs that results may be unreliable. How research relevance accounts for rigor is less clear, but the test seems to be that the findings make sense in their context. This is not so easy to determine since facilitators cannot take into account what they do not know. PRA findings that initially cause surprise may later make sense when subsequently used tools produce information that explains the initial data. Alternatively, and as in social surveys, the data may be produced out of a desire to be polite, to represent the prevailing local social norms and values, or from fear of misuse. Trustworthiness, completeness, and accuracy are more likely when people see the relevance of a tool for knowing and analyzing their own situation and enjoy using it.

Pretty is more thorough and has given twelve ways to check whether findings from participatory appraisals can be trusted, just as statistical analyses provide the grounds for judgement in positivist social science. The engagement itself should be *intense and/or prolonged* (which in the latter case may also make PRA less rapid and more expensive). As in social surveys, there should be attention to being *representative*, not through sampling, but by involving the different stakeholder groups, to build in cross-checks in the different activities, and test credibility through parallel observations. The process must further allow for the expression and analysis of *variation*, meaning that a wide range of different actors are involved and their perspectives and realities are accurately represented. The data is subject to triangulation, that is, results are arrived at through up to three different methods and are then compared for *internal consistency*. This is done in up to three ways: (i) by repeatedly using one type of source, such as key informant interviews, with several key informants, (ii) by using different sources for the same information e.g., interviews with women and men or rich and poor and (iii) by using multiple investigators, preferably in a team, with a diversity of disciplinary, professional, and personal backgrounds. Analysis of findings will include *negative case analysis*, whereby hypotheses are worked over until one hypothesis accounts for all known cases without exception. To account for *quality of research*, peers or colleagues not directly involved in the research review methods and results. Participant checking makes it possible to learn whether the participating groups recognize the inquirers' reconstruction as a *valid representation* of their own reality. The reports should contain the working hypotheses, the descriptions of the context in which the hypotheses were tested, and the visualizations used in data collection with their information clearly laid down so that others can *trace the findings and replicate the study*. Parallel investigations by sub teams and team communications to see if findings tally will demonstrate *reliability* of the research. Reflexive journals – diaries kept on a day-to-day basis – provide a ground, and a private reference document, on which to make, and account for, *methodological decisions and interpretations*. Finally there may be an inquiry audit, in which a disinterested person or group of persons examines the process and product to confirm that the findings are *realistic* and not a figment of the inquiry team’s imagination. A demonstration of *impact* on the stakeholders’ capacity to know and act shows that the inquiries have not been not carried out for their own sake, but result in enhanced sophistication of the stakeholders and an increased understanding of possible actions. This even goes for the report: “Not only should the inquiry lead to action, but the report itself should also prompt action on the part of readers who have not been directly involved” (Pretty, 1994, p. 45).

The consequence of stricter academic quality control is that PRA becomes less rapid and requires more resources. Nevertheless, also Kock et al. (1999) and Lammerink and Wolffers (1994) stress the importance of alternative rigor tests. The latter remark, “Many researchers are not happy with participatory research”, and, “If participatory research is to play a more essential role in development research, we have to consider the fact that it has to obtain more status in order to be attractive to scientists” (1994, p. 20/21). Shah and Shah (1995) and Guijt and Cornwall (1995) give yet another reason for being less ‘rapid’: for communities to plan, act, and monitor, a longer, sustained interaction is required.

Increasing the timespan makes PRA less attractive for project management and policy makers as well as for the people in communities. The tremendous growth in the popularity of participatory methods has multiplied their use for development purposes in many sectors. The effect has been that community members have to spend more and more time on these activities, time which for the poor and women is especially scarce. Moreover, while staff or consultants’ time is paid, nobody usually compensates villagers. As with social surveys, the literature on PRA seldom reports how much time is involved when PRA is used for research, planning, and monitoring and if attempts have been made to keep time use within bonds. As the use of PRA increases and its quality goes down, Wordofa (1998) has noted the development of a PRA fatigue among villagers, which they are coming to see as time consuming, tedious, and ineffective. Lammerink and Wolffers remark that it is naive to assume that involvement alone is enough to motivate people for a longer-term commitment. They recommend “a small reward for the efforts made. The possibility may even be considered of paying participating community members, particularly if the research takes a long time” (1994, p. 84).

The use of sequencing can to some extent streamline procedures and save time, while enhancing the scope of learning, but should then also result in a summary construct. Sequencing, or the combination of individual methods and tools in a certain order, already exists in PRA. It is used to enhance “the commitment of the participants,... reveal errors or omissions in earlier presentations, ...add dimensions ... and all concerned learn through the process” (Chambers, 1994b, p. 1257). A limitation of current tools and methods, in PRA but also SARAR and PHAST, is, however, the absence of a means to aggregate the findings of individual analytical activities into a single and consolidated whole. There is no particular participatory tool or method that makes it possible to aggregate the information from a series of individual data gathering exercises, and the use of several kinds of tools, in some form of summary. Such a summary would help all stakeholders to get an overview of the roles that the various parts that they have assessed are playing in the whole that they are interested in. Sustainable and effective management of water services and sanitation programs, with continued adequate delivery to all, is quite complex as it is influenced by many processes and factors. This makes it hard for community service managers and users to turn a series of separate analyses of strength and weaknesses of service components into an overall picture and use it for the planning and monitoring of improvements. In a sequence of individual exercises, certain key concerns emerge, to which all attention and energy may go, while other aspects are overlooked which, by virtue of their strength or weakness, also contribute to the overall results. A synthesis diagram, which depicts the

interactions and presents the cumulative whole based on the previous exercises, can give such an overview, but is absent in current participatory approaches.

Such a summary should reflect the realities as experienced and agreed on by the different stakeholders, yet also make it possible to compare, and statistically test, approaches and results in the different communities and projects. It would highlight the different aspects of sustainability and use and be the product of a structured, yet still flexible sequence of participatory activities and tools with space for a mix of factual and qualitative inputs from users. The summary picture should further relate the outcomes regarding sustained and used services with local participatory processes that recognize the heterogeneity of needs and interests in communities and allow the participants to set priorities for action planning, implementation, and monitoring. The method should make it possible for staff and managers of agencies, which support the establishment of improved water services and backstop community management, to compare the performance of the communities they serve and get an idea how the outcomes relate to dynamics within the communities and to their own management systems.

3.6 The best of two worlds?

If, as indicated above, both positivism and constructivism have advantages and limitations, must a choice be made for either the one or the other? Opponents to positivism, in particular (e.g., Bell & Morse, 1999; Chambers, 1997, Guba & Lincoln, 1989; Hanlon, 1998; Pretty, 1994), consider the two epistemologies unreconcilable. According to them, accepting several realities or "thinking with people" as Hanlon (1998, p. 67) calls it, is the opposite of considering positivist research the source of truth. Others, such as Patton (1990), Thomas (1998), and Shaw (1999), are less eclectic and consider it both possible and beneficial to appreciate both epistemologies. As pragmatists, they reject any methodological orthodoxy in favor of choosing appropriate methods for the purpose of study, the questions under investigation, and the resources available. Paradigms are important at the theoretical level, but at the practical level one goes for strategic choices from the wide range. "All kinds of variations, combinations and adaptations are available for creative and practical situational responses" (Patton, 1990, p. 39). Röling goes further and points out that positivism is a sub-set of constructivism because, as a group, positivists make their own constructs of reality and so present one of the approximations of truth. He warns that placing our faith in only one positivistic interpretation of reality and not considering other approaches to truth when dealing with modern development challenges, such as sustainable development, may make us "Norsemen in Greenland". (The Norsemen in Greenland became extinct because, when the climate changed, they placed their faith for survival in religion and did not adjust their lifestyle as the Inuit seal hunters did). At the same time, he warns for too much relativism: "Relativism undermines constructivism as a useful epistemology. It is all too easy to think that every construction can be deconstructed, and that experimentation is irrelevant" (1996, p. 41). A constructivist epistemology includes the conventional one, but is not limited to it.

The epistemological basis of the MPA.

When preparing the global study, the problem emerged how to use a constructivist approach, yet meet the requirements of the World Bank's Water and Sanitation Program for statistically tested data. The answer

was sought in the reasoning that while positivism is not the only way of knowing reality, its integration in a constructivist approach is both possible and beneficial. In particular, it allows program managers to know and work with the constructs that according to different groups of staff and community groups best represent service and program realities at a given time and place. Table 4 presents the four levels of analysis of the MPA with the respective actors and uses. This is yet another way in which it differs from SARAR and PRA which do not distinguish purposively linked levels.

Table 4 Levels of analysis, actors, and purposes of use of the MPA

Level	Actors	Purposes of use
Level IV	Policy- makers	Policy adjustment based on analysis of trends.
Level III	Program Managers	Adaptive management and accounting for performance based on analysis of aggregated scoring data
Level II	Staff of implementing institutions and women and men community representatives	Analysis of program approaches and institutional characteristics resulting in agreed construct of reality; identification and planning of agency improvements.
Level I	Women and men users, non users, management committee members, and project fieldstaff	Situation and approach analysis resulting in agreed construct of current reality; identification and planning of local improvements.

In the MPA, it is assumed that, although no single reality exists, one can come sufficiently close to make decisions on policies and for program management through constructs agreed on by all stakeholders. This happens first in a participatory process at community level (Level I). At this level and that of the implementing institutions (Level II), most of the constructivist elements are found.

In the communities, not external researchers, but women and men community members construct what it means to be ‘poor’ and ‘non-poor’ and classify all households in their community according to these criteria. Special care is taken to avoid that the local elite dominates definitions. In separate meetings with all stakeholder groups (better and worse off women and men, non-user households, and male and female members of the local service management organizations), community members determine with the help of participatory tools what according to them the situation in their community is with regard to the sustainability, use, and demand responsiveness of the domestic water service. They also determine with what past and current participation of women and men they have achieved the current results.

Opinions of the field staff and external specialists play a role in, e.g., assessing the achieved technical quality of the works, but only to complement local knowledge and experiences (the users themselves point out quite different technical problems than engineers). In a final meeting, the groups determine whether the overall picture is an acceptable construct of reality at that time and place and discuss meaning and action.

Level II in the MPA is the institutional level. This is the level of the agencies that help communities the local water projects. At this level, the participants determine with what underlying organizational and policy approaches to sustainability, use, gender and poverty sensitive participation and responsiveness to demands the community outcomes were achieved. The participants are again those who directly experience implementation: the fieldstaff from the agencies and representatives from the study communities, usually the female and male members of the local water management committees. As in the communities, the

groups use participatory methods to arrive at a consensus about which constructs best represent the institutional characteristics.

The local groups are not free in what they assess, however. To make it possible to aggregate, analyze, and compare findings at higher levels, the researchers that developed the MPA chose the common variables, indicators, PRA methods, and scoring scales which the stakeholder groups use in their evaluation. These choices have been based on the existing theory and studies that were reviewed in Chapter 2 and have been presented in Chapter 4. The ultimate choices, however, were made in a constructivist manner through peer review and consensus, as set out in detail in Section 5.4.

Nevertheless, participating stakeholder groups are not totally tied down by these choices. On the scales, they may opt for scores that lie in-between those defined by the external researchers, if they feel that this represents their local reality better. They may also identify other factors that play an additional role or are of greater relevance in their particular circumstances. Stakeholder groups may further choose not to give a consensus score, but to give different sub-scores, although in the end analysis averages have been used.

At the two upper levels, the elements that are attractive to positivists prevail. At the program level (level III), statisticians or program managers with skills in non-parametric statistics may analyze the agreed scores for the kind of information that they require (analysis of frequencies, correlation, tests of significance, etc.). This is done with the help of existing software packages such as Excel and the Statistical Package for the Social Sciences (SPSS). They may use the outcomes for adaptive management, to establish a cumulative database, and to present their analyses to others as per their requirements concerning topics and form (graphs, tables, etc.). They may also incorporate the database into geographic information systems (GIS) and management information systems (MIS). Data from one or several large programs may further be used for analyzing the effectiveness of program approaches and to adjust programs and policies. This has for example been done in Indonesia, where an early MPA version served to compare the approaches and results of two major government programs supported by, respectively, UNICEF and AusAID (RWSG, 1998, 1999). At the same time, the community-specific qualitative information remains available for analysis in the individual community files, provided the facilitators have carefully recorded the activities and results.

In the MPA, positivist interpretation of reality is thus a sub-set of a constructivist approach to knowledge development. By using participatory methods with different stakeholder groups and by following a process whereby, as in Guba's and Lincoln's method and in PRA, every exercise adds to, or corrects the total picture, it is held that is possible to arrive, in a limited time, at a sufficiently comprehensive and valid approximation of reality at the time of study for action planning and policy making.

It is further held that reductionism, or a focus on only certain ‘reduced’ aspects of reality (because external researchers and peers made the choices on what common realities should be know and how), is acceptable when *all* stakeholders share an interest in collecting specific information with limited funds and time and when they get the possibility to add or deviate. Moreover, when carried out in a participatory manner with stakeholder groups identified for representativeness, a wider and for constructivists better construct of

reality emerges than when only outsiders are involved. However, findings from such a more narrowly defined inquiry have limitations and, from a positivist viewpoint, outcomes are indications of trends and not causal relationships.

Hard core constructivists may have as a further objection that the theories which are the background to the MPA cannot be used because they stem from positivistic research. However, on this point a number of qualifying comments may be made. As was seen in Chapter 2 with regard to the linkages between sustainability, participation, gender, and response to demand, the search for statistical proof emerged mainly due to demand for such proof from economists in multilateral development organizations such as the World Bank and the OECD. Statistical proof, such as it is, came much later than the proof from field experience and case reports. The theories that emerged out of these experiences can be seen as large constructs in themselves, because consensus has been built up through dialogue between those working in water projects in the field and academics. Furthermore, all theories that try to explain social reality stem from a position of involvement, which is another principle of constructivism. The people who build up social theory through positivist research also continuously add to and distract from the picture, using the same dialectic process that Guba and Lincoln use in their methodology. Shaw calls this “we embody knowledge as who and what we are” (1999, p. 49). So social theory is per definition a series of constructs that are not value free, because we cannot exclude our own history and background as human beings when we draw conclusions on reality. The aim of this knowledge is practical use, which is what constructivists also aim at.

From this whole process emerges not absolute truth, but certain trends, indications of how reality is shaping. These are counteracted, change and sometimes disappear again and always have many variations and exceptions. Policies are reactions to information about these trends. They fix courses of actions adopted by governments and in programs for a period of time. Outcomes of evaluations are one - but not the only - source of knowledge for making policies. In policy decisions, there is not one moment and instrument of adoption, but a series of small steps in which policy makers and program managers gradually absorb information from inquiries and other sources. Nor are policy makers and their organizations value-free. “They tend to believe in a set of values and even in particular methods of work” (Weiss, 1972, p. 115). Policies are constructs as well.

From the above, it can be concluded that the sought compromise differs from constructivist social research in a couple of points which the fundamentalists among them will reject, namely the selection by outsiders of a set of core indicators, the use of statistical tests, and the absence of other stakeholders in the interpretation of the findings at the global level. At the same time, it seeks to involve all stakeholders in knowledge gathering, analysis, and interpretation, leaves room for other than communal factors in explaining local results, and allows following up local analysis with local action. The use of statistical analysis is limited to the country and global level to meet the demand of policy makers and program managers for statistical data which they can use for adaptive management and policy recommendations and to account for achievements from the investments made. Managers and program staff cannot themselves use hundreds of PRA community files for these purposes, but figures which represent the combined constructs of the researchers and stakeholder groups, make such uses possible.

Building blocks for developing the new methodology.

In the past, methodologies grounded in constructivism such as PRA have already generated numerical and otherwise comparable information. Both qualitative and quantitative PRA data have, for example, been used to arrive at comparable summaries of conditions of the food and nutrition insecure (Chambers, 1994c, 1997). It is this kind of data base that was needed for the global study and that is interesting for program and country managers who favor the use of participatory analysis at the community level, but cannot cope with large numbers of summary profiles of individual communities. A methodology for such purposes did not yet exist.

In the drinking water supply sector, a basis for a combined approach to evaluation existed in the Minimum Evaluation Procedure (MEP) and the SARAR participatory evaluation toolkit. The MEP was developed by the London School of Hygiene and Tropical Medicine for the World Health Organization in 1983 to globally assess water services and latrine projects and continues to be used today. Its aim is to provide structured learning through the assessment, by outsiders, of installed drinking water services, then to use the lessons for corrective action, and to improve planning by the water and sanitation agencies, rather than communities. For reasons of objectivity, the MEP recommends that the evaluator is a person familiar with the project, but without having been so closely involved that the evaluation may be biased. This approach is typical for a positivistic approach to research. The focus of the evaluation is the technical functioning of the water supply and sanitation facilities, the functioning of the hygiene education program, and the resulting patterns of water use and hygiene.

The non-participatory character of the MEP, in team composition as well as methods, and the absence of the requirement that an evaluation team be composed of people with a mixture of disciplines, professions, and sex, limit its value as an evaluation and learning tool. In more recent uses, the MEP has sometimes been modified on these counts. Multidisciplinary teams that consisted of male and female community members, project staff, and outside professionals, for example, have carried out an evaluation in Honduras (Visscher et al., 1996). The evaluation also used participatory methods and tools. It was argued that a participatory evaluation gives a more in-depth insight into reality and that the objective of such evaluations is two-way learning, that is, all participating parties learn from the evaluation and not just the evaluators The Minimum Evaluation Procedure methodology itself has never been adjusted, however.

A strength of the MEP is that the procedure covers both technical and behavioral aspects. This combination was introduced at a time when it was not yet commonly recognized that the success of water supply and sanitation systems lies not only in the quality of the technical design, construction, and system functionality, but also in how generally and hygienically they are used. The MEP procedure is highly structured and has a limited number of seventeen key indicators (Table 5). A further strength is that the MEP recognizes that hygiene education is only relevant in combination with nearby and reliably functioning water supplies that deliver enough good quality water and with latrines that are affordable, culturally acceptable, and functional.

Table 5 Indicators for evaluating water supply, sanitation, and hygiene programs in the MEP

Variables and sub-sector		Indicators
FUNCTIONING	Water supply	W1 Water quantity sufficient to meet requirements (as calculated by the evaluator) W2 Water quality meeting WHO norms and users' taste/smell/color criteria W3 Service reliability in terms of frequency and duration of interruptions W4 Convenience of water points in terms of distribution of physical distances to households on drawings, maps or aerial photographs (as judged by the evaluator)
	Sanitation	S1 Proportion of households that have improved latrines S2 Observed hygiene of latrines S3 Functionality of latrines
	Hygiene education	E1 Understanding the language of the message E2 Understanding the content of the message E3 Access to the messages E4 Face to face contact with educators
USE	Water supply	W5 Proportion of households using the water facilities W6 Volume and purposes of water used
	Sanitation	S4 Proportion of people using the facilities
	Hygiene education	E5 Water storage habits E6 Handwashing after defecation E7 Knowledge of oral dehydration

Limitations of the MEP are a focus on hygiene education aspects (message giving) that have a low relevance and are almost totally gender-blind and the omission of the evaluation of the process with which results have been achieved. The indicators that the MEP gives for evaluating hygiene education are representative for the conventional, one-way teaching forms of health education, which are not very effective (van Wijk & Murre, 1995). They also include only one gender consideration, namely that women are often less literate than men and more often speak only their indigenous language. Field evaluation is furthermore restricted to functional results. Data on project inputs and strategies are obtained through a desk study. In the field, the procedure does not include the assessment of local community processes in establishing and managing the water service or sanitation program and it does not relate these to the local performance achieved. Nor does it look into the ways in which women and men community members have been and are involved in these processes and, apart from cases where poverty may be a reason for not owning a sanitary latrine, the procedure does not explicitly evaluate nonusers in comparison with users. Institutional characteristics, strategies, and work styles of the implementing agencies are also not included.

Ten years later, the World Bank published a new set of global methods for evaluating water supply and sanitation projects (Narayan, 1993). The set was based on earlier documents developed in the PROWWESS project (Narayan, 1987, 1990). As in the MEP, evaluation is defined as "a systematic way of learning from experience and drawing from lessons to correct and improve ongoing and future activities"(1990, p. 2). However, in distinction to the MEP, the methods are participatory and the recommended evaluation team consists of community members, project staff, and one or more outside specialists.

The case-by-case participatory planning of evaluations in Narayan's methodology has both advantages and disadvantages. The role of the outsider is to facilitate shared decision-making on all aspects of the evaluation. However, and different from PRA methods where they are not expected to contribute content expertise, Narayan expects the facilitators to also bring in their content expertise so that in the process external knowledge is merged with local experience and indigenous knowledge systems. The methodology thus shares the perspective of constructivists that greater (though not absolute) truth and more action come

from combining internal and external knowledge. The entire gamut of methods presented serves to evaluate water supply and sanitation projects on three major variables: service sustainability, effective use of the facilities, and replicability of the project. There is no set planning and implementation procedure as is the case with the MEP. Instead, and similar to PRA, teams design and plan their own evaluations. For this, they can choose from a framework with 33 indicators and a large number of methods (Table 6). Because most of the indicators are not directly measurable, each indicator has been given several measurable sub-indicators. These sub-indicators have been added in brackets in the table and, when specified for actors, functions, and seasons, add up to over 130.

Table 6 Variables and indicators for evaluating water and sanitation projects according to Narayan

(Sub) variables		Indicators and sub-indicators
SUSTAINABILITY	S1 Reliability of water systems	Quality of water at source [1. total number with acceptable quality; 2. increase in number of sources; 3. % population with access to safe water] Number of facilities in working order [1. increased number of functioning water points, toilets, 2. year-round production of enough water to meet existing and projected demand, 3. % population with access to waterpoints, 4. cultural and technical acceptability of toilets] Maintenance [1. incentives, commitment, resources, knowledge and skills for maintenance present in households, communities and agency; 2. private sector or government backup system in place; total number of functioning systems over time; decrease in frequency of breakdowns; decrease in down-time of broken water points/toilets]
	S2 Human capacity development	Management abilities [1. the extent to which community members initiated the project; 2. the degree of shared decision-making ; 3. mode of decision-making on twelve key points] Knowledge and skills [women and men: 1. have organized for change; 2. know changes in water/sanitation situation, 3. understand management rule, 4. have needed technical skills, 5. show capacity for corrective action, 6. new developments organized, financed, implemented] Confidence/self concept [men & women 1. see self as skilled and competent, 2. show evidence of initiative, 3. male perceptions on women, 4. emergence of new male and female leadership]
	S3 Local institutional capacity	Autonomy [1. support agencies and communities autonomous on budgets, goals, procedures, staff, training, 2. communities free from external interference] Supportive leadership [1. shared visions, 2. open management style, 3. team spirit, 4. function holders know individual roles; 5. function holders are relatively autonomous] Systems for learning and problem solving [1. two way information flow between communities and agency, 2. new resources generated; 3. conflicts resolved; 4. group/agency is self-critical]
	S4 Cost sharing and unit costs	Community contribution [resources for 1. maintenance 2. repair 3. expansion 4. replacement] Agency contribution [external subsidy arriving 1. smoothly and 2. timely] Unit costs [1. capital costs reasonable, 2. affordable, 3. in- or decreasing]
	S5 Collaborating organizations	Planning [1.agencies, staff know each others work, 2. value and seek collaboration] Activities [1. evidence of collaboration in planning and implementation]
EFFECTIVE USE	E1 Optimal use	Number and characteristics of users [1. number of users per facility; 2. characteristics of users and non-users; 3. reasons for (non) use] Quantity of water used [1. total lpcd used 2. constant increase or decrease, 3. quantities of water used for each purpose, 4. changes in quantities used, with reasons] Time use [1. average time/trip for women, men, children 2. number of trips by each per day, 3. time saved and reasons in case of no saving] Management of water resources [1. rules developed, 2. rules used 3. watershed protected]
	E2 Hygienic use	Water quality [E-coli count/smell/taste/turbidity/chemicals at drawing; transport; storing; drinking] Water transport and storage [1. condition of containers and ladles; 2. presence of covers; 3. place of storage and child/animal access; 4. touching by hands/objects] Home treatment practices[1.sedimentation/filtration, 2. chemical treatment, 3. heating/boiling] Site and home cleanliness [1. excreta disposal, 2. solid waste/waste water disposal, 3. animals present, (un)fenced, 4. vectors, rodents present] Personal hygiene practices [1. hand washing, 2. handling infant feces, 3. body cleaning
	E3 Consistent Use	Pattern of daily use [1. safe water used consistently for drinking/cooking/bathing/washing; 2. improved toilets consistently used by women/children/men] Pattern of seasonal use [sub-indicators the same as above)
REPLICABILITY	R1 Service Expansion	Additional water/latrine facilities built [1. number of newly built facilities] Upgraded facilities [1. number of existing facilities upgraded] New developments initiated [1. number of new activities 2. type of new activities]
	R2 Transferability of agency strategies	Proportion and role of specialized staff [1.% and 2. dependency on temporary specialists] Established institutional framework [1. implementation by a regular or temporary organization] Budget size and sheltering [1. budget size 2. budget for special purpose 3. budget is protected] Documented administrative/implementation procedures [1. clear, 2. simply documented] Other special/unique conditions [1. presence of other conditions that may prevent replication]

As with PRA, lengthy preparation time and low comparability make the methodology less attractive to managers of large programs and also has disadvantages for villagers. On the other hand, self-planning

allows the use of indigenous knowledge and contributes to the sense of identification of communities and project staff with the evaluation and its outcomes. One can nevertheless question to what extent a balance of influence between villagers and outsiders is possible when the latter, and not the former, possess the bulk of knowledge about choosing indicators and sub-indicators, and about methods. True participatory decision making is then only possible when all of the ins and outs of options are discussed. The value of two-way learning and ownership that emerge from such joint design may not sufficiently outweigh the extra demands that such a process places on time, costs, and delays in results, factors that justified the rejection of survey methods in the first place. Moreover, learning and ownership come from analysis of the findings produced by each participatory exercise, as well as from an aggregated summary and from action planning on the basis of the outcomes.

A pre-planned procedure, which retains the combination of social, process, and institutional indicators, integrates gender and class aspects, and preserves participatory approaches, but with if possible fewer indicators would combine the strengths of the MEP with the use of participatory methods and the analysis of community processes and agency factors as initiated by Narayan.

4 Gender and poverty perspectives in sustainability analysis

> *All people are equal, but some people are more equal than others*
> *(*Adapted from George Orwell, Animal farm: A fairy story. London: Secker & Warburg, 1945*)*

4.1 Introduction

The adoption of a constructivist approach to the assessment of community water services makes gender and poverty perspectives imperative. Although socio-cultural factors such as religion, caste, and ethnicity and physical factors such as climate have their own local importance, sex and socio-economic status influence people's needs, practices, and experiences in all environments. They affect the amounts of water that different groups collect, the purposes of their use, the drudgery involved, and the access to, control over and benefits from improvements. Overlooking gender and poverty perspectives leads to all kinds of problems as was seen in Section 2.5. Despite the importance of gender and poverty perspectives, their analysis is, however, not routinely included in large water programs. Rather than seeking to continue such analysis as a separate activity, the MPA combines gender and poverty analysis with sustainability analysis.

Over time, several theories have been developed that seek to explain gender relations and the meaning of development for women. They are briefly reviewed in this chapter in order to clarify how the gender relations analyzed in the MPA fit into the history and current debate on women and development. Of the other social differences, those in socio-economic class should be included in any constructivist approach in any case because even in ethnically and religiously homogenous communities there are usually groups of women and men who economically and/or socially have a higher or lower position than others.

4.2 Feminist epistemology and the integration of gender realities

One would expect that especially methodologies grounded in a constructivist epistemology are gender-specific, but this has not been the case. When the distinction between sex and gender was introduced, it was initially as analytical tool to distinguish between biologically and socially determined differences between women and men. However, "concepts are also means to construct reality" (Mies, 1986, p. 23). Feminist epistemologies or 'women's ways of knowing', 'women's experience' or 'women's knowledge' have nevertheless been alien to theories of knowledge (Alcoff & Potter, 1993).

Positivist feminist researchers began to call attention to the gender blindness of knowledge. They criticized the failure of conventional research to recognize that, as objects of research, women and men are not the same as researchers assumed in investigations on 'adults', 'children', 'heads' or 'members of households', 'members of committees', 'villagers' or 'the poor', and pointed out that male and female positions, practices, and experiences differ within and across households, social groups, and societies. When, as Code helpfully puts it, epistemology means investigating what it means to state that "*S* knows that *p*" (1993, p. 15), positivist feminist researchers made it clear that for the knower *S* (which for them is the researcher) it

is crucial to distinguish whether the known *p* is a woman or a man or is something known, owned, believed or practiced by a woman or a man within the social groups that are considered.

As proponents of "feminist empiricism" (Harding, 1993, p. 52), they saw as a major problem in research that researchers (who are often men) have assumed that experience is gender-neutral and that it makes no difference for a particular topic whether what is known originates with a woman or a man. Alvesson and Due Billing (1997) call this understanding gender as a variable: the researchers investigate women's (and men's) position, values, attitudes, and behavior as separate categories. Research questions asked are, for example: Do women differ from men, and if so, in what respects, under what circumstances, and to what effects? What differences do women make? To know the answers, they add a male/female distinction to the research instruments (often a social survey) and analyze results for the two groups separately to better understand social phenomena.

Constructivist feminist epistemologists go further: in "*S* knows that *p*" it makes a difference not only who *p* is or to whom *p* is known, but also who and what *S* is. In other words, how a researcher (or any other individual) knows something depends not only on what scientific methods one uses, but also on who and what one is as a researcher and a person, in terms of sex, race, socio-economic status, marital status, culture one lives in, etc. Even though one can try, it is never fully possible to exclude the influences of these characteristics; what one investigates and on the basis of what assumptions is a product of one's time, place, experiences and outlook. Consequently, the questions and responses that a gender researcher representing a particular culture and class formulates in, for example, survey research may not be appropriate to the actual experiences and meanings of the research subjects, but reflect the researcher's expectations (Alvesson & Due Billing, 1997). Constructivism and subjectivism (that is, every person or group constructs its own reality; there is not one objective truth) are, however, not the same as *relativism* or the belief that there are so many and equally valid truths that the one is no better than the other. Although there is no absolute objectivity, there is no absolute subjectivity either. Maximization of objectivity is possible through a participatory approach in which the group that is known (the object of research) is also the interpreter of how its reality should be known (Harding, 1993). Both Bar On (1993) and Longino (1993) reject, however, that only the members of the researched groups can interpret their reality and that others can never make sense of their situation the way they can do themselves. Women from disadvantaged groups, for example, are not necessarily the *only* ones who can know their reality as women, because they also have many other identities which determine what they experience and will express. However, they do have a fundamental right in influencing themselves what is known about them.

The finding that women and women's realities have not been systematically recognized as objects and subjects of knowledge also applies to evaluation methodologies of domestic water services. As mentioned in the previous section, gender is almost totally absent from the MEP. Narayan (1993) in her approach urges drinking water and sanitation services evaluations to make special efforts to include women in the evaluation process, but she does not offer a systematic strategy to get to know gender relations. In her methodology, and as shown in Table 6, she limits 'gender as a variable' to two groups of indicators. The first concerns the use of latrines, in which the data is to be disaggregated by sex to bring out differences in

latrine use by women and men. Two sub-indicators on human capacity development also have a gender perspective. The first one establishes to which degree both sexes have gained new knowledge and skills. The second one asks women and men to give separate scores on experienced changes in male/female leadership and in self-confidence. Men also score their attitudes on women's participation in the past and at present. In her methodology, gender is, however, not structurally included and there is no evidence of an underlying gender theory on which she bases her choices and definitions of indicators. Collection of time data, for example, is recommended from the perspective of achieving a universal use of improved facilities and not from a gender perspective. Narayan advises to collect data on the time taken for a round-trip journey, waiting, and use and to assess time savings as a result of using improved facilities, but the reason is that when walking distances and waiting time are long and convenience is low, non-use of water supply facilities and latrines increases. However, such time data collection is also important to assess gender impacts. It allows the assessment of whether the absolute time and energy for water collection and waste disposal have been reduced and whether such changes have influenced household collection patterns and, if so, with what effects. When new waterpoints become available at a closer distance, for example, women do not save time when they decide to increase the number of trips and collect more water for hygiene, or when men stop helping with water collection. And, if women do save time and energy, can they use these gains as they wish or do male relatives tell them what to do? Time gains have sometimes gone into extra agricultural work, from which women do not get the proceeds (van Wijk, 1985). However, such time use studies are not simple (Engle & Butz, 1981). The detailed collection of time data presupposes further that the same data is available from a baseline before project implementation. Most projects will not have collected such data, in which case it is more realistic to simply assess perceived changes using a participatory tool.

Any methodology that evaluates water services should give men and women equal chances to have their experiences known and have an identified gender strategy as a stimulus, and not a straightjacket, for knowing local realities. It cannot limit gender to some aspects, but will have to consider the gender perspective of the whole process and of every indicator and method. For the integration of gender aspects, it is possible to build on existing approaches and frameworks for gender analysis and their links with the wider political debate. In the next paragraphs, an overview is given of the various perspectives on women and gender in development, their links with the wider political debate, and their reflection in gender analysis frameworks. These theories formed the background against which the gender analysis framework in the MPA has been designed. It is also shown why such analyses have not yet been routinely integrated into the planning and evaluation of domestic water services.

4.3 Women, development, and socio-political gender theories

When development policy makers and agents first 'discovered' women, they viewed them exclusively in their roles as mothers and housekeepers (the *'welfare' approach).* The limited perspective of donor agencies on what women (should) do resulted in separate projects or project components for women. They aimed at making women better housekeepers and mothers through classes in home economics, nutrition, and hygiene and by improving mother's childcare. Because the economic value of such projects was considered to be low, they had low priority and were under-resourced. Kabeer (1994) refers to Moser (1989) when she puts

the origin of the welfare approach in the notions about social welfare and the existence of social welfare laws and programs for the poor in nineteenth century Europe. Given the large time gap, it seems more likely that this perspective was a product of the ideals and norms that middle class men (and the few women) working in what was then called development aid, had about women and women's work. The women in their own culture and social class were housewives, mothers, and homemakers and not peasants, field laborers, and factory workers. These ethnocentric experiences and ideas about what women are and should be became their frame of reference in development planning and implementation.

Kabeer describes how the welfare approach evolved into the *efficiency approach* under the forces of neo-liberalism and the need to recover Third World debts from loans that the First World had so freely provided. The free market economy was seen as the most efficient route to economic and social development for all. At the time, Boserup (1970) had just shown that many rural women were underutilized producers. After education and training, these women might help pay the debts through their contribution to national productivity. Domestic water supply projects did not recognize this productive side of women's work, in spite of women's productive use of water and time described in Chapter 2. In over thirty years' work of the author with a very large number of rural water supply projects in Africa, South and Southeast Asia and South America, almost all domestic rural water supply projects concerned have had objectives of improving public health and living conditions. They seldom had objectives related to poor women's economic development. This has even been the case in drought areas where water and time gains from an improved domestic water supply are often very substantial. This is not to say that there was at the time not some movement towards a greater efficiency within domestic rural water supply projects. As seen in Chapter 2, the free or highly subsidized services built with little or no participation under the basic needs strategy of the 1970's had become unsustainable and many projects began to ask for contributions in cash and labor from future user households for construction or at least for operation and maintenance. Men and women contributed in forms which depended on the gender patterns of labor in their culture. Men generally contributed labor and cash. Women's contributions ranged from food contribution to transport of materials, digging, and cash payments from own income and in operation and maintenance often consisted of voluntary labor for preventive maintenance. When the value of such contributions was assessed, it was done without sex disaggregation, however (IRC, 1988).

Kabeer's conclusion that neither the welfare nor the efficiency approach have led to real progress for women certainly holds true for many water projects. The welfare approach in water projects led to separate home economics and hygiene education components for women. Despite their management and decision-making roles in water and health, these women seldom participated in decisions about the new water service with the result that the new service often did not meet their needs and many women rejected its use for very sound reasons (Hannan, 2000b; Morgan, 1994). The welfare approach also had differential benefits among the women themselves. Often, women with less restrictive gender relations within their households and communities and women in better economic circumstances were better able to take part and benefit. Poor women had no time or were socially not able to participate and when they did participate, it was economically difficult for them to practice the promoted improvements. Physical work from women to reduce the construction and maintenance costs and enhance the efficiency of the external projects increased

women's work burden, but did not always give them a greater control over the functioning of the service (van Wijk, 1998).

In more general terms, Kabeer's statement on the lack of benefits for women can be qualified in several ways. First, this conclusion is overly general, since the situation differs between countries as UNDP's Gender Development Index (GDI) and Gender Empowerment Measure (GEM) show[12]. Secondly, the situation is not the same for all women. Countries in the South have their own well-educated middle class working women who earn their own living. Through a greater diversification and stratification, neo-liberalism has benefited *some* women. However, large groups of people in the bottom strata do not benefit from market liberalism and many of them have become the chronically poor. Overall, poverty is affecting more women than men: 70% of the 1.25 billion people in the world who live in poverty are women (Goutier, 1995) and among poor households, those headed by single women are overrepresented (UNDP, 1990). Hannan (2000a) warns, however, against the tendency to limit gender concerns to specific groups. A focus on single women overlooks that not all such women are poor and that also in better-off households gender relations often restrict women's access to resources. Narrowing gender concerns to poor women only is a hindrance to addressing gender inequalities and to the reduction of poverty.

In the water sector, domestic water projects adopted people's participation (including participation of women) first to enhance the efficiency and later the effectiveness of domestic water services. Voluntary labor by the beneficiaries was introduced to reduce construction cost and make it possible to serve more people with the available funding (White, 1981). As mentioned above, women have often contributed a major part of this labor, especially in Africa (Getecha, 1981; Haile, 1981; Mlama, 1994; Mokohoane, n.d.). A study in Kenya of 311 self-help projects found that 41% of contributors were women, and that they contributed most of the labor, 5,000 hours in two water projects alone. In contrast, only 6-7% of the leaders were women (Mbithi & Rasmussen, 1977). When it became clear that, in the short run, self-help labor brought cost savings, but did not lead to sustained functioning and use, projects adopted more participation in design, maintenance, and management for the longer-term effectiveness of the services. The benefits of a gender approach in participation for effectiveness have been widely documented and are reported in, e.g., an abstract journal (IRC, 1991-1999) and literature reviews (van Wijk, 1985, 1998). More effective services emerged especially through the participation of women in planning decisions and in management and from work in maintenance and construction and resulted in meeting practical and strategic gender interests of women such as better facilities, a more respected position in household and community, greater mobility, more income, etc.

The downside of efficiency and effectiveness approaches emerges when gender equality is looked at. Women participated in domestic water supply projects to lower costs for governments and to achieve more effective services, but work, remuneration, control, and resources have often been unequally divided, with

[12] The GDI make inequalities visible between life expectancies, education and incomes of women and men as categories of individuals, as compared by country, but irrespective of class, religion and other characteristics that also influence the gender position of women and men. The GEM shows the impacts of politics, and professions.

women getting less training and paid positions than men and doing more of the unskilled voluntary work involved in construction, maintenance and management. A gender equity strategy looks at how roles, resources, and benefits are divided between women *and men* and challenges the inequalities therein. It was pursued during the United Nation's Women's Decade (1976-1985), but in some spheres has found little acceptance. A World Bank report states, for example, that the main argument is economics, and not equity:

> In addressing the needs of women, a donor organization such as the World Bank must be sensitive to the prevailing social and cultural factors in its member countries. This can best be done by focusing on strong economic arguments showing that women can and must play a full role in the economic development of their countries (1994b, p. 15).

A more recent strategy document (World Bank, 2001) points out that economic development and the adoption of market economies alone are not sufficient to reduce the high social and economic cost of gender inequalities to society and to women themselves: organizations, law, politics, and gender relations in households must change as well. The strategy document lists several legal and political measures as ways to improve the situation of women. Nevertheless, most measures mentioned, whether they concern the reform and strengthening of application of national laws, the fostering of market economies and price mechanisms or better infrastructure for water supply, transport and fuel, aim at improving the economic position of women and girls. Only the goal of strengthening women's political voice and participation does not have an explicit economic aim. Such neo-liberal strategies do not, however, acknowledge structural differences between women and the influence of social and economic factors that explain why some groups of women are per definition in a worse position than others. Nor do they mention the conscientization and organization of such women or a redistribution of labor between women and men within households as possible strategies for improvement.

Feminist structuralists disagree with the idea that all women can improve their position when economic and institutional constraints are reduced through external measures. In their perception, gender inequalities arise not only from the interaction between low economic development and the lower access of individual women and girls to good nutrition, education, health care, credit, agricultural extension, paid work, etc., but also from more structural inequalities as discussed below. Better economic development and better chances for individual women through less restraining institutions and better education and health care will not end discrimination (Alvesson & Due Billing, 1997; Luz Padilla et al., 1987; León de Leal, 1987; Mitra, 1985).

Which other factors play a role and how inequalities are reduced depends on the particular socio-political perspectives on gender and gender relations. For *early Marxist feminists*, the fundamental structural inequality is one of class, not of gender. Poor women and men are both exploited as cheap labor. When the poor change their position by uniting and getting control over the means of production, it was assumed that gender relations would automatically become more equal. *Dependency theorists* added a domestic angle to this theory. They pointed out that many women do not or only seasonally work outside the home and that male industrialists, landowners, and workers all depend on this unpaid domestic labor to preserve their positions. For them, women's disadvantaged situation stems from a combination of class inequalities for

men at work and gender inequalities in the home, where male workers will oppress women because they themselves are oppressed. When class oppression ends, domestic oppression will also be reduced. In the political theory of *global capitalist patriarchy*, women's subordinated position stems from a combination of the system of patriarchy, which has always existed, with the more modern development of capitalism. Patriarchy originally meant the rule of fathers, but over time it has grown to include the rule of other men over women: "of husbands, of male bosses, of ruling men in most societal institutions, in politics and economics, in short, what has been called 'the men's league' or 'men's house"(Mies, 1986, p. 37). Yet, patriarchal gender relations are not the only explanation for they can only survive because, in a capitalist system, men can profit from the unpaid reproductive work of women within the home and their unpaid and low-paid work outside the home. In its turn, the capitalistic system depends for its continuity on patriarchal gender relations. Its goal, the never-ending accumulation of capital by using the surplus of cheap labor, would not be achieved if men could not coerce women in the South and the North to work as cheap labor or if women, as unpaid housewives, would not buy the products of such cheap labor. Patriarchy and capitalism are two sides of the same coin (Mies, 1984).

The *Subordination of Women Group* did not agree that a single worldwide system explains all gender inequalities. The group emphasized that women and men have very similar biological characteristics and needs, and differ only in the few functions related to reproduction. The many other differences are not tied to a particular political and economic system and are not created, as Mies holds, only by coercion, but by many different social mechanisms (IDS, 1995; Chitsike, 1995). Social and economic positions are important and shape gender relations differently, that is, male-female divisions in work, rights, resources, etc. are different in the different social and economic strata: women, though often disadvantaged, do not have same disadvantaged positions everywhere. Beyond class and gender, and depending on the particular society, there are, however, many other social characteristics that determine that members of one group are structurally subordinated to another, e.g. one's race, membership in certain castes, ethnic and religious groups, one's marital status, whether one is circumcised or not, etc. For those who see gender as a specific aspect of all hierarchically constructed social relations, the position of individual women depends as much on the forces which determine the hierarchical position of the socio-economic group that their families belong to as on gender. People do not choose these social and gender positions, they are borne into them (positions are originally ascribed, not achieved).

The presence of structural constraints does not mean that individuals and groups cannot improve their situation through their own efforts as well as through supportive external measures. In doing so they are, however, hampered by social institutions, or long established customs, practices, and rules in households, organizations, communities, and the society at large. Institutions help preserve inequalities because people grow up with them and, through socialization processes, each learns to behave in the ways that society and the groups they belong to prescribe. Consequently, they come to accept inequalities as given and are not conscious of the fact that these are constructed and changeable. Moreover, those who are in advantageous positions can hide behind these institutions to avoid any change that may reduce their economic and social advantages and power (Kabeer, 1994).

Women's development thus depends on more equitable gender as well as class relations and on the elimination of discrimination based on other factors, which may be more locally specific, such as marital status, caste, and membership of religious and ethnic minorities. Emancipation is enhanced by what Kabeer calls the 'power within' (1994, p. 245) and which others (such as Marx and Freire, for example) call consciousness. Gender consciousness is the awareness that problems that appear to be individual are actually shared by many women who are in the same position, are socially constructed, and can be changed for the better. Improvements are facilitated when those affected negatively, in this case women or certain categories of women, such as poor women, women migrants, women heads of households, etc. unite around their shared interest and, together with people who support them (who may also be men), organize for concerted action. Kabeer calls this 'the power with' (p. 253). 'Power within' and 'power with' together contribute to 'power over', that is, having a voice in which issues are put on the agenda and 'power to' or power to make own choices. According to Kabeer, especially Third World women's organizations with long-term grassroots programs with poor women help them achieve these four dimensions of empowerment, but other organizations and approaches may well have similar effects.

4.4 Gender analysis and gender mainstreaming

While some social scientists have developed political-economic explanations of gender disparities, others have worked on frameworks and tools to analyze gender relations in projects and organizations. The gender analysis frameworks that are most widely known, due to their adoption by bilateral and multilateral donor agencies, are those of Overholt et al. (1984), also known as the Harvard Analytical Framework, and of Moser (1993). More recently, also frameworks to analyze gender at the policy and organizational level have appeared (Levy, 1996; Macdonald et al., 1997; van den Oever, 1994).

Used on their own, these tools, the gender policies, and the large amount of studies on women have not led to the general mainstreaming of gender equality approaches in large water programs and in methodologies for their evaluation. All evaluations of major bilaterally supported water programs reported in Chapter 2 mentioned problems with making participation, and participation of women, an adopted procedure in national water programs, but while some evaluations mention gender, none included a full gender analysis. Reports on the work of multilateral organizations such as the EC, the World Bank and UNICEF show a similar reluctance to mainstream gender in large water programs (CSD, 1998; Stackhouse, 1996; Woroniuk, 1998; UNICEF, 2000; Versteijlen, 1991). In the previous chapter, the absence of a gender perspective in evaluation methodologies for the water sector was also commented upon.

'Mainstream' has been defined as "an inter-related set of dominant ideas, values, practices, institutions and organizations that determine 'who gets what' within a society" (Schalkwyk et al., 1996, quoted in Innes, 2000, p. 5). To Karl, mainstreaming is simply to "bring women from the margins into the centre of the main development programs and of the institutions that deal with the economy" (1995, p. 102) and for Jahan it is "a desire for women to be at centre stage, part of the mainstream" (1995, p. 13). Schalkwyk and Woroniuk (1997) point out that the term 'mainstreaming' is hard to explain and translate and that its vagueness is a first constraint that must be overcome. Hannan also remarks on the vagueness of the term: "As a concept

mainstreaming is difficult since it has no real meaning in itself, apart from the sense of bringing something into the mainstream or centre of attention/action" (2000a, p. 283). Mainstreaming was adopted as a strategy to achieve gender equality during the 4th World Conference on Women in Beijing in 1995 and its Platform for Action: "....Governments and other actors should promote an active and visible policy of mainstreaming a gender perspective in all policies and programmes so that, before decisions are taken, an analysis is made of the effects on women and men, respectively" (United Nations, 1995, para. 202). A mainstreaming strategy as defined in the Platform for Action has two major aspects: the integration of gender equality concerns into the analyses and formulation of all policies, programs and projects and initiatives to enable women as well as men to formulate and express their views and participate in decision-making across all development issues (Schalkwyk & Woroniuk, 1997). Mainstreaming was subsequently adopted as a concept and a strategy by ECOSOC - the United Nations Economic and Social Council, which defined it as "the process of assessing the implications for women and men of any planned action including legislation, policies, and programmes, in any area and at all levels" (Hannan, 2000a, p. 135, referring to United Nations, 1997). For others, the emphasis is especially on making sure that such analysis changes decision-making: "For UNDP, a gender mainstreaming approach involves ensuring that the outcomes of gendered socio-economic and policy analysis are incorporated appropriately into all decision-making processes of an organisation, and their implementation" (Murison, 1999, p. 2).

Mainstreaming as a concept and strategy emerged out of dissatisfaction with the results of earlier gender strategies. Projects aimed at improving women's disadvantaged position in comparison with men's had remained marginal and had not brought real changes. They were small, underresourced in funds and expertise and therefore often ineffective. A replacement by an integration approach was not effective either. Women came in as participants when the agendas had already been set and it was not considered how their participation in and benefits from programs compared with those of men. In the domestic water sector, the number of women that participated in water projects increased through integration, but this did often not reduce gender inequalities:

- Women did much of the construction work in water supplies, but men made the decisions and controlled the services (Chachage et al., 1990; Groote, 1991; NCU, 1991);
- Women's positions worsened as work changed from paid to voluntary work when women took on responsibilities for water and health, or women lost their positions to men when the work became paid (CDS, 1994; UNICEF, 1984; Schoeffel, 1982);
- Introduction of new technologies regularly meant that women lost their existing roles in the management and productive uses of water (Fraiture, 1991; Hannan-Andersson, 1984; Schoeffel, 1982; Zwarteveen, 1995).

Mainstreaming gender is different from integration, in that it does not simply add a women's perspective, or even women's and men's perspectives, but transforms the agenda and process itself. To mainstream a feminist perspective, or any other issue, means pervading all processes, structures, and outcomes with gender equality (Hannan, 2000a).

Managers have been reluctant to change decision-making and implementation approaches in the domestic water sector as gender is at best only one of the aspects that they, and field staff, must address. Particularly in large infrastructure projects, they have to realize many objectives within a limited period, fixed resources, and high initial fund flows. Such objectives range from achieving efficiency, effectiveness, sustainability, people's participation, and decentralization and devolution of central government, to reduction of gender and poverty inequalities, protection of the environment, and integral management of water used for different and often competing purposes. The many demands lead easily to cutting corners and paying lip service to goals that deal with development and people rather than output and efficiency. Tschannerl criticized in 1973 the performance criteria of engineers, which were kilometers of pipes laid, and not how effective they were in working with people so that the services were effective. Twenty-seven years later, Hannan, after an extensive literature review criticizes the continuing weak focus on people in the water sector and concludes: "It is therefore not surprising that the attention to gender equality in most of the mainstream literature is negligible" (2000a, p.15). She comments that even within the UN, where the adoption of gender equality has made good progress, gender equality is not yet a central organizing principle in implementation despite claims in that sense from the UN itself.

Moser (1993) has argued that, as a distinct goal, gender cannot simply be grafted on to existing planning traditions. The goals of gender planning are emancipation, equality, and release from subordination. Such goals may be quite different from the project goals and therefore need to be planned for in their own right. Attaching gender specialists to organizations and training staff on gender have been partial solutions. Reviewing gender mainstreaming in Bangladesh and Tanzania and in NORAD, CIDA, the World Bank, and UNDP, Jahan concludes: "The critical factors appear not to be structure (i.e., whether there are gender advisors, coordinators, a special gender office or focal points in sectoral ministries) but the definition of mission, resources, commitment and accountability measures to ensure agency compliance" (1995, p. 42). In these organizations and also in Sida and FAO, the presence of gender experts who helped formulate policies and organized short term training made staff aware of and committed to gender equality approaches, but more was needed to change planning and implementation (Hannan-Andersson, n.d., c. 1996; Howard-Borjas, 1999; Jahan, 1995; Sida, 1997). In OXFAM, gender officers developed training in the head office and with local trainers in field programs, but without having any particular authority or power and mandatory training on gender has since been abolished in favor of training on demand; universal competence building is considered to be no longer required (Porter and Smyth, 1998). In UNDP, training to those concerned with gender mainstreaming was made more needs-specific when an assessment showed that simply training on gender awareness was not enough. Training now includes conceptual training on gender and gender mainstreaming and skills training in socio-economic and policy analysis to reveal gender and other social inequalities. Other elements are project analysis on gender equality and more generic skills needed for gender mainstreaming such as strategic planning, information management and process management, e.g., presenting and summarizing gender information, facilitating meetings on gender, and giving feedback and advocacy on gender and gender mainstreaming. While training helps in transformation, there are still many constraints to overcome, such as lack of management accountability for gender mainstreaming, relatively low positions of authority for and isolation of gender-trained staff, male staff being ridiculed and feeling insecure about promoting gender equality, etc. (Murison, 1999).

Howard-Borjas (1999) found that this slow mainstreaming of gender equality in development organizations was due not to a lack of expertise and training, but to the absence of a longer-lasting and participatory approach to capacity building, in which implementers and gender advisors work together as partners for a common good and respect and use each other's expertise. Policy-makers and planners in organizations have been characterized too much as either active resisters to change or as passive recipients. Both characterizations are unproductive. Not all staff are static, tradition- and interest bound resisters to change, who are unwilling to learn and only adopt gender strategies through managerial and administrative coercion. Passive recipients at least are recognized to have the capacity to learn, appreciate the need for change, and improve implementation. However, it is not always realistic to expect that, after training, passive recipients can innovate and plan on their own. Measures of coercion, if adopted, will moreover not distinguish between resisters and supporters, and do not develop innovation and planning capacities. Participatory approaches to development, "start with quite different assumptions from those which many gender specialists use to characterize non-expert (male) planners, such as: everyone has knowledge, can learn, and can take responsibility, if they are provided with the opportunity" (1999, p. 5). By working together with FAO development planners in a participatory manner over a longer time, Howard-Borjas helped as many as 58 groups to mainstream gender into their own work. For more effective mainstreaming, she advised to identify who the stakeholders are, classify them according to their position (active change agents, passive audiences or active resisters) and tailor four strategies for mainstreaming (sensitization, planning tools, gender experts and accountability) to these conditions. To convince active resisters, for example, requires gender specialists who have a high-level management position and authority and the active support of the senior management. Both these and other strategies for gender mainstreaming as those formulated by Goetz (1995) and Levy (1996) relate to mainstreaming in macro-level measures and organizations. At project implementation level, in engineering, social and health departments involved in water programs, mainstreaming, or including gender and gender equality in all processes, structures, and outcomes, has received far less attention.

While not sufficient on its own, having and using a gender analysis framework is one of the tools that can help achieve a process of mainstreaming gender equality. In the drinking water sector, program implementers who appreciate the importance of gender and want to mainstream a gender approach in their work, have as particular constraint that they have no gender analysis framework that is adjusted to domestic water projects and can be readily and rapidly applied. The sector now has resource material to raise gender awareness, include gender aspects in sector profiles and in the various phases of the project and program cycle, enhance participation of women in projects, and assess impacts on their work, time and decision-making (Boesveld, 1994; Wakeman, 1995; Fong et al., 1996). However, a sector-specific gender analysis framework and field procedure such as has been developed and is used in farming systems research and extension (Sims-Feldstein et al., 1990, Sims-Feldstein & Jiggins, 1994) does not exist for domestic water services. Moreover, and as discussed in this chapter, gender aspects have not been integrated systematically into participatory assessment materials and methods. Gender concepts and analysis have remained "especially intimidating for men who work in the development business - the very people who need to understand it most" and "until gender theory becomes more accessible and user-friendly, the movement is

likely to suffer from practical weakness that can only limit its theoretical strengths and its political gains" (Smillie, 1995, p. 95 & 97). A user-friendly sector-specific analytical framework and procedure might help to make gender analysis accepted and used in large water programs.

From the analysis of existing gender theories and frameworks as well as policies, it emerges that most of them focus on women or gender as separate from other social dimensions. This applies to, e.g., policy documents on women and water of UNCED (United Nations, 1992), on gender and development in the World Bank (1994b), and in the gender analysis frameworks of Overholt et al. (1984) and Moser (1993). Alvesson and Due Billing have pointed out that isolating gender from other forms of social differentiation is also found in some of the feminist gender research, which recognizes social variety and the influence of other factors, but argue that "it would make the whole issue very complex', when other aspects – race, ecology, class – are included" (1997, p. 33). Several gender researchers, such as Guijt (1993b), Green and Baden (1995) and Howard-Borjas (1999) have criticized this approach. They stress that communities are heterogeneous and analysis of inequity requires a more holistic analysis than for women, or women and men, alone. For managers and policy makers, it is both unrealistic and cumbersome to analyze gender separate from other inequity aspects, such as poverty.

The approaches and frameworks that look at gender in isolation from other social forces may be considered to reflect a neo-classical economic perspective because they see women as individuals, who are not influenced by inequalities of class and other socio-economic factors, and explain subordination from women's lack of income and control over income from work. Such analysis and approaches concentrate on differences and inequalities between men and women and disregard other social structural inequalities, beginning with those of social class. The models of Harvard and Moser are furthermore quite top-down, as they place the start of the diffusion of gender analysis at the planners and policy makers at the top. There is no direct link with fieldwork and participation of community men and women and project staff is not addressed.

In contrast to the approaches that address only gender (in) equalities, the SEAGA (Socio-Economic and Gender Analysis) approach developed in the FAO and at Clark University analyzes gender as a part of a wider set of social relationships, based on e.g., class, ethnicity, religion, caste, nationality, and race. SEAGA further differs in whom they see as the *actors* in gender and development, what *resources* to draw upon for change and in its preferred *mode of change*. Both Kabeer (whose views were reviewed above) and the SEAGA model see a great deal of change come from other actors and resources than development planners and project planning and give an important role to organizations, especially NGOs, that work with women (not yet: men) in a gender sensitive way in the field. SEAGA and Kabeer also do not stress training as a means for change, but trace gender improvements back to the use of a systematic and participatory gender and socio-economic approach in the field. This approach consists of working directly with disadvantaged groups, building on local resources and using participatory methods and tools (FAO, 1998a). For doing so, the SEAGA team has developed a field guide (Thomas-Slater et al., 1993), handbooks for the macro, meso, and field level (FAO, 1998b; FAO, 1999; Wilde, 1998), sector specific guides for gender and socio-economic analysis including for irrigation, and sets of training materials.

Of the various theoretical gender perspectives in which Kabeer has rooted gender and development approaches, the SEAGA approach seems to be closest to early Marxism and the gender and social relations theory. With early Marxism it has in common that both see inequalities between people as a consequence of structural power inequalities in society and that those affected must become aware of this and act against them as a group to bring change. However, other than in Marxism, the SEAGA approach does not see economic power of 'have's' over 'have-nots' as the only reason for subordination. Social inequalities stem from more than owning the means of production and the accumulation of wealth alone. On this aspect, the SEAGA approach shares its perspective with the Subordination of Women's Group and the social relation theorists in that gender relations shape the form and effects of other social forces in the lives and futures of women and men. However, while the social relationalists stress the impact on individual women and men (as do neo-classical economists), the SEAGA approach stresses a group approach and effect (as in early Marxism). Apart from these theoretical perspectives, there seems also a relationship with empowerment thinking. The SEAGA approach advises a participatory strategy of project planning in which the disadvantaged groups not only become conscious ('power within') and unite ('power with'), but also set the agenda for the project ('power over') and make the decisions ('power to'). At the same time, it is not an empowerment approach as promoted by Kabeer. The reason is that in Kabeer's cases of empowerment strategies, local NGO workers are the only facilitators. In the SEAGA perspective, there is also a place for academics and government to link local with outside knowledge and local experience with macro-level interventions.

Given the slowness of progress in gender mainstreaming and the afore-mentioned complexity of goals and time limitations of the managers of large water projects and programs, it is preferable to include gender concepts and their analysis along with other social factors in a broader program assessment methodology, rather than promoting separate frameworks and tools. Actors and target groups should furthermore not be limited to planners and policy makers, but involve community women and men and project field workers as primary actors in domestic water projects and analyze gender in relation with other structural inequalities.

The development of the MPA included, therefore, several gender objectives:

- The underlying gender analysis framework had to be made specific for the rural drinking water sector;
- The participation process should be made gender sensitive to allow participation, raise awareness, and unite people as conditions for change. In the communities, women and men should participate in the assessment, analysis and action planning on equal terms through equitable representation in the evaluation team and sessions and with substantial local time inputs compensated in cash or kind;
- Male and female staff members should participate from the project agencies, so that both have access to, and may benefit from, assessing gender in the projects and project results;
- The process should involve women and men in new ways. It should avoid reconfirming existing gender stereotypes, e.g., that technology issues are assessed by men and health issues by women;

- The process and indicators should recognize that, within communities, women do not all have the same position and interests: there are differences (including gender differences) that are based on class, age, profession and religion, caste and ethnic group, as is also the same for men;
- Gender data collection and analysis should not be separate, but be mainstreamed into the overall assessment of the processes and impacts of community managed water services.

The rejection of a *separate* gender analysis framework does not imply the rejection of a *global* framework for gender analysis. Wieringa has rejected global frameworks to draw conclusions on gender-related needs, conditions, and relations in more than one community. Her arguments are that gender relations are highly culture specific and differ substantially even from one community to another, and are not static, but change over time. Because of this highly different and temporary character of gender conditions and relationships, "gender interests cannot be conceived in an abstract, universal manner" (1994, p. 837). Gender planning is best seen as "a set of [locally] situated practices of feminist activity ...and working with small feminist NGOs might yield the best chances of operating within [these] lines" (1994, p. 843 and p. 845). Alvesson and Due Billing also reject comparative gender analysis on a global basis:

> We are not suggesting that experiments or survey studies are of no value. They may often give us some valuable input to thinking and may be seen as arguments for why a particular view on a social phenomenon makes more sense than another', but results are not 'the gateway to objective truth' (1997, p. 27).

They explained their rejection by pointing out that gender relations are very location and situation specific. The situation of a 70-year old retired Brazilian woman teacher cannot, for example, be compared with that of a 14 year old girl in a New Delhi slum. Like Wieringa, they conclude that generalizations that attempt to cover a wide range of variations and differentiation are not possible and that, if attempted, the results are questionable. The goal is to bring out diversity, not unifying abstractions.

There are no reasons to totally accept this reasoning. Participatory ways of learning about local gender conditions and relationships do not imply that it is impossible to use a global analytical framework. The multiple use of the available gender analysis frameworks in a wide range of sectors and cultures and the consistent, practically relevant, and academically recognized and generalized insights that they have produced can be taken as sufficient proof of the quality of the instruments and their applicability at a global level. Particularly when they have been practical and sector specific, these frameworks have proven to be very suitable for application by all engaged in project planning, implementation and evaluation, from women and men in households and communities to staff and managers in projects and support agencies, for example, in farming systems research and extension (Sims Feldstein & Jiggins, 1994). They allow the comparison of gender differences by sex, age, and position within and also between households, e.g., for the different socio-economic groups (Sims Feldstein et al., 1990). Claims that only localized instruments can assess gender relations properly, and that no generalizations can be made are exaggerated. Notions of gender, reproduction, marriage, women, and men vary per culture, but they do not exclude some generalizations that are relevant and even necessary in order to say anything of wider interest. Both the

deviant and the common will be interesting for managers and policy makers in larger programs. Interesting information on positive and negative trends in gender relations have come not only from qualitative studies, but also from the analysis of 'hard' data once researchers and planners began to recognize women and men as separate categories. Quantitative data disaggregated by sex contains also qualitative information (Jerome & van den Oever, 1994) [13]. While the quantitative data shows up trends, the understanding of these trends and of their deviations comes from the qualitative data. The conclusion is therefore not that general comparative and quantitative data on gender is not possible, but that it needs to be supplemented and qualified by qualitative information.

4.5 A framework for analyzing gender in water service assessments

Which gender related aspects are included and how this is done is related to the empirical and theoretical discourse in Chapters 2 and 3. In Chapter 2, a gender approach involving women and men in an equitable manner was one of the conditions for water services to be sustained, used, and provide water and access to training and local control not only to men, but also women. The review in Chapter 3 showed that gender analysis should be combined with sustainability monitoring and must be sector specific because, in spite of the relevance of this analysis, managers of water programs are not keen to incorporate it as a separate activity. The theoretical basis of the gender analysis in the MPA stems from the frameworks of Overholt et al. (1984) and of Moser (1993). However, the methodology goes beyond those frameworks because the gender perspective has been combined with a poverty perspective. The frameworks of both researchers are neo-liberal in the sense that their authors have seen gender inequalities for individual women as the only factor that determines their lesser opportunities and rights and lower benefits from development projects. In line with the social relations school of thought discussed in Section 4.3, other influencing factors should be incorporated in evaluations. This relates especially to differences in welfare, which reflect differences in access to means of production, schooling, family size, etc. Moreover, where relevant, hierarchies and discrimination based on other differences such as caste, ethnicity, religion, and places and countries of origin also need to be taken into account. (Being locally specific, they have currently not been included in the methodology as such, but local adjustments are possible). At the agency level, gender analysis goes beyond gender policies and includes some other organizational aspects. Finally, the analysis differs in that it is participatory and involves not only development workers, but also women and men community members and does so in a gender-sensitive and emancipatory manner.

In the MPA, gender perspectives are thus present in the indicators and in the assessment process. The gender analysis framework presented in Table 7 sets out which gender issues are assessed, which gender researchers have first described and analyzed them, how they have been made specific for water services, and through which participatory tools they are assessed. Five sets of gender issues concern the community

[13] In demonstrating the use of demographic statistics for gender analysis, Jerome (1994) shows, for example, how such global analysis has brought out serious gender problems in South Asia, by revealing that birthrates for boys are disproportionately higher than those for girls and mortality rates for girls consistently higher than those for boys. From qualitative studies, gender relations in this region are known to increase abortions of girl fetuses and female infanticide and to ensure better survival chances for boys because they are fed better than girls and also taken more readily for medical care (Chen et al., 1981; Murthi, 1998).

level and are assessed with women and men community members and agency staff in the communities. Two concern gender issues within the implementing agencies at the meso level and are assessed in the stakeholders' meeting. The macro-level policy levels are assessed through review of documents and, where possible, interviews with policy makers.

Table 7 Gender analysis framework in the MPA

	Issue	Source	Operationalization for water projects	Tools
Community (micro) level	Division of labor between women and men	Overholt et al., 1984.	Work done by women and men in constructing, operating, maintaining and managing a water supply; Gender-specific knowledge resulting from existing division of tasks.	Card sorting, Matrix voting and scoring
	Reproductive and productive work	Moser, 1993.	Adequacy of water service for reproductive and productive uses of water by women and men; Relation with conflicts and with gender participation in planning and management.	Rating scales and open discussion, Ladders
	Access to and control over resources and benefits	Overholt et al., 1984.	Access to information, training, water, latrines, and paid and unpaid jobs for women and men; Control over water/water delivery/community contributions/quality of construction. Associations with performance.	Pocket voting, Matrix Voting, Social Map, Ladders
	Community management work and decisions	Moser, 1993.	Decision-making by women and men on project initiation and in planning and management of services; Decision-making functions held by women and men; Influence of women in management positions. Associations with performance	Pocket voting, Matrix voting, Open interviews with women and men committee members
	Practical needs and Strategic Benefits	Molyneux, 1985; Young, 1993; Moser, 1993	Benefits from service and process brought up and classified as practical and strategic by women and men; Negative effects.	Ladders
Agency (Meso) level	Gender policies and strategies	Kabeer, 1994; Moser, 1993,	Presence of gender in agency policy; Nature of gender strategies in the implementing agencies. Associations with results on the ground	Open discussion and card sorting
	Institutional arrangements for implementation	Howard-Borjas, 1999; Jahan, 1995; Levy, 1996.	Sex-disaggregated data in planning, monitoring and reporting; Use of social as well as technical staff with awareness of women/gender issues; Cooperation of technical and social staff; Gender included in training; Management attitudes and support for women/gender issues. Associations with results on the ground	Various voting techniques and tools during the Stakeholder meeting
Policy (Macro) level	Gender and gender approach in sector policy	Kabeer, 1994; Moser, 1993.	Presence of women/gender issues in sector policy and nature of policy (welfare, effectiveness, gender equity, and gender as part of social equity). Reflected in project approaches in agencies and communities?	Analysis of policy documents, semi-closed interview with card selection and scale scoring

Community (Micro) level aspects

Division of labor and resulting gender knowledge. Gender relations are, first of all, manifest in the division of labor between women and men. In all cultures, women and men tend to differ in the work they do. Actual patterns differ. In some cultures, for example, women dig trenches for water supplies, while in others only men do this. Assessing the division of labor, first undertaken in the Harvard Analytical Framework, gives an idea of what women and men have contributed to the service. In the MPA, this is done separately for better-off and poor households to also assess equity for the poor.

Different labor patterns also explain why the two sexes have different knowledge on water sources and water use. Including the knowledge of women and men helps to get a more complete and correct knowledge of the technical quality of the system and to assess the adequacy of water delivery for both groups. The technical system quality is a condition for the functionality of the service and the more complete this knowledge, the better new installation or corrective action may be. Gender-specific water knowledge also plays a role in assessing the quality of water delivery for the needs of women and men Through the indicators on access and use as well as qualitative information, it is assessed whether quality of delivery is especially good for better-off households or whether all benefit. Qualitative information related to the same indicator helps to assess to what extend those unserved are excluded not due to discrimination, but because of technical reasons, their own decisions not to connect, etc.

The methodology further helps to assess impacts on workloads. This may happen when new facilities, training, and services increase the work of women and girls one-sidedly, e.g., because with a closer water supply fathers and sons no longer help women and daughters; because the latter must collect all extra water for the flushing and cleaning of latrines; or because the project or the community allocates all work for cleaning public waterpoints and collecting payments to women only.

Adequacy for reproductive and productive work. Other relevant gender indicators (see Section 2.5) are the adequacy of water for reproductive and productive work in households, the presence of competition for water between different user groups, and the link with user participation in project planning. Questions on the adequacy of the amount of water, its quality, and the reliability and regularity of the service relate also to the domestic and productive uses of water within households. As was seen in Chapter 2, domestic water is also an important source of livelihood of households and the division of responsibilities for livelihood can cause conflicts over water between and among women and men, when their different tasks and needs are not addressed during planning and management. There may further be a relationship between adequacy of water within and between households and a demand-responsive project approach.

Access to and control over resources. In addition, the assessment methodology provides insight into the second element in the Harvard Analytical Framework, access of women to resources, which in this case are those associated with a water service. Questions addressed are: Who has and has no access to water and latrines and for what reasons? Did women have access to information about the new project and its options and conditions or only men? In addition, to what extent do women and men have access to new knowledge

and skills from training and does the strategy for capacity building reflect a welfare approach or an effectiveness and equity approach? In a welfare approach, for example, new knowledge on hygiene is given only to women and girls while in an effectiveness and equity approach also men and boys are trained on health and hygiene aspects of a water service and women are trained in technical, managerial, and financial aspects. Issues addressed with regard to control of women at the domestic level are whether they can influence the water service delivery, and the water service management accounts to women as well as men community members.

Community management work and decision-making. The third category of activities in the Harvard framework relates to activities at community level such as being a member of village councils and arranging and conducting ceremonies. In their gender training materials, Moser and Levy, in Moser (1993) have made these into a separate analysis category because they are distinct from the household level. This approach is also used in the MPA. For gender in community management, the methodology analyses the composition of the local water management organization and compares this with the division of the functions within the organization, and how decisions are taken. This helps to see whether women who are a member of a water committee actually have an influence. The latter is triangulated in meetings with better and less well off women.

Comparing the gender division in physical work with that in decision-making and control may reveal whether women do mostly unpaid physical work for water and sanitation while men make the decisions and control the service. This is done by relating physical work in construction and management with gender division of rights, capacity building, and control. Such inequalities happen still quite frequently in domestic water projects and discriminate against women. They also bypass women's high personal interest in and commitment to a well-functioning water service and better sanitation facilities. Alternatively, the comparison allows to see whether a community water service is in practice a women's project from which men benefit as consumers, but to which they do not contribute, which is also inequitable (see, e.g., the case in Box 6).

Box 6 A women's project or equality of women and men? The case of Limaï in Cameroon

Limaï, a community in the DED project in Cameroon, had a relatively well functioning water service. It had a more demand-responsive approach, more equitable contributions, and a stronger, more capable and more autonomous water management organization. The history of Limaï's water service has to be seen in the context of its location in the region of Bassa. Women in this region marry into the village of their husbands and continue to be considered strangers, although they belong to the same ethnic group as their in-laws. The shared experience has caused high solidarity among them and has stimulated them to unite and organize around their most pressing need, a better domestic water supply. The women formed a women's group that initiated the water project, chose the locations and raised the initial capital by cultivating a communal field.

Having got the project off the ground, they then invited men into the local water committees that manage the service. The management work is divided along gender lines: a man is in the chair at village level and a woman is the village water treasurer. Women chair water committees at neighborhood level. Men committee members clear the paths and sites from vegetation, open and close the water points and manage conflicts, spending in total about three times as much time as women members. Previously, the women's group raised all income to maintain the service. Recently they have been able to convince the men to also contribute financially as the domestic water benefits all members of the households, and not just the women.

Practical needs and strategic benefits. The participatory analysis of benefits is open-ended. It is carried out with four separate focus groups of poor and better off women and men and may therefore bring out many different gender benefits, practical as well as strategic. Practical gender benefits are those that leave existing gender relations unchanged while strategic benefits are those that reduce gender inequalities. Because it was argued earlier in this chapter that benefits that in the eyes of outsiders are practical may in the local culture be strategic, the participants themselves decide which effects they see as practical and which as strategic.

As will be seen in Section 6.8, the tool did not work this way so that adjustments have since been made. Besides practical or strategic, the benefits of an improved water service may also be direct and indirect. Direct benefits are, e.g., easier access to water, reduced time and labor for water collection, and more water for personal and domestic hygiene and for productive uses. Through these effects, other benefits emerge such as use of saved time and energy for hygiene, child care, domestic production of goods and services, education and leisure, better health, reduced health costs, a higher value of the house, etc. Other potential gender benefits come from women's greater participation in planning and decision-making, training, and jobs. There are also possible negative effects, however, such as women loosing management and control functions previously associated with the management of indigenous water systems or a loss of mobility and meeting opportunities with the introduction of private connections. To bring these out, the tool needed further adjustment as will be discussed in Chapter 6.

Gender Analysis at Meso and Macro levels

Because gender patterns in the division of labor, resources, and control are socially and not simply biologically determined, they differ from one society to another. The Harvard framework distinguishes four different types of determining factors: cultural, economic, political, and demographic. These general factors also influence the gender aspects of establishing and running a water supply service. Overholt states that the analysis of broader cultural, economic, political, and demographic influence is needed “to adjust the project to fit the environmental determinants or [to learn] how to change the determinants to fit the project” (1989, p. 6). However, to try to analyze and influence broader determining factors as part of a short participatory assessment of a water service is likely to raise contentious ideological discussions. They take a lot of time, are over-pretentious about the possibilities of change, and detract from concrete local gender issues where analysis may more easily lead to change.

Instead, and more in line with the analysis of the Subordination of Women Group discussed in Section 4.3, the MPA helps assess organizational determinants which are not part of the Harvard Analytical Framework, but nevertheless have a very direct influence on how gender issues are dealt with in water projects. A first set is the participation and gender policies of the agencies that help establish the services. A second set is the institutional arrangements for operationalizing a gender-sensitive community participation and management approach. In the past, these meso-level institutional factors have been overlooked. Only now, after having focused first on the macro or policy level of donor agencies and country governments and at gender at the micro or community level in implementation projects, are gender issues at the meso level

looked into. As a result, interest in the gender attitudes, capabilities, and approaches on the agency side of project implementation has recently begun to increase.

Unfortunately, the time available for developing the MPA did not allow for the systematic review of the literature on gender mainstreaming in institutions. Consequently, selections based on experiential knowledge during the design and peer review of the MPA have only afterwards been compared with gender theories. An inductive approach is not illogical in a combination of constructivist and positivist principles of research. One drawback of publications on gender analyses of institutional aspects is, however, that most still focus especially on macro-level institutions, that is, of policy makers, program planners, and funders and not on institutions such as water sector agencies that implement programs and projects in the field.

The MPA has six indicators to measure mainstreaming of gender approaches in implementing agencies: the agency or agencies' policy; sex-desegregated planning and monitoring; a staff mix of social and technical disciplines which may or may not include gender knowledge and expertise; presence of gender aspects in capacity building; and attitudes and support of managers in applying gender sensitivity in field programs.

The operationalization of a gender approach in implementers' policies consists of a scale of five approaches. The contents and ranking of the scale are based on the gender and development theory presented in Section 4.3. The scale starts with the total absence of WID or GAD aspects in policies (no mention of women at all) at the lowest level and ranges via policies which define women as (passive) beneficiaries of projects or target groups of separate health education programs (welfare approach), to policies that require participation of women in decision-making, maintenance, and management and offer them new, non-stereotyped roles for service effectiveness. The highest level are policies that pursue more equitable gender relations within a social class context by explicitly pursuing the balanced division of benefits and burdens between women and men, both rich and poor.

Levy (1996), Hannan (2000a,b), Howard-Borjas (1999) and Jahan (1995) are among those who have published on the institutionalization of gender approaches in development organizations. With Levy, the MPA has in common the attention to training, projects that meet the needs of women and men, and agency procedures. Although Levy concentrates on the macro level of national governments and external support agencies, these three elements in her framework also apply to the meso or program level. Procedures are "the routinised daily activities associated with different points of the program/project cycle of an organization, or the rules governing actions within or between organizations and individuals" (1996, p.8). Concrete examples of procedures are guidelines, manuals, and checklists. The MPA includes gender in its validation of training and includes gender as part of a demand-responsive approach by the agencies (i.e., whether they aim at meeting the needs and capacities of poor and better off women and men), but it does not assess institutional procedures on the presence and nature of a gender perspective. The only form in which agency procedures feature in the meso analysis is as part of the team approach of technical and social staff. On this indicator, the highest score goes to water projects that have formalized the cooperation between social staff and engineers in a joint field manual. It is so far *not* assessed whether the manual itself is gender sensitive.

The latter could easily be included if this is combined with the participants' verdict on the actual application of procedures and manuals. This is needed because checklists and other guidelines are intentions on paper if they are not linked to incentives and accountability. Incentives are included in the assessment. They have been operationalized as 'Superiors and management recognize, appreciate, and encourage that, during implementation, staff practice user participation in general and gender and poverty sensitive approaches in specific'.

Jahan (1995) also analyzed gender institutionalization in macro level organizations: government organizations in Bangladesh and Tanzania, the bilateral agencies NORAD and CIDA, and the multilateral World Bank. Indicators that the MPA has in common with her work are gender presence in policies, objectives, and strategies, staffing and staff training, sex-disaggregated statistics, and incentives and disincentives to practice gender sensitiveness. According to Jahan, all these must supplement gender training if attitudes and practices are to change.

Jahan (1995) and Levy (1996) both mention the presence of resources. Levy limits the meaning of resources to financial resources, but as indicators, they should include funds, time, and staff. Funds imply the presence of budget posts for people's participation throughout the project cycle in combination with gender-disaggregated monitoring of their implementation and funds for gender-specific activities. Staff translates into the presence of agencies or units and staff with expertise on participation and gender, and their good cooperation. Time refers to sufficient time within project preparation, planning, and implementation for men and women to participate. Of resources, only agency and staff expertise and cooperation have been included in the methodology. Presence of funds and time for people's and women's participation have been overlooked and should be included, since their absence poses serious constraints for staff to practice gender and poverty sensitive participation.

Levy (1996) and Howard-Borjas (1999) have pointed out that the use of participatory assessments of gender aspects in themselves also contributes to institutionalization of gender aspects. The manner in which gender is assessed in organizations thus becomes an indicator in itself. As discussed in Chapter 3, gender and poverty sensitive participatory research techniques for evaluation and planning can empower women and the poor in communities. They also promote 'ownership' of activities and serve as monitoring and feedback mechanisms for development practitioners to improve programs and projects (Levy, 1996). Howard Borjas (1999) points out that this applies also to development practitioners in agencies. Analysis and planning in institutions should be participatory as well and assisted by skilled facilitators. A participatory approach and skilled facilitators during the process are institutional conditions that the MPA meets, provided that its applicants adhere to the use of participatory tools and processes during implementation and use facilitators that have been properly trained on its gender aspects.

Commenting on the MPA, Hannan criticizes the absence of attention to organizational culture: "…the process indicators on institutional support have a very narrow definition of institutions - ignoring institutional factors such as values, norms, attitudes and culture". She concludes, however, that "the initiative nevertheless represents a very positive step forward" (2000b, p. 132). In her own analysis, she had

come to the conclusion that the over-concentration on the technical aspects of promoting change and the neglect of political factors and institutional culture is an important reason why women's advancement and gender equality have remained marginal issues on the development agenda. Political factors, or "who gets what, when and how" and institutional cultures, or "the norms, values, mandates, and processes of an organization" (2000b, p. 335) with relation to women and to gender equality should become much more central in analysis and action for change. They should also become part of the institutional analysis of the MPA.

Is the ratio of male to female staff among implementers and managers an indicator of mainstreaming gender in institutions? The MPA does not include this as an indicator. According to Jahan (1995) and Alvesson and Due Billing (1997), it is. Alvesson and Due Billing call the sex ratio and the analysis of positions in the organizational hierarchy "the two crucial aspects to understand work orientation as well as career paths connected with gender" (1997, p. 69). Against this, it can be argued that, in implementation programs, the numbers of male and female staff in the various positions is less important than the approaches women and men staff and management use in their work. One's sex does, after all, not determine one's gender sensitiveness: female staff has been known to avoid gender sensitive attitudes and behavior and gender sensitive male staff also exist in the water sector. Nevertheless, sex is important in implementation work, as in many societies village male staff cannot easily work with local women unless the latter have a professional status, which is taken to neutralize their womanliness. Women staff can work with women, but they must overcome constraints in working with male leaders and groups. Furthermore, when women staff are a minority, they lack a 'critical mass' for organizational and program change and there is less opportunity to serve as a 'role model' for communities. Leaving out sex ratios of staff is an oversight in the MPA that needs to be corrected. During the global study, this was already pointed out by some of the participating projects, which included this aspect in their analysis.

Many analysts of gender in institutions[14] concentrate on internal organizational relations between women and men. It is doubtful whether an internal analysis of gender relations belongs in an assessment methodology focusing on program implementation practices and results. When one works in an organization that itself is very gender biased, it will of course be harder to include gender sensitivity in one's work. However, the analysis of such internal relations may take so much time and energy and cause so much resistance that the analysis of how gender issues are addressed in program-related policies and arrangements is overshadowed. The analysis of program implementation arrangements, and not internal gender relations, is the most important for women in water project communities. Goetz, who first concentrates on the internal changes in meso level institutions, later says:

> Most women in society, especially poorer women, experience policy decisions primarily at the implementation level, at the level of interactions with lower level bureaucrats. Studies have shown that this is the point at which the most disempowering messages are transmitted to women (1995, p. 15).

[14] See, e.g., Alvesson & Due Billing (1997), FAO (1999), Goetz (1995), Jahan (1995), Levy (1996), and Macdonald et al. (1997).

Historically and psychologically, the sequence is also to first analyze gender in programs and then whether the own organization practices what it is promoting in others. Thus it makes sense to start with the analysis of the organizational aspects that relate directly with the implementation work as is done in the MPA and from there move on to internal gender relations, if so desired and on the initiative of those concerned.

4.6 Poverty as the second social analysis dimension

In the MPA it has been rejected for practical reasons to distinguish, within a global gender analysis approach, all other possible social dimensions by which inequalities within communities and households may be known. In such an analysis, gender has been taken as one or sometimes as the main entry point, but other social dimensions have been included for a more holistic analysis of social differentiation and inequalities (Coady International Institute, 1989; Gianotten & Rijssenbeek, 1995; IDS, 1995; Thomas-Slayter et al., 1996). Within or next to the overall male-female dichotomy, this means distinguishing differences between women and men according to age, social class, marital status, religion, etc. In water-related projects, such socio-economic and gender analysis has shown up differences in types of work, workload, access, influence, and benefits related to water between women and men and between women in lower, middle and upper classes. As summarized in van Wijk (1985), a large number of women's and gender studies have shown that some women and men are marginalized on the basis of their ethnicity and class and that in water-related work and decision-making, it makes a difference being an old or young woman (and man), a boy or a girl, single or married, with and without children, and having a different status within households, such as mothers and daughters-in-law, the oldest child, etc. However, because the MPA is not a gender analysis tool per se, but deals with gender *in relation to* sustaining a water service at the community level, it focuses mainly at gender relations at the group and community level and pays less attention to water related gender aspects *within* households such as those associated with the division of work within homes and with sanitation and hygiene. Water services are public services for which a comprehensive and (relatively) uncomplicated and rapid evaluation methodology had to be sought which assessed not gender, but sustainability and use with a gender focus. The two distinctions that have therefore been chosen for being included into the methodology as the two most universal and powerful factors affecting equality are socio-economic status and gender. This does not preclude that, if according to the various stakeholder groups, inequalities are also related to other social dimensions, such as ethnicity or religion, such groups may be given a specific place within MPA assessment and analysis processes.

As a methodology, the MPA thus combines the analysis of gender aspects in sustained and used water services with an analysis of the presence of a poverty perspective in these services and their establishment. Indicators on poverty perspectives are assessed at community as well as institutional and policy levels. They have been summarized in Table 8.

Access to improved water service and sanitation. The poverty aspect most commonly assessed is the access of disadvantaged groups and households to the facilities. Physical access is assessed in terms of a sufficient number of water points and their equitable distribution over the settled areas. As described in Section 5.5 on data collection, women and men community members assess differential access to the water service by

marking all ‘well served’ and ‘not well served’ or ‘unserved’ areas on the social map. The welfare classification tool helps to indicate which kinds of families are affected: only the lowest classes or a mixture of better, intermediate, and worse off households. In a similar way, access to means of improved excreta disposal is assessed. The assessment may also reveal marginalized groups with other social characteristics, such as religion, caste, or ethnic group when the nature of the households affected is looked at (see, for example, the case of the Peuhl in Section 5.6).

Table 8 Poverty sensitivity of water services assessed through the MPA

Level	Variable	Indicators	Methods and tools
Community (Micro) level	Access for the poor	Number and distribution of facilities over the settled area by class; Characteristics of unserved areas; Characteristics of non-users; Reasons for non-use.	Social maps, transect walks, focus group discussions, open interviews,
	Equity and demand	Contributions to investments in kind and/or cash from better off and less well off; Type of tariffs; Special arrangements to reflect differential payment capacities; Payment history.	Card sorting, interview members water management organization, review of payment records
	Meeting demands	Satisfaction of demands in relation to perceived costs of contributions, according to poor women and men.	Focus group meetings and listing and sorting of met demands and value for costs
	Decision making and control	Representation of the poor in management organizations; Participation of poor in planning decisions; Representation of the poor in training and paid jobs	Social maps, interview water committee, matrix voting with focus groups
Agency (Meso) level	Institutional policy, strategies and staff characteristics	Presence of objectives of access and affordability for all in agency water policies; Agency strategy regarding participation of poor; Staff expertise and training includes poverty aspects which are practiced in the field; Management is aware of and supports poverty sensitive approaches.	Open discussion, card sorting and various voting techniques and tools during the Stakeholder meeting
Policy (Macro) level	Sector policy	Presence of objectives of access and affordability for all in water sector policy, differential pricing policy which protects poor; gender policy also aims at closing gap between rich and poor (women and men)	Analysis of policy documents, semi-closed interview with card selection and scale scoring

When the poor have access to the water system, assessing adequacy and regularity of supply during the transect walk helps reveal to what extent especially the poor are affected negatively. This may be the case because they have, for example, neither influence on service delivery nor own water storage facilities, while the better off can store water in private reservoirs whenever the service comes on. Alternatively, when the poor have shallow wells and the better off have deep wells and the water table declines (assessment of water source reliability), it is the poor who have no water. Box 8 in Section 5.4 contains a case of how the MPA analysis revealed inequity of access and led to gender and poverty-conscious action.

Equity of contributions. Part of the scoring on demand and responsiveness to demand relates to who has contributed to the investment costs – better-off and poor, women and men – and in what forms: from nothing, to contributions in kind, cash, or a combination of contributions in kind and cash. The scales on

contributions to construction and maintenance give insight into equity of payments across class as well as by sex. A further aspect brought out is whether those having better access, reliability, and water quantity also contribute more for this better service. Arrangements reflecting differential capacities to pay are scored in the assessment of the type of payment system in Section 5.4 and the measures of exemption as part of the assessment of the administrative system with the members of the local water management organization (qualitative data).

Satisfaction of demand. Satisfaction of demand is assessed in a PRA activity with poor and non-poor women and poor and non-poor men working in separate groups. The same participatory activity asks the poor and better-off users to consider what value they place on the perceived benefits in relation to the cost. Scores are ratio scores (percentage of demands met and percentage experienced value for cost) and are recorded as indicators for user satisfaction of the different groups.

Decision making and control. Three indicators are used to assess the representation of the poor in decision-making and control: the presence of the poor in the local water management organization; the extent to which poor women and men have had a say in various local planning decisions; and the relative access of the poor to skilled and paid work related to water, sanitation, and hygiene. The first indicator is assessed by identifying socio-economic background (better-off, middle class, or poor households) of those in charge of the local water service. This is done in the social map and/or the committee interview with the help of the locally identified indicators for the classification of community households into better-off, intermediate, and poor.

Community members also measure the degree to which poor women and men have been informed about the various aspects of the service and have taken part in planning decisions on these aspects (variable C2). The assessment takes place in separate focus meetings with poor and non-poor women and men. Subject areas on which they can score are: the initiation of the project; the choice of technology and service level; the location of the facilities; and the choice of local maintenance, management, and financing arrangements. A third set of indicators is assessing with the focus groups or members of the local water management organization what the socio-economic backgrounds are of those who have gotten special training and hold paid jobs in water supply, sanitation, and hygiene promotion.

Institutional and sector policy characteristics. Poverty indicators in the policy and institutional arrangements of the implementing agencies and in the underlying sector policy are included along with those for gender. Their means of assessment is also the same. The indicators, methods, and tools of assessment have been given in Table 8 above.

4.7 In search of synthesis: the Methodology for Participatory Assessment (MPA)

In the either-or discussion on the knowledge base for assessing sustainability of water services and their gender and social equality aspects a choice had to be made. As was seen in the previous chapter, concurrent movements in universities and among field practitioners had rejected the positivistic paradigm of social

science research, and had replaced it by a constructivist paradigm which uses participatory approaches and methods. Either school has its ardent defenders. Positivists have seen alternatives as unscientific. Developers and adopters of alternative models have held that those who use positivist research claim an objectivity of knowledge that does not exist and use methods that lack development potential. Proponents of either epistemology have seen the concepts and methods from the two schools as unreconcilable. In this chapter, it was seen that feminist epistemologists, while sharing the view that, in general, theory of knowledge has been gender blind, have also held fundamentally different views as to how reality is known. Yet there are others who have no objections against mixing methods belonging to either epistemology and applying general frameworks for gender analysis, as long as evidence is convincing and has been obtained in a demonstrably sound manner. The latter views fitted the requirements of the team that was asked to design and implement a global and gender-specific study of community-managed drinking water supplies. A positivist approach in this study would be more attractive for policy makers and program managers. Participatory methods would bring out the different realities of the different groups and be better as learning tools for all concerned. Differentiation for gender and socio-economic class would be part of the methodology as a basic means for social differentiation of stakeholders.

To meet the requirements, the methodology had to allow the use of participatory methods and tools and include gender and socio-economic strata (as defined by the groups themselves) in the tools as well as the research process. The tools and methods had to be suitable for women and men whose educational level would range from no literacy to a university degree. They would have to produce quantitative and qualitative data useful on their own and suitable for aggregation, again through a participatory method, into visual summaries that would facilitate analysis by community members and support project staff, as well as comparability within and between communities. The methodology should be globally applicable to all types of communities and water project support agencies and to any type of water supply system, from protected community wells to piped water supplies with water treatment systems and individual house connections. Data on service quality in relation to aspects of participation, demand, gender and poverty needed to range from the inner household level to institutions and policies and should allow both quantitative and qualitative analysis. The team further preferred a standard minimum procedure to limit demands on time, and associated costs, for community members and project support agencies and allow replicability by both groups, yet retain some internal flexibility.

As seen in section 3.6, two global evaluation methodologies existed in the drinking water sector that could be used with community managed water services. Both of them contained elements for meeting the above requirements, but neither had a systematic gender and poverty approach and neither constituted on-the-shelf methodologies. Hence, the resources and considerations described in the preceding sections were used to develop the new Methodology for Participatory Assessment.

5 Actors and acting: Description of the MPA

> *Keep It Simple, Stupid.* (the KISS principle).
> *Everything should be made as simple as possible, but not simpler* (Albert Einstein, Reader's Digest, October 1977).

5.1 Introduction

The sections which follow in this chapter describe the procedure of the methodology and address the two research problems which led to its creation. The first problem was to develop a methodology that uses PRA methods and tools, yet quantifies the local evaluation of a water service in a way that the different stakeholder groups agree upon. The objective was that all - women and men in communities, project staff, and managers - may use the same set of data to meet both qualitative and quantitative information needs. The second problem was the gender-blindness and lack of consideration of other social differences of existing methodologies. The objective was to integrate a gender and poverty analysis framework into the new methodology and to make the process of assessment gender and poverty sensitive. This chapter describes how the research objectives have been fulfilled, following a functional approach of 'who does what and how'. Section 5.2 begins with the issues of the selection and training of the facilitators and presents the shortcomings that were encountered. Section 5.3 gives the actual actors and processes in the assessments at the community and agency level: who the actors are and how they are identified, who assesses what and how they do this. Section 5.4. gives the indicators of the independent and dependent variables of the analytical framework that was presented in Section 1.3 and sets out why and by whom they have been chosen. This is followed in Section 5.5 by a description of tools with which the groups assess the indicators and their sequence of use. The last part, Section 5.6, goes into how the groups use their assessments of the indicators to choose their local scores on scales. These scores on common scales make it possible to aggregate, compare, and statistically analyze how the communities rate the projects and the water services.

5.2 Selection and training of the facilitators

A skilled and trained team of facilitators is central to every assessment of domestic water services and the characteristics of support organizations that helped establish them. A typical assessment facilitation team consists of a combination of social and technical specialists, minimally one of each. Facilitators may be individual private consultants, but will preferably originate from one or more sector resource centers in the country or region concerned. Sector resource centers are university groups, non-governmental organizations, or local consultancy organizations that have become training, research, and information centers for community managed water supply, sanitation, and hygiene developments (de Jong et al., 1999). One half of a team of facilitators should be women because, in many cultures, male outsiders may not work directly with community women, and to reflect equality.

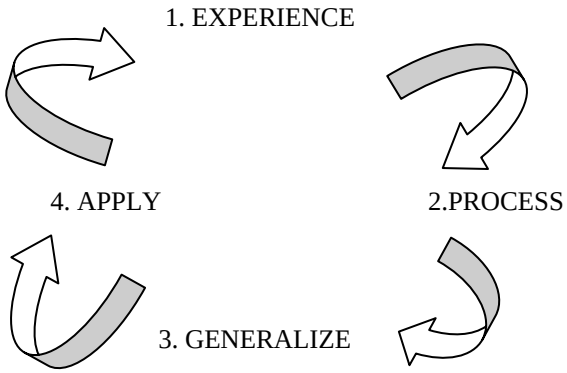
Facilitators are chosen for their personal capacities for, experiences with, and commitment to the use of participatory methods in water-related community development projects. Selection should be based on field

experience and skills. They should have hands-on experience with small, community-managed domestic water supply services, be familiar with participatory monitoring and evaluation of such services, and have regularly used participatory tools such as PRA or SARAR. Further, they should have experience with women's participation in community water supply projects. Knowledge of the meaning of gender, appreciation of the importance of gender relations and gender-sensitive approaches, and sympathy with the principles of gender equity to achieve the same rights and status for women and men as defined in Section 2.5, are significant advantages. In the first testing and application of the MPA, its developers selected and trained mostly country or regional teams from sector resource centers or consultants with whom they had worked earlier. Nevertheless, there were quite some differences in the degree of experience that individual team members had with the use of participatory tools and in their gender-sensitiveness. Some had not worked extensively with participatory tools or were not observant and creative in achieving equal participation of all parties during the group process. This made the work of the other team members harder as they had to assist their team members besides doing their own tasks. These experiences have led to adjustments to the training and to proposed improvements in the selection of facilitators. They are discussed as part of the validation in Chapter 6.

To become MPA facilitators, staff need at minimum two weeks of training, including one week of hands-on practice with the process and tools in a community setting. When they lack of experience and skills with participatory and gender equity processes, the time is too short to master the process and contents and must be extended. Otherwise, programs run the same risk that was noted in Chapter 3 for PRA, namely that the participants learn a series of standard moves, but are unable to be the sensitive, observant, and skillful facilitators that the process requires. In the MPA, as in PRA, the role of the facilitators in the community is to explain the activities to the participating women and men and then leave the people to build up their own visualization of local realities. Yet, facilitators must at the same time monitor and, if needed, guide the process to ensure that women and other easily excluded groups have equal participation and influence. Two weeks of training is a considerable investment. However, if a team of project staff have an interest in and skills for facilitation and this team works closely with the outside facilitators throughout the community assessments, the project will have a skilled team of facilitators and trainers for their own purposes at the end of the study.

The training uses the experiential learning approach. Figure 3 depicts the four steps of this approach and the meaning of each of them. Conventional training follows these steps anti-clockwise. It starts with generalized knowledge in the form of readings, lectures, and theory (step 3). The trainer follows this up with a process of reflection, e.g., through questions, discussion, and further explanation (step 2). The next step is practicing or experiencing what was learned through exercises or hands-on work (step 1). Finally, application takes place elsewhere after the training has been completed (step 4). The experiential learning cycle recognizes that everyone learns through experiencing reality and that every person experiences this reality differently. The trainer therefore first presents an opportunity for the participants to bring out their own views or go through an activity jointly (step 1). S/he then provides a structure for them to reflect on their individual experiences (step 2). Through this reflection, the participants arrive at a more general and abstract level of knowledge. The next step is to unify the different insights in a theory, a model, or some

other form of common and agreed understanding (step 3). The step does not necessarily unite all insights and different and competing models are possible. This is also the time that a facilitator may add her or his content knowledge, e.g., by presenting a theory/ies or model(s), giving assistance to develop a model, pointing out and filling gaps, etc. Finally, the participants apply the jointly created insight by identifying action, discussing strategies, setting targets, making implementation plans, etc. (step 4).



EXPERIENCE:	sharing, doing, seeing an activity, investigating a situation;
PROCESS:	reflecting on the activity;
GENERALIZE:	generating more general lessons from the experience - an 'agreed truth' of how, under the given circumstances, and at the given time, things are working;
APPLY:	making use of the generated knowledge to change behavior and conditions and become more effective, efficient, and equitable.

(Based on Kolb, 1984)

Figure 3 The experiential learning approach

The first week of the training is divided into a conceptual and a practical part. During the conceptual part, the participants share their experiences of why community water services are, or are not, sustained and used as intended. Another topic is how they understand participation, gender, and social differentiation as concepts and factors in social processes. For this first learning step, the trainers have used techniques such as focus conversation, analysis of difference, and card writing and sorting. Issues that have emerged in the reflection are, for example, ‘What is a sustained service?’, ‘What is effective use?’, ‘Participation by whom?’, ‘Participation in what?’, ‘How do people participate?’, ‘Differences in opportunities to participate for women and men and for different socio-economic and cultural groups’, and ‘Implications of differential opportunities for participation’. The outcomes of the discussions are subsequently related to the MPA as a more general means for communities and staff to determine to what extent the people sustain and use community water services and to link these results to local participation processes and agency approaches. This part of the training can be compared to the second step in the experiential learning model. A presentation on the MPA with overheads or PowerPoint slides introduces the participants to the purposes,

the analytical framework, the communal variables and indicators, the space for community-specific factors, the methods of measurement and analysis at the different levels, and the uses of the MPA which are here covered in Sections 5.4 to 5.7. A video introduces them to the assessment processes and tools at community and agency level. These activities give the participants specific information on the MPA and form the third step in the learning process. Application (the fourth step) follows during the second week after they have first experienced, understood, and practiced the tools.

In the second part of the first week, the participants get familiar with the use of the participatory tools and techniques in the context of the MPA. For this part of the training, the same principles and order of experiential learning are applied. As a first step (experiencing), the participants see a demonstration of a tool, use a tool themselves, or investigate the outcome of a tool such as a community social map. They discuss the tool, pose questions, and challenge issues (step 2). The trainers then introduce the general guidelines for the tool, the scoring, and the analysis (step 3). During this process, more issues may be discussed and points clarified that are unclear. The participants often give comments and criticism on the tools during this step. Chapter 6 discusses what has been done with the often very valid observations. Having gone through the tools, the participants then practice the actual application of an MPA sequence and the scoring and analysis during the second week.

The hands-on practicing of an MPA sequence with a community (Level I in Table 4 in Section 3.6) has been organized in two different ways. Participants have either practiced a full sequence with a single community, or the group has split up to practice the tools with which they were least familiar. Practicing serves as a means to gain experience, self-criticize facilitation skills, and identify problems with the use of the tools, the scoring, the recording, and the local level analysis. Sub-groups have also been formed to gain experience with using the MPA for different purposes: baseline establishment for monitoring and evaluation of outputs and impacts, planning of a new project on the basis of a participatory evaluation of the existing services and their establishment process, and end-evaluation.

After their return from the field, participants role-play the assessment of the organizational aspects of the project agencies (Level II in Table 4). They also practice the transfer of the quantitative and the general qualitative data to a spreadsheet and are introduced to how this data is aggregated and analyzed at the project/program level (Level III in Table 4). Recording the locally specific qualitative aspects and considering them in the analyses has, however, been neglected as will be discussed in Chapter 6.

Getting a common understanding of terms and concepts used in the PRA is an important activity that starts during the conceptual part of the training and continues throughout its course. Questions on the definition of the meaning of specific terms used, such as service, demand, tariff, and practical and strategic gender needs and benefits, have come back repeatedly. They have indicated the absence of, and need for, a glossary of terms in the three main languages in which the MPA has so far been used (English, Spanish, and French) and in vernacular languages that are used for the scoring. Issues of translations are discussed further in Section 5.7 (on scoring) and in Chapter 7 as part of the strategy for scaling up.

Facilitation skills and dealing with gender problems need special attention. In previous training, this has been done in different ways. In the training with the project teams in Latin America, the participants did two role-plays. In the one play, they arrived late, did not greet people, did not explain the purpose of the particular activity, did not listen, did not look people into the eyes, talked among themselves, ignored women, ignored poor people, criticized people's views, started ordering them what to do, did not summarize outcomes, did not check whether their interpretation was correct, and left without taking leave. The other group's role-play was just the opposite. Each team observed the performance of the other. The attitudes and practices were then discussed.

In training elsewhere, participants have listed common problems of facilitation and then identified their own solutions. Typical problems were situations in which women and the poor kept silent and did not take part in the participatory activities, cases of domination of the process by influential community members or by facilitators, data that is not disaggregated by sex or social class, and situations in which the facilitator or an influential participant question or influence choices of community members. Other problems that have come up concerned how to deal with questions from participants and how to handle cases in which information is clearly inaccurate or incorrect, participants cannot reach a scoring consensus, or the scenarios (the scoring options) do not fit local realities. The trainees then reflected on how to avoid or deal with such problems, e.g., avoiding that men are always asked or given the opportunity to take the lead in an activity, making sure that materials and equipment for activities are handed to both sexes and to a large group of people, ensuring that both women and men are given the opportunity to speak and that women can give their own views, assisting inactive members to join, e.g., by forming sub-groups along sex and class so that each group may form and analyze its own constructs, and reducing the influence of dominant persons that try to influence others, for example, by sidelining them from an activity under some kind of pretext. Data disaggregation by sex and class requires the use of differently colored and shaped materials for each group. Teams need to agree in advance which colors and shapes will be used for which group and adhere to the agreed code throughout the sequence.

Training participants have further discussed that facilitators have no right to remove any material or interfere in any other way with the ways in which women and men community members lay out their situations. If data is inaccurate, e.g., if one group says they pay a lot, although in reality this is not the case, trainees have come to the conclusion that the groups should be allowed to argue this out among themselves. If the facilitators think the data is incorrect, they should stimulate discussion. When scenarios do not fit local conditions, the participants may choose (and have chosen) scores that are either higher or lower. In those cases, the facilitator should note the reasons. A failure to reach a consensus usually means that participants have strong reasons for different viewpoints so that it is better to note the positions of each group along with any underlying reasons that have come out and defuse any tension that has built up. There is then more time for reflection on how to deal with any conflict during a next session in the sequence or in the community review meeting at the end. Trainees have, however, agreed that on no account should facilitators impose or change pictures, votes, or scores from community members. As mentioned above, not all participants were able to develop the same quality of skills within the given time, however, and fine-tuning of selection and improvements in the training are needed.

5.3 The participants and the process - bringing in gender and poverty dimensions

The social groups that assess the water services with the assistance of the facilitators represent all stakeholders in the service. They are women and men from the various user groups of the water service as well as the households with low or no access. Other participants are the male and female members of the local water management organizations and the technical and social field staff of project implementing agencies.

Project staff have not always participated in the assessments at community level. Some agencies have not encouraged local staff take part at this level perhaps for fear that they might influence community outcomes when the purpose was to evaluate the project's work. This is against the principles of a methodology based on constructivism, but was a consequence of the way the Water and Sanitation Program works with projects as set out in the next chapter. Where field staff have participated, the external facilitators have worked closely with them for hands-on training so that they could continue facilitating subsequent community assessments using a consistent approach.

The involvement of the same team of facilitators and staff in every participating community keeps differences in results from arising from differences in the ways that teams and communities implement the methodology. In participatory program evaluations, the team of external facilitators further adds the 'objectivity' of specialized outsiders to the internal knowledge of community people and agency workers. In the spirit of the constructivist epistemology underlying the 'fourth generation' evaluation approach discussed in Section 3.4, the combination of internal stakeholders and outside specialists and the use of agreed scores help to ensure that the overall outcome represents the closest approximation of the multiple realities as experienced by the different stakeholder groups.

To deal with the problem pointed out in Section 3.5 that in PRA events the process may not be representative, a systematic approach has been developed with built-in triangulation. In participatory activities, the participants are often self-selected. This easily introduces a bias, as the people who participate tend to be those with time, freedom of movement, and influence. Often, this implies that participants are men rather than women, come from better-off rather than poor families (or the exact opposite when better-off families are satisfied with the water supply and poor families are not), and are older and young people (especially young men if employment levels are low) rather than working women and men. The participants are thus not necessarily representative of the community at large, and groups whose views and activities are particularly important such as young and adult women who collect and manage water, non-users, and large users may not take part. In the MPA, the organization of the participation of the community has therefore been structured: it moves from the first general and open meeting to specific meetings with particular stakeholder groups. Moreover, one of the functions of the initial participatory tools (besides helping the participants to depict and analyze their realities) is to identify the specific stakeholder groups in the communities concerned. The process is summarized in Figure 4.

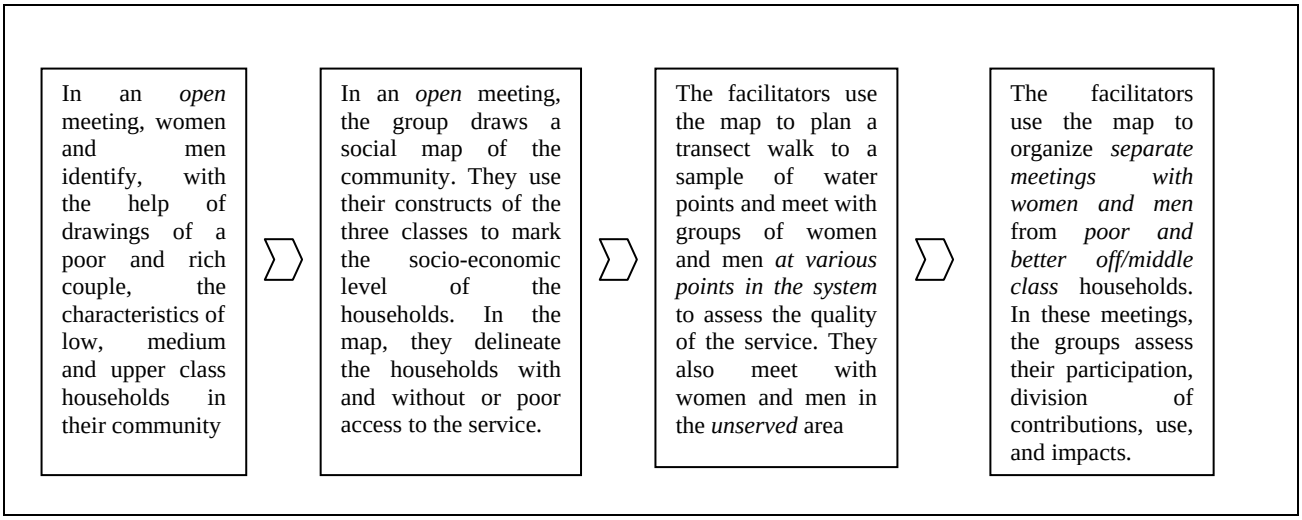


Figure 4 Procedure for optimizing representativeness in the participation process

Even for open meetings, facilitators are encouraged to actively seek a good mix of women and men of different backgrounds and not only influential people in the community, and they learn techniques for doing so. Apart from open meetings and meetings with specific groups, there are sessions with the members of the water management committees on the previous and current participation processes and on service management. These sessions also serve as a means of triangulating the information from the other groups and to assess gender relations within the water committees.

Bringing women and the poor into the process

The validity and effect of the findings from a participatory assessment greatly depend on the degree to which women and the poor participate, express their experiences and needs, influence scoring, and take part in outcome analysis and decisions on follow-up action. In taking part, being heard, and making an impact, both women and the poor face constraints and this must be recognized and addressed as part of any participatory methodology. Constraints are both practical and strategic in nature. Partly, they have to do with women's reproductive and productive roles, e.g., having to cook food, weed, care for children, etc. Analogous to practical gender needs (or women's needs to make these roles less burdensome), constraints emerging from these practical gender roles may be called *practical gender constraints.* (The validity of the distinction between practical and strategic gender needs is discussed in Section 5.5). Examples of practical gender constraints for women are not being able to attend meetings because they are held at times that interfere with women's other tasks, are held at distant places so women have to walk too far and loose too much time, children cannot be brought along, etc.

Other constraints have to do with more fundamental gender inequalities such as women not being allowed to attend meetings outside their own neighborhood, not because of distance, but because they expose them to strange men. Men also tell women that the meetings are not for them because they concern technology. These constraints go beyond the practical limitations that women themselves face to more fundamental restrictions imposed on them by others and may therefore be called *strategic gender constraints*. Also poor women and men face not only certain practical constraints to participation that have to do with their work and resources, but also more fundamental constraints that arise from their marginalization as members of society.

MPA field guidelines include steps to address such constraints to session attendance (WSP & IRC, 2001). Facilitators and staff are encouraged to contact key informants to get a good mix of people (not only influential people) and monitor participation by women and men. Locations and times for meetings should be convenient to women and poor people. The selection of communication channels on the assessment and the nature of the messages have to facilitate that information on, and encouragement of, meeting attendance reaches all groups. Facilitators and staff are now also encouraged to reflect on, and break with, own stereotypes such as technical aspects are reviewed with men, hygiene with women. Where women and men cannot mix, separate sessions are held with either group. As the sequence of assessment events progresses and sensitiveness of issues increases, separate sessions are held with poor people and the unserved. Here also, women and men may work in separate groups.

Class and sex-bound discrimination (see Sections 2.5 and 4.2) also affects the participation of women and poor people *during* participatory sessions. They prevent them from raising their voice, speaking their mind, and generally playing an active role. If in hierarchical societies those with lower positions (women and the poor, but there are further gradations within these groups such as age and marital status) can attend at all, they must often stay in the background, literally and figuratively. Separate sessions with each group, the exchange of viewpoints afterwards, the use of participatory tools adjusted to gender and class biases, and gender and poverty-sensitive process facilitation help overcome these constraints. Separate sub-sessions not only facilitate attendance by women and the poor, but also their more active participation and speaking out. Holding separate sessions in the same or nearby locations makes it possible that, at the end of the session, the two groups visit each other and the women explain their outcomes to the men, and vice versa. This process facilitates communication and information exchange between the sexes and promotes mutual understanding, the dismantling of gender myths, and the discussion of gender inequities. Box 7 contains a case with the effects of such a gender-sensitive process in one of the communities.

The use of physical tools instead of the spoken word also makes participation easier for those who are less vocal. Close observation by the facilitator and good facilitation techniques remain nevertheless necessary to prevent the most powerful participants from seizing the materials and dominating tool use, discussions, and scoring. Gender and socio-economic biases further present limitations in the choice of physical materials and implements that can be used. Because women and the poor are often less or not literate, they are also less or not used to handle paper, pencils, scissors, markers, etc. For them, it is a lot easier to draw with the full hand in the sand and use natural material as markers or to use finger-paints. A good facilitator knows how to get these groups started and build up their confidence. When making a social map, s/he will, for example, ask the women to first mark a known feature such as the mosque or the school, then mark the house of the neighbors on the one side, then on the other side, at the back, etc., until the women have mastered the technique and can proceed on their own. The use of physical tools instead of the spoken word also makes participation easier for those who are less vocal. Furthermore, using materials rather than speech makes it easier for individual group members to correct mistakes or biased presentations of the situation.
When the groups have visualized their own realities, it becomes easier to review and analyze the outcomes for gender and poverty aspects because they themselves brought out the existing inequalities. themselves.

Box 7 Effects of gender-sensitive assessment on gender relations in a Javanese community

Women in Sewukan community in Magelan district, Java, Indonesia had never met to discuss other than in social or religious events. Their participation in the evaluation of 11 water systems in their community affected gender relations in several ways:

Recognition of 'power on'. Initially, the *kepaladusun* (sub-village head) had considered the consultation of women on technical design and workmanship of the systems a waste of time. He said women knew nothing about such aspects. However, his views and those of the other men changed when the group of women came with very concrete design errors such as too low a ratio of cement to sand in concrete mixing and a too low entrypoint for the water pipes in the reservoirs. . The men's group brought out only very general remarks such as a lack of training. The experience led the *kepaladusun* to make the, in that culture, unusual remark in public that the women had brought out more useful technical observations than the men. When the men presented the outcomes in the plenary meeting (women and men alternated in presentations and the men started), they presented only the women's findings, until a man in the audience asked: "But what about our findings?" and everyone began to laugh.

Introduction of 'power over'. The women's own evaluation of the design and quality of the existing services also served to put two women's needs on the agenda for the new water supply: a better distribution of domestic water and the addition of sanitation to the project. Because the community already had eleven small domestic water supplies, the male leaders had assumed that there was no need for a twelfth system. They had therefore decided that the new water supply would be built for irrigation. The women's evaluation of the water quantity then showed that, while all households had access, the distribution of water throughout the community was skewed. Therefore, the meeting decided to use its social map to plan the new water system for better coverage of *domestic* water. A hot debate developed on the addition of toilet facilities. The women disliked the lack of privacy for defecation and the inconvenience of going to the local streams at night. The men were satisfied with using the streams and thought that private latrines were too expensive. However, during the discussion it became clear that they had taken the costly and unused *public* latrine at the mosque as the model for domestic facilities. The team then provided the groups with line drawings of the different models and materials for household latrines. Using the drawings to calculate what the various models would cost, the men and women soon realized that they could build all types of latrines according to their own preferences and capacity to pay. The women furthermore came with the suggestion that when a household could not afford a latrine of its own, up to five households could build and use one together. In two meetings (the design review event and the community review meeting), this issue could not be resolved. However, the women had become conscious of their common demand and had united around the issue. Pressure to solve the problem will therefore quite likely continue until a satisfactory solution has been found.

Emergence of 'power within' and 'power with'. Through the process, the women had become aware that they had the same water and sanitation problems. They said that, although they were organized and held women's meetings, they had not previously discussed anything else than social and religious issues. In the assembly where they presented their findings along with the men, they stated that they wanted to set up committees in each of the six community neighborhoods to participate in the design of the new water supply and monitor the contractors on their quality of construction. The male leaders supported this idea stating that, when the work was not done well, they would use the legal means open to them to ensure good quality design and construction.

First experience of 'power to'. In the group sessions, women and men had agreed to alternate in presenting the outcomes in the plenary meeting. Presenters acted in pairs of two men or women for mutual support. The meeting started formally with everyone sitting in a large circle. The leaders opened the meeting using a hand microphone and passed it on to the presenting teams. The men used the microphone with skill and confidence. The first woman did not know how to use it and was helped by a man. The second woman closely observed this and handled the microphone with more confidence. Soon thereafter, discussions became so lively that the circle broke up, participants gathered around the tools and the microphone was forgotten. Asked later about whether they could continue to use the PRA tools, the older women were doubtful. Suddenly, a young woman spoke up and said that maybe it was not possible for everyone but that she thought she could do them. When the older women were asked for their view, they said that perhaps they, too, could learn how to use them, but "meanwhile, let the younger women take the lead".. To what extent actions will follow remains to be seen.

Such analyses often raise public awareness of and accountability for biases that people hitherto had not seen or had accepted as given because they were not publicly exposed. It may lead to correction if pressures are

sufficiently strong to overcome counter-pressures. Risks of conflicts that worsen situations remain present, however, and will be addressed in Chapter 6 as part of continuity and scaling up of the methodology.

5.4 Indicators and indicator selection

In the analysis, the links between, on the one hand, sustainability and use and, on the other hand, response to demand, equity, and participation are assessed (see Figure 1 in Chapter 1). The team that developed the assumptions about linkages first broke the variables down into a series of indicators. These are measurable entities with which local project and community teams can assess the relative presence of variables. The basis for the identification of the indicators was the quantitative and qualitative research reported in Chapter 2. The indicators in this research were compared with those identified in a workshop held in Bangalore in South India. Its forty participants came from eleven countries, but mainly from India. Their expertise included water supply, participation, PRA, and women/gender in development (Table 9). The variables themselves and the indicators through which they are assessed are summarized in Table 10.

Table 9 Participants in the MPA design review workshop

Region	Country	Organizational affiliation	Professional Background	No.	Sex
Africa	Cameroon	NGO - Regional water center	Engineering	1	M
	Kenya	Multilateral (WB/ WSP)	Social science	1	F
	Zimbabwe	NGO - water center	Social science	1	F
Asia	Bangladesh	NGO - water center	Social science	1	F
		Private sector (consultant)	Engineering	1	M
	India	Government implementation agency	Engineering	6	M
		Government implementation agency	Social science	1	M
		Government implementation agency	WID/GAD	1	M
		NGO - WID/GAD training center	WID/GAD	1	M
		NGO - Water and Sanitation	Social science	1	M
		NGO - PRA training	PRA	2	M
		Private Sector (Consultants)	Social science	1	M
				3	F
			Health	1	M
		University	WID/GAD	1	F
		Bilateral	WID/GAD	3	F
		Multilateral (WB/ WSP)	Social science	2	F
		Multilateral (World Bank)	Social science	1	M
		Multilateral (UNIFEM)	WID/GAD	1	F
	Indonesia	Multilateral (WB/ WSP)	Social science	1	F
	Nepal	Government implementing agency	Engineering	1	M
		Private Sector	Training	1	M
	Pakistan	Government implementing agency	Social?	1	M
		Private sector (consultant WSP)	Social	2	F
	Sri Lanka	NGO	Social	1	F
		Bilateral	Engineering	1	M
Europe	Netherlands	NGO - Int. Sector support center	Social science	1	F
N.America	USA	World Bank WSP	Social science	1	M
			Total	40	18 M,

Table 10 Variables, sub-variables, and indicators of the MPA

		Sub-variable	Indicators
DEPENDENT (SUB)VARIABLES	A Sustained Service	A1 System Quality	A1.1 Quality of design A1.2 Quality of materials A1.3 Quality of workmanship A1.4 Constructed according to design
		A2 Effective functioning	A2.1.1 Water quantity and reliability in source A2.1.2 Protection of water source A2.2.1 Adequacy of water quantity according to women and men A2.2.2 Adequacy of water for poor households A2.3.1 Adequacy of water quality according to women and men A2.3.2 Testing of water and knowledge results to women and men A2.4.1 Reliability of water delivery according to women and men A2.4.2 Predictability of delivery/length of waiting time for women A2.5 Drainage conditions at waterpoints
		A3 Effective financing	A3.1 Source of financing of service operations A3.2 Degree of coverage of costs A3.3 Proportion paying
		A4 Effective management	A4.1 Level of repairs carried out by community A4.2 Duration of downtime A4.3 Realistic budget A4.4 Quality of accounts keeping
	B Effective Use	B Access and Use	B1.1 Proportion and type of households with access to water service at least for drinking B1.2 Proportion of households using service for at least drinking throughout the seasons B2.1 Proportion and type of households with access to safe sanitation B2.2 Adoption of safe excreta disposal patterns by sex and age
INDEPENDENT (SUB)VARIABLES	C Demand-responsive Projects	C1 User demand	C1.1 Cash contribution at start and equity of system C1.2 Contributions in kind at start and equity of system
		C2 Project Responsiveness	C2.1 Project initiation by? (All according to women and men in better off and poor areas) C2.2 Access to information on project content and options C2.3 Decision-making on choice of technology C2.4 Decision-making on level of service C2.5 Decision-making on location of facilities C2.6 Decision-making on type and membership of management C2.7 Decision-making on arrangements for operation and maintenance C2.8 Decision-making on financing aspects C2.9 Decision-making on who would be trained for what purposes
		C3 User Satisfaction	C3.1.1 Demands of poor women met C3.1.2 Demands of better off women met C3.1.3 Demands of poor men met C3.1.4 Demands of better off men met C3.2.1 Value for cost for poor women C3.2.2 Value for cost for better off women C3.2.3 Value for cost for poor men C3.2.4 Value for cost for better off men
	D Equity for women and poor	D1 Division at Start	D1.1 Division of in kind contributions within household D1.2 Division of cash contributions within household D1.3 % Women in local water management organization D1.4 % Poor in local water
		D2 Division during operations	D2.1 Division of high and low status work between women and men D2.2 Division of paid and unpaid work between women and men D2.3 Sharing of labor within households D2.4 Sharing of payments within households D2.5 % Women in local water management organization D2.6 % Poor in local water management organization D2.7 Sharing of functions and decision-making, according to women and men
	E Community Management	E1 Responsibilities	E1.1 Who does work in management? E1.2 Who does work in maintenance? E1.3 Who does work in caretaking?
		E2 Empowerment (Rights and Capabilities)	E2.1 Presence and status of management committee E2.2 Committee control of household contributions during construction E2.3 Community control over design and construction E2.4 Degree of authority of management to implement decisions E2.5 Access to and nature and strategy of training by gender and class E2.6 Rules on water/sanitation/water service E2.7 Accounting for service/management, incl. to women and poor?
	F Institutional Support	F1 Enabling organizational system	F1.1.1 Agency policy objectives F1.1.2 Agency strategy on demand-responsive approach F1.1.3 Agency strategy on community managed service F1.1.4 Agency strategy on dealing with poverty F1.1.5 Agency strategy towards women and gender F1.2 Gender and poverty aspects in planning and monitoring F1.3.1 Mix of staff expertise in implementation F1.3.2 Team approach of technical and social staff
		F2 Enabling organizational culture	F2.1.1 Training of implementation staff F2.1.2 Quality of training received F2.2 Attitude of project management toward women and gender issues F2.3 Support from management for innovation and change
	G Policy Support	G Supportive Sector Policy	G1.1 Nature of sector policy objectives G1.2 Sector policy targets and criteria G1.2.1 Sector strategy on participation, demand and equity G1.2.2 Sector strategy on demand-responsive approach G1.2.3 Sector strategy on poverty sensitiveness G1.2.4 Sector strategy on women and gender
INTERVENING VARIABLES			Community: % poor, ethnic/religious homogeneity; strength and unity of male and female leadership, ratio of alternative water sources; number of public services; location in drought zone.
			Project: complexity of technology; availability spares and technical support, type of funders, type of project (water or water and sanitation), unit cost, age, number of times upgraded
			Country GNP, human development indicators

The primary variable assessed is that of a sustained service. Adjusting the 1989 OECD-DAC definition of sustainability to the community level, a community water service is sustainable when its users are willing and able to provide sufficient means and resources to keep the service going. When they actually do so, the

service is sustained. Sustainability has a technical, financial, institutional, social, and environmental dimension, all of which must be represented in a methodology that measures this variable.

Regarding the technical dimension, engineers and users have their own criteria of what constitutes a technically well functioning service. However, both will agree that to deliver, the goods the service needs to be well designed and constructed as assessed in sub-variable A1. This sub-variable is a condition for effective functioning and is not only influenced by the skills and quality control of the designers and constructors, but also by consultations of local women and men to make use of the gender-specific knowledge that both groups have of water supply conditions and of their local monitoring of the quality of construction, as assessed in E2.3. Both groups -engineers and users- will also agree that keeping a domestic water supply going means continuing the supply of enough water to the households to meet their basic domestic needs. This should happen with a sufficient quality and reliability for the various types of use or they will be reluctant to sustain the service. The indicators for the technical quality of a water delivery system stem from the Minimum Evaluation Procedure which has been discussed in Section 3.6. However, other than in this procedure, not an outside engineer, but the women and men community members who use and sustain the service determine the adequacy of its water quantity, quality, and reliability.

The technical quality of a water service can only be sustained if there are enough financial resources. These must cover the costs of actual service delivery to the whole design population during the scheduled lifetime of the domestic water supply. The indicators for financial sustainability as given in A3 are similar to those used by Narayan (see Table 6 in Section 3.6) but, other than in her approach, the presence of a continuing government subsidy for operation cost is not included in the definition of sustainability used here, for reasons explained below as part of the discussion of demand and demand responsiveness.

A further important dimension is institutional sustainability or the presence of institutions that keep a service operational, accessible, and used. The definition of institutions has an organizational and a cultural angle. There must be a structure: some form of an organization or organizations that effectively maintains and manages the service and deals with its financial management. However, there is also a cultural angle: the presence of certain stable, valued and recurring patterns of doing things. Institutions are also rules and procedures which form known and accepted ways of acting to which people adhere. Not every organization is an institution: the difference is that the latter have a set of norms and behaviors that persist over time by serving collectively valued purposes (Uphoff, 1986, in Brinkerhoff & Goldsmith, 1992). An institution thus has structure and continuity, although it will (has to) change to keep up with developments over time. Based on the studies reported in Section 2.6, a high degree of institutional sustainability has been defined at community level as the occurrence of a local water management organization and the presence of specific capabilities, authority, rules, and accountability (E2). Communities and projects assess their scores on indicators of institutional sustainability as independent variables positively related with, rather than part of, technical and financial sustainability and with service use.

Social sustainability refers to the degree to which the intended user population accepts the new service and is crucial for a public water service. As seen in Section 2.5, acceptance of a service is closely associated

with whether it meets the needs and criteria of its users in comparison with other locally available water sources. Use is the ultimate test. As a community water service, all households in a community should be able to use the improved water supply. Moreover, systems that serve only a limited part of the community population will not lead to better public health and do not fulfil a basic human right: a minimum supply of safe water near the home. The methodology therefore maps out the percentage of the population that is not served by the service. Qualitative information is collected about the reasons for lacking access and whether specific groups are particularly affected. The indicator of general use of an improved water supply is measured in B1. Assessing the scope and nature of the service had led to joint action of the local government, the water agency, and the women to improve service delivery and service the unserved in at least one of the communities (see Box 8).

From a health standpoint, there is no need for households to consistently use only an improved water supply for *all* domestic water uses as measured in the MEP and Narayan's methodology. External and government agencies often impose such behavior on user households as an indicator of effective use. However, other, unimproved water sources, such as rivers and ponds, may continue to be used without problems for bathing, laundry, and recreation as long as ingested water comes from a source that does not have a high load of E-coli and does not become contaminated during collection, storage, and drawing[15]. Changes in other uses are only needed when there are specific health risks associated with the use of traditional water sources for purposes other than drinking, for example, when bathing and laundry habits increase the transmission risks of schistosomiasis and onchocersiasis (river blindness)[16].

More important than sources for washing and bathing is the degree to which all members of the households accept and use safe means of excreta disposal and adopt other improved hygiene practices. The MPA includes only access to and use of latrines, although some communities have also assessed the adoption of handwashing practices on critical occasions such as before handling food and after toilet use. To what extent these indicators are sufficient to measure use from a health perspective is clearly an issue and will be addressed in Chapter 6 on the testing of the methodology, after having presented the outcomes of the global study in relation to its assumptions.

[15]In their development of a new and more realistic water quality classification system for developing countries, Kempster et al. make an explicit distinction between drinking water and domestic water. Even for the former, no zero e-coli is required. "If faecal coliforms are undetectable (0 counts/100 ml), there is a negligible risk of microbial infection. In the range 0 to 1 count/100 ml there is a very slight but insignificant risk. In the range 1 to 10 counts/100 ml there is a slight risk of infection with continuous exposure. At concentrations of above 10 counts/100 ml there is an increasing risk of diseases transmission" (1997, p. 166).

[16]A survey on water use behavior in eight Tanzanian villages brought out that in three villages urinary schistosomiasis was common in spite of the presence of an improved water supply. Those most frequently infected were boys in the age groups of 6-11 and 12-18 and women and girls in the age group of twelve years and older. Adult men were seldom affected. The incidence patterns were related to the frequency and length of time with which, under the prevailing gender and age patterns, these groups had contacts with infested water sources. Boys had a high risk of being infected because gender division of labor and norms on behavior made it possible for them to spend much of their free time on swimming for recreation. Women and girls were infected because they reduced their work of collecting domestic water by doing their own bathing in the source and washing clothes while standing in the source water. For adult men, such bathing water was brought home and occasionally even heated so their risk of infection was lowest (Kirimbai & van Wijk, 1983).

Box 8 Inequitable access to water and corrective action: the case of Vellangaloore

In Vellangaloore in Kerala, India, the MPA revealed that the higher lying parts of the community, with more poor households, had a more irregular water supply than the lower lying parts. One area, a colony of poor Muslim families, was not served at all. The low-lying, better-served areas of the community had more higher income households with private water connections and water storage reservoirs. Women in these households would leave the taps open so that the storage reservoirs would fill whenever the water flows. If the taps were not closed in time, the surplus water would drain off through an overflow. Poor women had no house connections and reservoirs and relied on public taps. Because of the irregular delivery, they never knew when water would come or how long it would flow. The twenty-four families in the Muslim colony were living at a high elevation on the outskirts of the community and had not been included in the design.

In the irregularly served areas, the assessment brought out that, to cope with the problems as well as they could, the women had set up their own informal water management system. First, the women had fixed the public taps in an open position (the taps close automatically to reduce wastage). In each lane, the woman in the household closest to the tap would put a metal pot under it so that she could hear the water flow arrive, if she lived within hearing distance. When this was not the case, she would regularly check the tap to see if the water had started flowing. When this was the case, she would warn the other women in her lane that water collection could start. Some lanes had also introduced the rule that every household could first fill only one pot, as the flow of water could stop as unexpectedly as it had started. Only when the water was still flowing after all had filled one pot could women fill extra pots. The system divided water more equally, but was very cumbersome and did not give women any influence on the service as a whole.

Finding out about these problems led to follow-up action between the local council, the women, the Kerala Water Authority (KWA), and the NGO that cooperated with the KWA on the social aspects of water supply. Organizers were a woman councilor and the head of the gender section in the NGO[1]. After looking at possible solutions and planning a strategy, the water authority fine-tuned its water distribution with the help of the women of Vellangaloore and agreed to a set time schedule. A warning system was established whereby the operator telephones the council office whenever the schedule cannot be adhered to, giving reasons and approximate duration of the delay. The council in turn informs the concerned neighborhoods. After a breakdown, the operator restarts the system at 2 a.m. so that at peak times water is again available in the whole net. For the upper community of poor Muslim households the council and KWA pooled their resources and installed a small piped water system from a local water source.

In the videofilm *Building the Balance* (Cornips, 2000), the woman councilor, the gender specialist, and two other women, a latrine mason and a trainer, tell the story of their gender work in this and other communities in Kerala.

In more recent years, environmental threats from the water service (due to inadequate drainage) and to the water supply (from over-extraction and contamination) have emerged as a fifth dimension of sustainability assessment. Water supplies themselves can threaten the environment mainly by not having good provisions for wastewater disposal. This is assessed through indicator A2.5. In dry areas, lack of drainage of waste water has created new environments for insect breeding which have brought outbreaks of malaria, dengue, and filariasis to areas that were previously not plagued by such diseases. However, environmental threats to drinking water through over-extraction and contamination are the greater risk. They are assessed through indicators A2.1.1 and A2.1.2.

Common factors assessed on their association with sustainability and use are demand, response to demand, and equity. In the earlier study on sustainability and demand of the World Bank Water and Sanitation Program, Sara and Katz defined demand as “the quantity and quality of water community members will choose to consume at a given price” (n.d., c. 1998, p. 3). Demand is seen here predominantly as an economic factor. Paying for a service in kind, cash, or a combination of the two, is a sign that communities and users value it. This increases the chance that they will sustain the service afterwards without external subsidies. The assumption of a demand-based approach is that local payments cover at least the regular operation and maintenance costs and preferably also a part of the investment costs. In the MPA, this

definition of demand has been retained, but it has been combined with social equity because the highest score is given to services where contributions not only increase at higher levels of service or water consumption, but are also adjusted to capacity to contribute, e.g., in those cases where vulnerable groups contribute less or are exempted.

Giving users choices as to how much water they want to consume at a given price implies that a project "allows communities to make informed choices about the level of service they want, with an understanding of the implications of their decisions" (Sara & Katz, n.d., c.1998, p. 5). A narrow technical-economic interpretation of demand responsiveness, or giving users choices to meet their differential economic demand, leaves unaddressed the fact that 'community' is an abstract concept and that choices on sustaining and using a water service are made by women and men within households. Such choices involve many aspects other than technology, service level, and price. This can be illustrated by the example of a couple that buys a washing machine. They purchase the equipment not only on the basis of the machine's service level and price, but also on whether its dimensions fit the place where it has to be located, the attractiveness and ease of operation of the model and, where applicable, the presence of a safety catch for young children, its demands for and accessibility of maintenance, the possibility to pay for it in installments, and the gender relations of the couple itself, which determine who decides on what aspects: the one partner, the other partner, or both. In the same way, a demand-responsive approach to community water services should give the future users and managers of either sex and in the key social and economic strata an informed choice on more aspects than choice of technology and service level. In the MPA, it is also assessed who, according to women and men in better off and worse off households within the community, have had access to information (which is a condition for decision-making) and who have been involved in which decisions during the decision making process. Drawing from the studies reviewed in Chapter 3 and from the peer review described above, the scope of decision-making was expanded to include location of water facilities and choices about local management, maintenance, and financing systems and (added on the basis of the global study result) on candidates for training.

Demand and meeting that demand in water services are further not one-time issues. Factors that also influence the degree to which the users sustain the service are the degree to which these services continue to meet the needs of the different groups and how this relates to what the groups contribute. In service delivery, the water service will have to continue to meet demands to a level that users consider adequate to warrant continued support. Users' demands are in the first place for a sufficient quantity and quality of water. From whom these demands come and for what domestic uses they are varies with local conditions and the types of users. Chapter 2, on women's and men's water use showed that domestic water is not only used for drinking, food preparation, and the family's hygiene use, but also productively in the household economy. For such uses, women need a different quality and locations from what the men want for watering herds, making bricks, etc. Apart from the water delivery itself, women have also other practical gender needs and strategic interests such as timesaving, opportunities for meeting, and access to new skills, decision-making functions, and paid jobs which the water service may or may not meet.

Equity, in the meaning of an equitable division of contributions, burdens, and benefits between women and men and rich and poor, is present in the MPA as a cross cutting issue and as a variable on its own (D). Equity is present in B (access to the water service and sanitation) as well as in C (ways in which user demands are expressed, responded to, and satisfied), E (access to training by sex and class and accounting for quality of service management also to women and the poor) and F (agency strategies for dealing with gender and poverty; attitudes of the management towards gender issues). Including equity aspects is needed because a purely economic approach to demand does not necessarily include a broader vision on the functions of a community water service for social development. From an economic standpoint, a water service may be fine as long as it is profitable enough to cover its costs and serves those who pay well enough for them to go on paying. Others who dominate the service may have even more narrow and personalized interests such as power and financial gains. The methodology should be suited to bring out such narrow constructs in contrast to a more developmentalist view of water and sanitation services and by exposure and the creation of dialogue offer the stakeholders who are affected negatively at least the possibility to unite for corrective action.

The institutional dimension of the methodology is not limited to the communities, but relates also to the organizational structure and culture of the implementing organizations (F1 and F2). The differences with Narayan's indicators (which also included agency characteristics in participatory monitoring and evaluation, see Table 6 in Chapter 3) are the assessment of agency aspects in a separate participatory process (the stakeholders meeting which is level II in Table 4) and a larger number of agency level indicators, including objectives, strategies, and training, and the integration of gender and poverty perspectives. In addition, the MPA assesses institutional aspects in implementing agencies for their relationship with sustainability, while Narayan's indicators emphasize the replicability of (donor) projects and not the sustainability of services. In the MPA, replicability is not addressed since replication only becomes interesting when the project approach has resulted in water services that are well sustained and effectively used or, in a comparative study, perform better than those established with other approaches in the same region or country.

In the sequence, policies are assessed last because they are statements of aims and ideals rather than a reflection of field realities. Policies are important for giving directions for implementation, but they may be either more progressive or more conservative than the actual processes on the ground. Many assessments start with policies and then compare them with what exists in the field. The MPA works the other way around and assesses policies last. By linking policies to the already identified findings on the ground, it becomes possible to see if supportive policies exist, are applied, and what their effects are. Where specific policies on participation, response to demand, and gender and poverty approaches are absent, this may be one of the explanations for poor scores on the ground. It is also possible that practices have emerged on the ground, but are not yet reflected in policies. For policy makers, it is then relevant to consider whether the existing policies should be adjusted.

Because there may be many other factors that contribute to the reasons that one service does better than another, also other explanations for results are identified. They may be locally specific and communal

factors that are not part of the assumptions elaborated in Chapter 1. Specific community factors often play an important role such as the extent to which a community is well organized, the presence of strong leadership, the absence of factions and leadership conflicts, and the local economic circumstances and changes therein. In Cameroon, for example, many migrants who sent money to support the water services in their home communities have returned home due to the declining economy, and the drying up of this source of income has seriously disadvantaged the financial position of the water supplies. Furthermore, in the DED project in Cameroon, the poor results in Ngenglikok were not only associated with less income and low scores for demand, participation, and management, but also to a lack of social cohesion and undemocratic leadership. The team: "In the village one felt a great tension by discussing the water issue and the results show conflicts arising from mistrust, exclusion of parts of the community, and to a great extent [the monopoly of] the dominating decision-maker"[17].

5.5 Participatory data collection methods

To assess and value the above-described factors, the participants use a sequence of participatory events, tools, and methods. The duration is generally five days, of which some four to five hours per day are used for the group activities. Table 11 gives an overview of a typical sequence. It consists of eight events and nine tools. Eevnts and tools can be used in the order that is most convenient for the people concerned. For some indicators, more than one tool is used or several groups assess the same aspect so that the findings may be triangulated for correctness and completeness. In issues of equity, triangulation with women and men and better off and poor also has an awareness-raising purpose because the tools raise questions of equity in contributions versus capacities and benefits of the different groups.

Although the MPA allows managers and outside specialists to analyze the data statistically, the data itself is based on the ratings of local groups and these groups carry out their own qualitative analyses. As mentioned earlier, participants are the male and female water committee members, the four focus groups constituted by women and men from households with a relatively better and worse socio-economic position, and the women and men in unserved households.

Project staff participate to learn from the women and men community members, but they also contribute their own knowledge, e.g., in assessing the quality of technical work (in which the views from engineering staff complements those of the male and female users) and by answering community questions and identifying own areas for action and change. In addition, they are major participants in the assessment of the nature of support from the project agencies (Variable F in the analytical framework described in Chapter 1and level II of the assessment). The sequence of participatory events and tools helps bring out community realities in a structured manner, as follows[18]:

[17] In several cases, the joint assessments could solve or reduce problems by bringing issue to the surface and initiating a problem solving dialogue, e.g. in the case of Vellangaloore (see Box 5). Ultimately, however, results depend on local readiness to seek and apply solutions.
[18] A detailed write-up of the tools and their use can be found in Dayal et al. (2000).

Table 11 Sequence of tools, participating groups, and indicators in the MPA

Event/tool	Participants	Indicators assessed
Household welfare classification	Local women and men in an open community meeting.	Local indicators for (characteristics of) better-off, worse-off and in-between households
Social mapping	Community meeting or neighborhood meetings of women and men	Access to the service for the three different strata, and reasons for low/no access. Access of women and men in the three strata to training and to management and maintenance functions
Transect walk with Rope rating	Female and male representatives of three strata[19]; Focus group meetings with female and male users at a stratified sample of water points or in a sample of households	Quantity, reliability and protection of the water source; Satisfaction of women and men with design and construction and with the resulting water quantity, quality, reliability and predictability of the service; Observed drainage conditions
	Households in unserved areas	Scope and reasons for non-use. Presence and adequacy of alternative sources
Committee interview with Card sorting and Ladders II	Female and male members (as applicable) of the local water management organization	Degree of community autonomy in maintenance and management; Level and timeliness of repairs; Composition of water management organization and representation of women and the poor in membership and decisions. Presence and use of rules and regulations. Accountability for service to various user categories (men, women, poor). Gender division of work within the organization.
	Treasurer of the water service	Nature of payment system. Quality of accounting, and scope of and reasons for non-payment. Degree of cost-coverage
Focus Group Meeting with Pocket and Matrix Voting	Female and male users in a stratified sample of water points or a sample of households	Participation of women and men in planning and decision-making, and in training. Proportion of use of improved water supply for at least drinking and food preparation, and changes in sanitation, over the seasons.
Focus Group Meeting with Card sorting, Ladders I and II, Hundred seeds	Women and men from worse-off households and women and men from better-off households, in separate meetings	Strategic and practical benefits and negative effects, for women and men in worse-off and better-off households. Division of contributions by sex and socio-economic level. Participation of women and men in better off and worse off households in planning and decision-making.
Community Review Assembly	Open community assembly in which groups present the produced tools, outcomes and scores for discussion	All indicators are presented and strengths, weaknesses, and interrelations discussed. The meeting may decide on specific follow-up action
Stakeholders Meeting (at program level)	Representatives from implementing agencies and communities	The institutional factors affecting the approaches and processes in individual communities (Details in Table 10).

Welfare classification

Because the MPA aims at making services and projects more poverty sensitive, the very first activity with every community is to assess how the local people define the better off, intermediate, and worse/worst off households in their locality. The reason for using a participatory method and tool is that definitions of poverty are locally specific: a poor household in Cameroon is very different from a poor household in Colombia and being poor also means different things to women and men in India, South Africa, and the Philippines. No single external definition of poverty can thus be formulated on which differences between people can be assessed (Woodhouse, 1998). Local people's own classification is both more comprehensive

[19] Better off, intermediate, and worse off.

and valid than any definition by outsiders such as the one used in the World Development Report (living on the purchasing power of less than US $ 1 per day) [20]. In the MPA, a general meeting of community men and women defines the indicators and size of socio-economic categories in a participatory manner. Participation is open at this stage, but emphasis in training is on getting a good mix of participants (both women and men) and not only influential people. Expertise on a gender and poverty conscious approach gained from earlier experiences and from the training should also be used to overcome constraints for the participation of women and poor people.

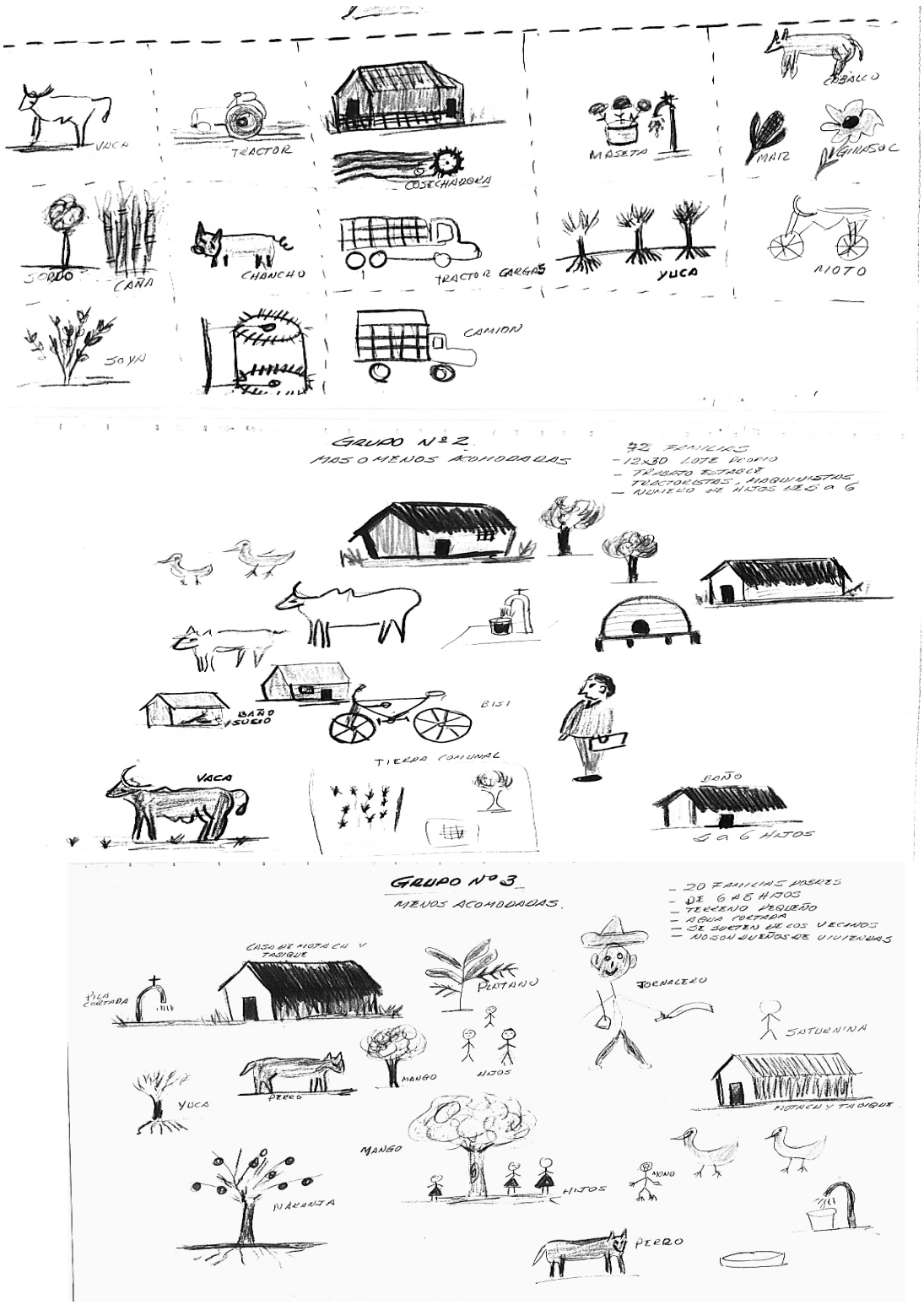
In the meeting, the participants identify what constitutes a typical poor, middle class, and better-off household and how these groups are divided over the community. They do so by drawing a typical household for each category and then listing their characteristics. Drawings are made according to the participants' own preference. Sometimes they draw a person, a couple, or the whole family. In other cases, they draw the typical house, compound, or farm of each of the three groups. They also list or draw the specific characteristics of each group in or underneath their picture (Figure 5).

In a plenary discussion, the characteristics are discussed and more features may be added. Finally, the plenary meeting assesses the numbers or percentages of community households in each category. They often do this by distributing a number of beans that is equal to the total number of households in the community over the three categories. The purpose of this activity is four-fold: it helps define poverty within its local context; it is a tool for the poverty-specific analysis of participation processes and service results; it facilitates the identification of households to invite to the separate focus group meetings with poor and non-poor women and men; and it provides a first experience in equity analysis.

Participatory welfare classification is essential for arriving at locally valid definitions of better-off, worse-off and in-between households and for making the findings on equity comparable across communities and households. Its outcome is not scored on any scale, but provides the basis for the poverty-specific analysis of access, use, payment, and benefit indicators in the MPA. By using the tool in the next activity, the preparation of the social map, it also becomes possible to draw a stratified sample of households for meetings at homes in case or private facilities, or at waterpoints in case of a system with (also) public waterpoints, and to plan the four focus group meetings. Carrying out the activity is further a first experience for women and men, and often a revelation, on how they can use their own knowledge and skills to analyze community realities. In addition, it is a first experience in gender cooperation for development analysis. The activity therefore takes place with village women and men in an open community meeting, and not, as in

[20] When Woodhouse and his colleagues investigated agricultural productivity in a program in Mali, they assumed that the amount of rice land a farmer inherited was an essential indicator of wealth and status. However, the production of the farmers whom they had classified as better off was actually lower (1.2 ton/ha) than that of farmers classified as poor, who grew 1.4 ton/ha. The researchers then asked the local elders to rank the households according to wealth. The latter distinguished three categories, but did not use land ownership as an indicator. For them, the wealthiest households were the ones that were self-sufficient in food and had more than five heads of cattle. The middle group was self-sufficient in food and had one or two head of cattle. The poorest households had a food deficit. The elders placed over half the families in the first category, 32% in the second, and 17% in the third. When the researchers recalculated rice productivity on the basis of this classification, the mean production of rice in wealthy households was more than double that of the poor households and the middle category came in-between (Woodhouse, 1998).

Figure 5 Characteristics of the three welfare groups in Las Gamas, Bolivia



the case of Woodhouse, with male leaders only. For this purpose, during a pre-visit to plan for the sequence, the team arranges for a suitable time and place for all to meet and stresses that the meeting is for women and men from all groups, not (only) the local leaders. Before starting, it usually takes time before enough people have gathered, which gives the team the opportunity to seek informally for wider participation. However, because the group identifies the characteristics of poor households and marks them in the social map anyway, absence of worse-off is less a problem at this stage than when user experiences are scored. It

is during these sessions that the teams visit waterpoints in poor and unserved areas and meet with the women and men of these households. The manual used in the training gives more details on how participation of the different groups in the sessions is organized (WSP & IRC, 2001).

Experiences with the tool taught that resistance against its use was greater among agency staff than among community members, and special attention was needed to overcome this. When the tool was reviewed during the training, project staff tended to object that it would not be possible to assess differences in socio-economic status because of the sensitiveness of the subject. However, in the field, the tool has generally been well accepted provided it is introduced in a non-threatening manner, e.g., through a discussion of the community's history, the different sources of livelihood, and local fluctuations in economic security. It is also important to avoid using the terms 'rich' or 'wealthy' and 'poor' and replace these by appropriate local terms that are not stigmatizing. Finally, users often need assurance that the tool has no relationship with taxation and that drawings and maps remain in the community. Using the tool hands-on with project staff in a field situation has helped to overcome their objections and gain experience in handling it in a sensitive manner.

Welfare classification has helped villagers obtain new insights into social differentiation of access and benefits. The facilitators that assisted in the welfare assessment in Aguas Claras in Colombia, commented:

> This tool was very interesting to the community because it was not clear for them what the social and economic division was which existed in the community. When the exercise began, all participants argued that there were no better-off people in the community, but as the analysis progressed, the economic divisions between people began to be clear. The percentages of how many people are in each category help to give a good idea of the general situation of the community and where each family is located in terms of economic categories (Translation by the author)

Social mapping

The next step in the sequence is the drawing of the social map to assess differential access to the service and to the benefits of the inputs for women and men in the three socio-economic groups. It is the second activity that takes place in the open gathering described above. In a relatively small community, the same group may make the whole map. In larger and more diversified communities, women and men from different neighborhoods draw (or paint, or cut and paste) the map of their respective areas within the overall community boundaries. Whether the assessment will be done with the whole community together, with each neighborhood separately, or in an at random sample of neighborhoods is decided during the preparation visit. In Kerala, for example, where communities are very large (45,000-50,000 people), a random sampled was drawn of two or three wards. (A ward consists of about 500 people; there are about ten wards in a community). For this purpose, project staff helped list the wards with normal water and economic conditions and wards that were poor and/or had a water scarcity (often the two went together as poor neighborhoods tended to be at the end of the lines). From these two groups, a random sample was drawn using the 'slips in the bag' method.

In preparing the social map, the groups use the information from the wealth classification to mark the houses or compounds according to the three welfare categories that they have identified. They also mark the cut-off areas outside which households have no or only limited access to the improved water service. In combination with the welfare codes of the houses concerned, this reveals how equitably the service has been distributed over the community and which types of households are served best, less well, and not at all. In the same way, the marking of houses in which women or men have held and hold paid and unpaid positions in maintaining and managing the service and have received training reveals the division of control and paid and unpaid work between women and men in the three welfare categories. Two maps have been reproduced in Figures 6 and 7 while some of their analysis is reported in Box 9.

When the social map has been completed, its data is used to determine the scores on coverage and equity of access to the service and to the different types of training, control, and paid and unpaid jobs for women and men in upper, middle, and lower class households (see Table 13 in Section 5.6). Originally, the facilitators scored the results on the scales concerned. As experience grew, this approach has been replaced by a system of group self-scoring. For this purpose, the facilitator has written each category of a particular scale in the vernacular language on a large card. The members of the group read the cards, or in case of low/no literacy, a -literate- member of the group (rather than the facilitator) reads them aloud. This is done in a random order to avoid the temptation of choosing the highest, rather than the real score. The group then chooses the option which reflects their findings most closely. The facilitator puts the categories of the scale in the designated order and seeks a reconfirmation of the score. The activity is rounded off by a discussion of the findings, conclusions, and possible follow-up action with regard to the adequacy and equity of access to improved water supply and sanitation, training, income, and control for women and the poor.

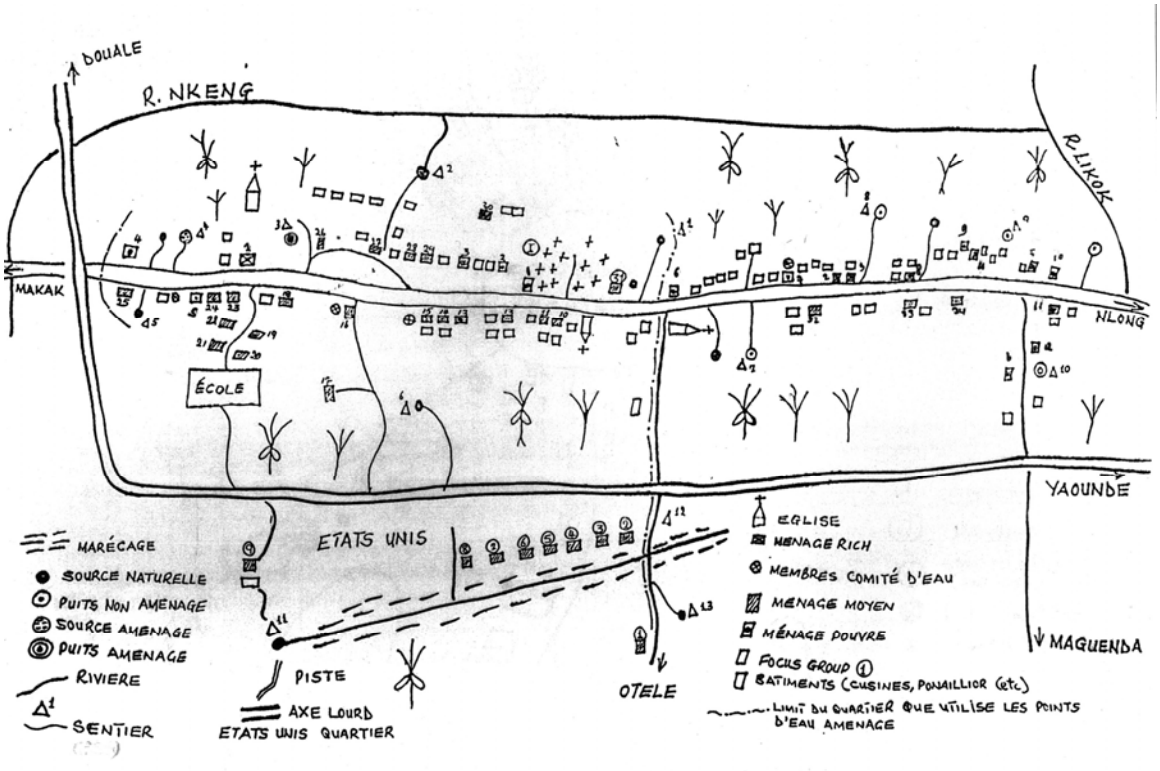


Figure 6 Community social map of Ngenglikok in Cameroon

The map is subsequently used to plan the community transect walk. Its route is planned in such a way that it covers all major works of the water service in the case of a piped water system and achieves an optimal crosscutting of the areas that are served and not served by the public and private waterpoints of the system.

During the transect walk, the team of community members, project staff (and, during training of the staff or external evaluations, the MPA facilitators) together assess and score the technical and environmental quality of the works. The participants also hold informal focus group discussions with women and men at the respective water outlets. In these sessions, several participatory activities such as rope scoring, pocket voting, ladders, card sorting, and matrix voting take place through which community women and men rate the service on a number of performance indicators. In the initial stages of the MPA, no specific measures were taken to enhance the representativeness of the data other than planning the walk in such a way that sections with better and worse off households and unserved areas were all represented. Only in Latin America, where the service level often consists of private taps was at random sampling used for household meetings. For reasons that will be discussed as part of the validation in Chapter 6, social maps are now also used for sampling of the waterpoints or households for further sessions.

Box 9 Social maps in Ngenglikok in Cameroon and Zhagal in Ecuador

The first map is from Ngenglikok in Cameroon. The village has 18 unprotected sources: 12 springs, 2 wells, and 4 river/swamp sites. It has two improved water sources: a protected spring, source no. 4 near the road to Makak, and a handpump well, source no. 10 near the road to Yaounde. Almost 500 women, men, and children in 56 households must share them. Most (34) are the local middle class, 13 are worse off and nine better off (six of them have been identified in the map). As the households live mixed, no particular socio-economic group is (dis)advantaged. The line that divides the user groups runs about halfway through the village. The two improved sources are especially far for the households in the center of the village and those in 'Etats Unis'. Only women who live near the protected sources used them for all purposes. Women who live somewhat farther such as near spring no. 2 used that source for household water and took their drinking water from the protected spring no. 4. However, women who use source no.1 (an unprotected spring in the center of the village) used it for all purposes, including drinking, and did not go to the protected sources. The poor access and use are closely related to the decision-making: the decision to protect these, and not other, water sources was taken by the local priest. The church also manages the waterpoints including locking up the handpump outside service hours. The users have no influence, they (the women) only work to keep the source clean. A water committee has now been chosen. Its members (their sex is not indicated in this map, but they are four men and one woman) come from intermediate and poor households and live scattered over the village. They lack training and have problems in being recognized as managers.

The second map, from Zhagal in Ecuador, brought out that the three socio-economic groups are fairly equally divided: 48, 45 and 53 households are in the upper, middle and lower local social classes respectively. Access to a safe water supply (piped water with treatment by slow sand filtration) is good with all households, irrespective of class, connected to the service. In contrast, the mapping revealed that only one fifth of the households, all in the upper part of the village and of mixed socio-economic backgrounds, have a connection to the sewerage system. Assessment of what the others use brought out that some one hundred households have privately built latrines (not depicted in the map). Eleven of them were known to be in a poor condition and 17 households (mainly poor) have no latrines. In the other households, men still practise open defecation while working on the land during the day.

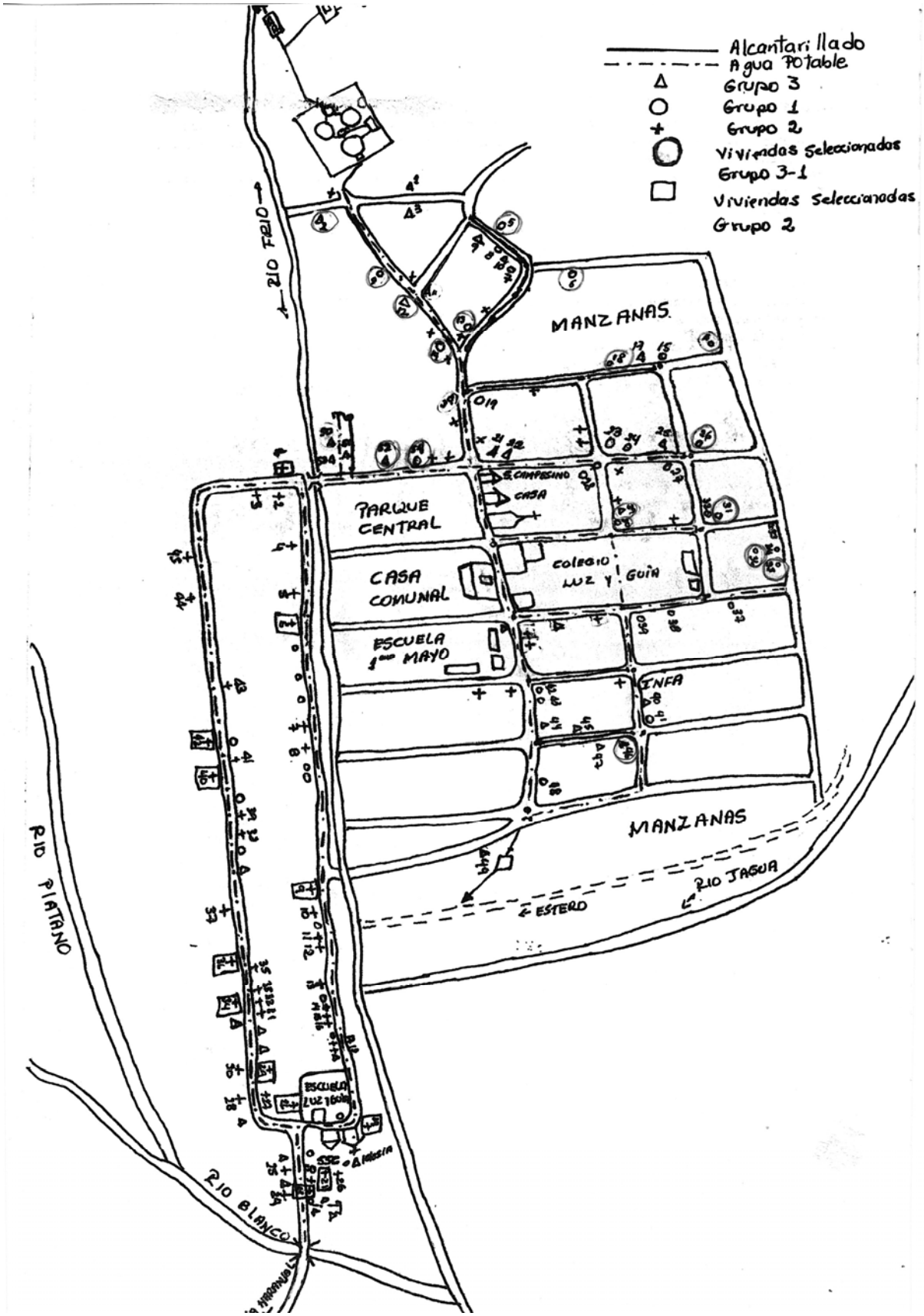


Figure 7 Social map of the water and sewerage service in Zhagal, Ecuador

Transect walk with rating scales and pocket voting

The third event is a transect walk. During this walk, a team of women and men community representatives (usually members of the water committee supplemented, if necessary, by men and/or women from the community to get a representative group), project staff members, and facilitator visit a cross-section of the water supply facilities. The aim is to assess the degree to which service delivery and the water-related environment are sustained. During the walk, they use rating scales at waterpoints with female and male users of the facilities. At the same time, the team assesses the technical quality of construction and upkeep, hence the necessity to have the participation of an engineer. The walk starts with a visit to the water resources catchment area. Here, the group observes, discusses, and scores the adequacy of the source in terms of water availability and reliability over the year. Scores are also given on the protection, testing, and treatment of the water for a safe quality for drinking. The visit to the works result in noting down the number and nature of experienced faults by community men, women, and engineer. Observations from the three groups are scored separately and the overall number of noted errors determines the score. Scores are the quality and protection of the water source, the quality of design, workmanship, and materials, and the testing of the water quality, including the absence or presence of the sharing of information on test results and follow-up action with the users (see Table 10) . The visit to the source is followed by visits to the water points with observations and scores on technical aspects. In addition, focus groups of female and male users score the service on the sufficiency of the water quantity and quality and the reliability and predictability of service delivery for their respective purposes of water use.

Training and guidelines stress the importance that women take part in the visit to the technical works, since both community leaders and community women and men often assume that only men should take part in assessing technical components. The exclusion of women because of stereotype gender thinking has made the findings less valid because knowledge of women is left out. As main users, they are especially knowledgeable about the functionality of the system and changes in water quantity and quality such as an increase in turbidity or chlorination. The practice also overlooks that visiting the various parts of the work is valuable for increasing the knowledge of, and accountability for, the proper management of the service among women and men. Furthermore, in the case detailed earlier in Box 7 in Section 5.3, participation of women in technical assessment brought out their specific knowledge and needs, made both men and women aware of the value of this knowledge, and has given women more influence in ways acceptable to the local culture.

Although the MPA uses a structured procedure, the teams have some flexibility in the tools which they choose for assessing a particular indicator. In communities in South America, for example, the teams used a scale with five faces to assess percentages of adequacy of water delivery, ranging from a very sad face for 0% via a sad face for a score of 25%, a neutral face for 50% and a happy and very happy face for 75% and 100%. The team in Indonesia used a rope which represented a scale from zero to hundred, with tags at the 0%, 25%, 50%, 75% and 100% points. Women and men positioned themselves along the rope to mark the degree to which the service meets their water quantity, quality, and reliability requirements. Participating communities have also developed their own tools. For estimating percentages, for example, women in communities in northern India came up with the '16 annas in a rupee' tool which used the old non-decimal coin system introduced under British colonial rule. In this tool, 16 annas stand for 100%, eight for 50% and

so on. All three tools allow that groups assess percentages, but the rope tool gives a greater degree of detail than the other two methods and has now been adopted throughout.

Pocket voting

Pocket voting is used during the transect walk or with a sample of households for assessing more sensitive conditions and practices because the method matches data disaggregation by sex with anonymity of people's replies. It has been employed most to analyze the use of different water sources for different purposes by women and men throughout the seasons, assess changes in practices of human excreta disposal by the different members in the households, and trace the history of information and decision making, depicting who got information and who decided on which aspects of the water service.

Pocket voting on sanitation practices, for example, serves to arrive at the scores for effective use of improved sanitation (indicator B2.2 in Table 10 in Section 5.4). For this purpose, a series of line drawings is attached in a horizontal row to the backside of a screen or cloth or on a wall around the corner from where the group is sitting. Each line drawing represents a location or a type of facility which people may use for defecation such as the bush, a watercourse, an open pit, a simple pit latrine, an improved type of latrine and, especially for babies and infants, a rubbish pit or compost heap. On the left hand side is a similar vertical row of line drawings of family members in different age categories: an adult man, an adult woman, an elderly man, an elderly woman, a boy and a girl under 12, and an infant. Next to the drawings as many envelopes or bags as there are options (or cells) in the table are fixed. Each member of the group has a set of tokens with which to indicate what were the usual practices for defecation and goes behind the screen and puts his/her tokens for his/her family members, including him/herself into the envelopes that correspond with the practices used before the project. The same exercise is then repeated with tokens of a different shape or color for the present practices. When the voting has been completed, the results are laid out on the ground and the change in practices for the different user groups is analyzed and discussed. The findings are the basis for the group's analysis and decision on the gender specific patterns of change. What are the differences between the groups and why? In each user group, have all changed or only a quarter, half, or three quarters? What are the reasons for the differences? The degree of change is used to score the quantitative progress achieved while the other data is qualitative information.

During the transect walk, the group further visits unserved areas. It meets with unserved households to crosscheck information in the social map on numbers and type of households that have no access to the water service and on the reasons why they are not served. The activity includes looking into the alternative sources that these households use and the problems and risks involved in such uses. When used for evaluation, such as in the global study, this has helped to define implications for policies and program implementation and monitoring, as presented in the next chapters. In local planning, in a case detailed in Box 7, the use of the MPA revealed unserved and underserved areas in a 'served' community in Indonesia, of which the community leadership had not been aware, and led to a reconsideration of the priority and design of another drinking water project.

Committee interviews with card sorting, scale scoring, and ladders

At the same time as starting the group events, the assessment team also begins it informal meetings on service establishment and management with the members of the local water management organization. Through discussions and matrix voting (depicted in Table 12 below), the partners review the composition of the management organization and the division of functions, including the balance for women and the poor, and score the outcomes on a scale. This activity also triangulates the information from the social map. Using direct scale scoring, the participants further mark the level of maintenance and repairs of the water service, the usual duration of breakdowns, and the degree to which they have, and exercise, particular rights, authority, and rules, and to whom they account for their management. With female and male members of the current management organization and, if needed, other women and men who have been involved in the establishment of the service, the team then goes into the demand for the service and the equity of the system of household contributions. Community demand is scored higher when users have made contributions in cash and kind to the construction and when such contributions have not been left open to user choice but have been made compulsory, have been adjusted to varying capacities to contribute and have been monitored with action taken against all who had not contributed without having been exempted for reasons of inability to contribute. The above information is later crosschecked in the focus groups. The team reviews the accounting records of the last three years with the treasurer and agrees on the scores for the indicators of local financing which have been given in Figure 8 in Section 5.4.

The ladders exercise helps to list and analyze the work that is associated with the maintenance and management of the water service and with hygiene and to assess how workloads and payment are divided between women and men. The group that does this activity (here, the members of the local water management organization) breaks the work up into tasks that are done daily or several times per week, month, and year. Using local material as counters, the participants estimate how much time each task takes. The number and type of tasks and the time they consume are the basis for the ensuing discussion on equity in the division of work. Alternatively, teams have used matrices to picture and discuss the division of work and the presence and equity of payments. The same tool is later used in the four focus groups for assessing the impact of the water supply on women's work in the home.

The reason for assessing the division of work is that participation in water, sanitation and hygiene often increases their load of unpaid physical work and widens existing inequities between women and men. Such consequences are seldom assessed and discussed in water management organizations and by women and men in households, yet may lessen the practical and strategic gender benefits of a participatory water supply service. If going on unchallenged, they may also have a negative effect on the longer-term sustainability of the water service, since in many cultures women already have a large burden of work and may simply not be able to keep up the level of input required without compensation or another form of support. During the session with the members of the water management organization, the women members also indicate whether they actually have a say in decision-making, or are co-managers in name only. The score on the accompanying scale differentiates between no women in the management organization, women who are members only in name, women who are members and attend meetings regularly, but who do not take part in

decision-making, and women who are members, attend, and take part in decision-making at lower and higher levels.

Focus group meetings

The sorting, prioritizing, and rating of cards is an activity carried out in separate meetings with poorer and better-off households. The activity serves to assess the demands met by the service according to female and male users[21]. In a second round, the participants reassign their values to demands met while taking into account the amounts of labor, money, and time that they have contributed and are still providing. On the initiative of several groups, which felt that they got back more than they contributed, users in this second round can not only reduce the given values, but also add to them. Thus, the total score for 'demands of users met' against 'cost to users' may be values over 100 percent. Card sorting, the ladder exercises, and matrix filling are also used to assess equity aspects in the focus area meetings with the four types of users. Drawings of a poor or better off household are combined with drawings of typical contributions: local materials, labor, and payments in kind and cash, the latter as lump sum and in installments. The cards are then used to score who has contributed and is contributing what to construction and maintenance of the service by sex and by class. Emerging results serve to discuss equity aspects of the contributions of the respective groups, also taking into account their differential access to resources.

Card scoring and matrices turned out to be powerful revelations as participants see any inequities directly visualized. The visualization of inequities – in decision-making, financing, labor, training – has stimulated initiatives for corrective action, although this depends also on the strength of the counteracting forces. Sometimes, inequities have continued to be accepted or conflicts have emerged, which could not be resolved as the account of the results from the first applications in the next chapter will show.

Community review meeting

After the global study, community review meetings were added to enable all community members to share and analyze the findings and give women experience in publicly presenting their work. In the meeting, each group presents its own outputs with the findings, analysis, and score. As related in Section 4.4, and in the case in Box 7, this requires gender sensitive planning and implementation as often women are not used to present in large meetings and take part in public dialogue and decision-making.

Stakeholder meeting at project/program level

Besides the sessions with communities, there is a participatory assessment at program/project level with representatives from all stakeholder organizations (Level II in Table 4). The stakeholder meeting serves to

[21] To do so, the groups first list all demands, which the new service is expected to meet, as well as any negative effects it may have on their lives. These are written on cards in words or in symbols. They then sort out the demands, which the service actually meets and rate each demand on a scale of 1-5. This they do by giving each met demand a value of between one and five marks, using seeds, matches or another locally chosen marker. Women and men mark their particular benefits in two separate groups or in one group, using two different types of markers. The ultimate score is taken as the percentage of the maximum possible score, if all these demands had been fully met. Thus, if a group of poor women has 13 demands a service should meet, the maximum score of satisfaction is 5x13 or 65. If the total of the scores for every demand is not 65 but 40, the rate of user satisfaction is 40 as a percentage of the maximal 65 or 62%.

assess the approaches and the supporting organizational structure and culture with which the services have been established. Participants in this meeting are male and female staff from the implementing technical and social agencies, which have taken part in this, or a similar, establishment process at the reviewed time, as well as women and men committee members representing the participating communities. The stakeholder meeting usually lasts one day. During this day, the participants use various types of participatory voting techniques to directly cast their votes on, what to them, are the institutional approaches, skills, practices, and attitudes with which the services have been established and which may be factors accounting for the results. Voting is by background (agency/community and, for agency staff, also their professional background, e.g., technical, social, and health specialists) and sex. In plenary analyses, the nature and reasons for differences in voting patterns are discussed, and the consequences for the quality of work and results in the field considered. When done after the completion of the community assessments it is further possible to compare the institutional outcomes with those in the communities.

5.6 Scales and scoring

The teams employ the insights resulting from the use of each tool to choose the best corresponding option on mostly ordinal scales. This is an extra step in the collection of the data which constitutes the transition into information that can be aggregated, compared and statistically analyzed at program, national or global level. Scales are “measurement instruments that are collections of items intended to reveal levels of theoretical variables not readily observable by direct means” (deVellis, 1991, p. 58). The use of scales and statistics has become quite common in the social sciences, including in disciplines that previously did not use them such as Anthropology. The latter is still a recent phenomenon, though, for at the start of the twentieth century the British Association for the Advancement of Science still thought that the measurement of psychological variables was fundamentally impossible.

Each indicator in the MPA has its own ordinal or ratio scale and each option in the scale has an ordinal value. Every scale consists of a limited number of scenarios (usually five, with a value of 0, 25, 50, 75 and 100) which describe the typical options for a particular indicator. Scales range from no (the lowest level of performance) through medium to high levels of performance, with no, low, medium and high levels of equity for gender relations and the poor. An example is the degree and nature of access to an improved water service. Using the household welfare classification and social mapping tools, the participants assess what approximate percentage of households have no access to the service and whether those concerned are a mixture of households from higher, middle, and lower welfare categories or belong predominantly to the lower welfare group. Based on the outcome, they choose how their community scores on physical and social access to an improved water service. Through qualitative information, they add why the unserved households have no access. Reasons may be technical as well as socio-economic such as that the concerned households are located in highly elevated areas and have not been assisted to establish a separate water service or that new households have not connected because they had to pay compensation for not having physically contributed to the construction and the conditions for the compensation (payment of a lump sum instead of a monthly surcharge on the tariff) rather than the amount itself have been the main constraint.

The scales are the same for all water services irrespective of their age, size, location, technology, and service levels. They allow women and men community members and agency staff to assess how well, in their view, each community and project scores with regard to the quality of the water services and their associated establishment and management processes and approaches. Because of the congruency of the assessment process and scales, it is also possible to compare the scores of each community service with those of other communities in the same project or in other projects and programs. The scoring of the mostly qualitative data obtained with participatory tools on ordinal scales changes qualitative data into quantitative ones, in the sense that they obtain a relative (not: an absolute) value: certain qualitative practices are financially sounder or healthier or more equitable from a gender or poverty perspective and so score higher than others. It is the use of these scales that make it possible to set up and statistically analyze a quantitative database of a large number of community water services at program level which the users themselves monitor or evaluate. At the same time, the qualitative details and explanations that community members give as part of the assessment process remain accessible through the files of each community. These files contain the copies of the community maps, matrices, voting scales, etc. as well as the explanations, exceptions, criticisms, and other remarks from the participating groups and the observations on the participation process that the facilitators have noted down during the process.

In case a locally identified reality does not match any of the options, the group selects the option closest to it and gives it a higher or lower value depending on whether the reality ranks higher or lower. Because tools and scales correspond, there is generally no problem in selecting the option that best represents a particular outcome. Table 12 gives an example of how the members of the water committee of Cheriyanad in Kerala, India, have used one of the tools (matrix voting) to arrive at their community's scores for equity in the division of work. In using the tool, the committee members first identified which function community members carried out. They then identified how many of those holding these functions were women or men and who was being paid.

Table 12 Gender divisions in (un)paid work in water and sanitation in Cheriyanad, India

Function		Number of Males	Number of Females
Unpaid	Member of Ward Water and Sanitation Committee	○ ○ ○ ○	○ ○ ○
	Standpost attendant		○ ○ ○ ○ ○ ○
	Member of Core Group (coordinates the work of several Ward Water and Sanitation Committees)	○	○
Paid	Latrine mason	○ ○ ○	
	Panchayat Secretary/clerk	○ ○	

In the same way, but not depicted in the table, they identified who was doing the skilled work and who the unskilled work. In the MPA, unskilled work has been defined as work that is mainly physical and requires little or no development of new expertise and for which training, if given, usually does not take more than a day. Finally, but not depicted here either, they identified to which socio-economic groups the women and men concerned belonged, with the help of the indicators identified in the household welfare classification.

The outcomes are presented in Table 13. For skilled/unskilled labor, the score was three as both poor and better off women and men were doing skilled work, but with an inequitable male-female ratio of 2.5:1 for skilled work and 0:7 in less skilled work[22]. For poverty sensitiveness, results were better: the ratio of people from lower-level households who learned new skills versus people from higher level households was almost 4:1. For equity in the division of paid and unpaid labor, the score was one as in the community only men held paid jobs in relation to the water supply and sanitation program.

Table 13 Community scores for the gender division of work in Cheriyanad, India

Division of skilled and unskilled labor		Division of paid and unpaid labor	
Option	Score	Option	Score
Poor women and men do unskilled work only. Better-off men do all skilled work	0	No jobs are paid, or if paid, they are for better off men; worse off women and men do voluntary work	0
Only men (better and worse off) do skilled work; women do unskilled work	1	Only men (better off and poor) do paid jobs; women do voluntary work	1
Skilled work is done by men and by better off women; only poor women do unskilled labor	2	Paid jobs are done by men and by better off women; poor women have no roles or do only voluntary work	2
Both women and men of high and low socio-economic levels do skilled work	3	Both women and men of high and low socio-economic levels hold paid jobs	3
Skilled and unskilled work is equitably shared between women and men of all socio-economic levels	4	Paid and unpaid jobs are equitably shared between women and men of all socio-economic levels	4

The use of scales brings with it a number of specific issues, the first of which is the unit of measurement. In the MPA, the unit of measurement is the community and the values that are scored are those for which the majority has voted (modal values). Equality for women and the poor are included in the scales themselves. Only for user satisfaction and value for cost, which are specific for poor and better off women and men, is the unit the sub-group. In the other cases where the same tool is used with several groups (as in focus group meetings on effective functioning and decision-making), the initial unit of analysis is also the group, but the ultimate score is the average for the community as a whole. In cases where the group cannot arrive at an agreed score, more than one score is recorded and the reasons for continued differences are noted. In those cases, an average score is used in the analysis. So far, this has occurred in a very small number of cases.

In the overall analysis, all scores on scales are community scores which means that greater resolution is lost. In a household survey, it is possible to analyze all data according to age, literacy, social and economic

[22] The users did not rate standpost attendants' work as fully unskilled, since some insight into technical aspects is obtained, but since no repairs are allowed, the actual work is mainly keeping the standpost surroundings clean.

groups, etc., but in the current methodology this is only possible where the information is scored explicitly for specific groups. Less variation due to the absence of differences between groups also has implications for correlations, which become higher. The utility of greater resolution in these two areas must be weighed against their practical feasibility and analytical utility. The more the assessment takes on the characteristics of a conventional survey, the more the power of investigation and analysis shifts from the local groups to the investigators and the more time use shifts from social processes and community analysis to recording, coding, and statistical analysis. When group and individual scores were recorded in ten communities in Kerala, the effect was that the time for recording the data in a database doubled from less than one to two days per community. Moreover, although the breakdown of findings according to caste, ethnic group, age, etc. is not possible at the global level, such factors emerge in the analysis of reasons for differences at community level. Use of the MPA with Plan International in a case in Indonesia, for example, showed that, although latrine ownership had grown, it was still skewed towards the better off and the households whose members migrated seasonally for work. This was a bias which the villagers and staff had not been aware of, thinking that Plan's help to the poorest families had closed the gap, and which they have planned to address in the next annual plan. In another Plan project, in West Africa, analysis revealed that the tribal Peuhl, though not particularly poor, had remained unserved because planning took place with the village development committees and not directly with all social groups (Brikké et al., 2001). It is on the grounds of such locally specific analysis and action planning that it has been concluded that the current quick and transparent use of community scores has been preferred over a statistically more refined approach, but technically it is of course quite possible to make such adjustments.

A second issue is the problem of intercoder reliability, i.e., different people score the same data in different ways or give different data the same code. This problem exists but is reduced by four factors: training, the use of descriptive scales, attention to translation problems, and group scoring. The core team of the organizations that developed the MPA (see Acknowledgements) did the first application of the MPA. The team trained the field teams, went out with them into communities, and assisted with the review of the scoring and the analysis in workshops at the end of the assessments at country or regional level. When used to build up a data base in large projects or programs and not as a one-time research, it becomes easier to invest in the training of a special team within the project or program. As this team continues doing assessments and scoring with communities within their own project or program, intercoder reliability increases. The tendency to train 'quick and dirty', which is always present, constitutes a serious risk to unreliability of results.

Uphoff, who used scales in participatory assessments of the performance of farmers groups in irrigation (see Section 3.5), had particular problems with coding reliability because he used Likert scales with statements such as "our meetings are *always.., often.., sometimes...., never*....very productive" (1988, p. 63). The participants had great problems in distinguishing between words such as 'all' and 'most' and 'often' and 'sometimes' even when they were very carefully and not literally translated into the local language. Because the MPA uses descriptive scales in which each item is a mini-scenario, these problems have been absent. The exception are some scales of institutional indicators where the wordings of the scenarios vary only slightly and texts had to be discussed to make sure that differences were fully understood. Like Uphoff, we also found that translation of the scale texts into the local language could not be literal since this sometimes changed the meaning

of the text and that translations must always be made in dialogue with someone who knows the methodology well. This is yet another reason for working with durable teams of skilled MPA trainers, an issue that will also emerged when experiences with scaling up will be discussed in Chapter 6.

A further issue that relates to scales using statements is their unidimensionality or the requirement that the scales consist of statements that measure only the intended characteristics and not any other aspects[23]. This issue is closely related to construct validity, which is discussed below. One technique to assess unidimensionality of a scale is to see whether scores on different statements that measure the same characteristic form a consistent pattern. If the scales are unidimensional, the patterns of scoring will be the same. The problem with this technique is that, other than in the large attitude surveys for which it was developed, the MPA does not ask participants to score on several items, all of which measure the same indicator. Instead, different indicators measure the same variable from different and not necessarily related angles. The elaborate procedures that exist to assess unidimensionality and personal biases in attitude scales have not been used in the MPA. Assessment of validity has been limited to the review by three persons (two members of the team and one outsider) on whether items were unambiguous, relevant, discriminating, and not too extreme and were placed in a logically ascending order. In this process, unidimensionality was not fully addressed because the funders requested that no more than originally 20 sub-variables would be taken up, yet both gender and poverty aspects would be included. The initial practical but incorrect procedure adopted was to combine gender and poverty in the organizational scales and to ask the participants to indicate whether the scores applied to gender, poverty, or both. In the revised scales, made available as part of the training, this fault has been corrected.

A fourth, and final, issue to address is that ranking practices and preferences is widely used in participatory rural appraisals, but to add up the scores to get the overall picture is impermissible. The well-known Anthropologists Gretel and Pertti Pelto warn against treating steps on ordinal scales as though they were ordinary numbers:

> Because the distances between steps (values) in an ordinal scale are not all the same, it is risky to treat them as though they were ordinary numbers. They should not be added, subtracted, divided or multiplied – at least not without due caution (1978, p. 145).

Not only do investigators assume that all criteria on which the participants have scored their subject have an equal weight, but it is also statistically illegitimate to add up ranking scores that have an ordinal value. Maxwell and Bart (1994) give an example from Kakamega in Kenya where local women ranked four different tree species on their value for domestic and productive use. They ranked each type for different characteristics: speed of growth, suitability for firewood, degree of smoke emission during burning, etc. Each tree species got a score for its performance on each characteristic, whereby the lowest score was worst and the highest was best. However, to know which species was best overall, it was not possible to add up

[23] Carter (1945), in Selltiz et al. (1966), has, for example, pointed out that in a scale measuring attitudes to war the statement 'The benefits of war rarely pay for its losses, even for the victor' is based on an *economic* argument and should therefore not have been combined with the statement 'Defensive war is justified, but other wars are not' which is based on an *ethical* argument.

the individual marks for they were all positions and not actual values. A tree of type A for example, may grow faster than a type B tree, and so for growth A may scored 2 and B 1. If the same volume of wood from type B trees burns longer than that of type A trees but at the same heat, B will score 2 for fuel value and A will score 1. Adding up would mean that both species would end up with the same overall score of 3. However, if in reality the growth of species A is 20 cm. per year and a given volume burns in 20 minutes, while species B grows 10 cm. per year, but the same volume will burn for 60 minutes, species B is not equal, but has a better overall performance than species A. Simply adding up ranks in this and similar examples to get an overall score on a number of performance criteria is thus not possible. If an overall ranking is needed, it is better to let participants score and not rank their preferences. The participants do this with the help of a fixed number of maximal points per characteristic which they can allocate as they like. The investigators then ask the participants to produce a subjective overall ranking based on the scores they have given per aspect but with their own implicit weighting of the importance of the different criteria.

In the MPA, most scales are ordinal, but they are not measuring physical phenomena and can therefore be treated as interval scales, for which summing up is allowed. In interval scales, the distances between subsequent steps are all assumed to be equal. Assessing water services differs from assessing tree species in that, in the former, scales are not based on physical phenomena such as growth, heat, or density of smoke that can be measured exactly. Each step in a MPA scale is not a measurement, but rather a scenario for a particular aspect of establishing, managing, and using a water service. Together they help to agree on (part of) the reality of the present service. Each characteristic is also considered to have the same weight since each of them has been chosen for its relevance to sustainability and effective use on the basis of existing studies, project reports, and peer reviews. Only the strengths of associations over time will indicate whether some factors in the chain have a greater strength than others. In social sciences, ordinal scales may in practice be treated as interval scales. Likert scales, for example, are used in this way. However, the practice also occurs in natural sciences such as plant breeding. Plant breeders measure the resistance against rust in grasses by scoring their varieties on a two-point scale from one to nine. The occurrence of rust on individual plants is not physically measured, but is estimated through observations at different times of the year, often by different people. The breeder assumes that, based on experience, the degree of difference between scores three and five is equal to that between scores seven and nine. He or she also assumes that the scoring by person A does not differ from that of person B. Used with the same kind of caution that the Peltos (1978) call for, this procedure has resulted in new rust-resistant varieties in fodder grasses and for lawns.

New scales have to be constructed when existing ones are not available or suitable. In the MPA, the latter has been the case. The earlier studies reported in Section 2.5 only used one participation scale which did not include gender and poverty perspectives. According to deVellis (1991), the more the researchers know about the phenomena in which they are interested and about the abstract relationships existing between hypothetical constructs and the qualitative tools available, the better they are equipped to develop reliable, valid, and usable measurement scales. Scales are a way to measure an underlying intangible concept such as ‘sustainability’, ‘demand-responsiveness’, or ‘gender-sensitivity’. If several scales measure the same concept, they will be mutually correlated.

Because scales pretend to measure an underlying concept (also called the 'latent variable'), the demonstration of the validity of this measurement is very important. DeVellis (1991) distinguishes three types of validity: content validity, criterion-related validity, and construct validity. Content validity is the degree to which a specific set of items correctly reflects a content domain. As a practical method, he advises to ask a number of colleagues to review a list of items and check whether any content areas have been forgotten. This method has also been followed for the MPA. To remain feasible as an instrument, which is another criterion that deVellis mentions, the review of the list of items in the workshop in Bangalore was combined with prioritization and limitation of the number of indicators for which scales had to be developed. Criterion-related validity is the degree to which an item or scale is empirically associated with a 'golden standard' criterion, irrespective of the presence or absence of a theoretical base for the findings. In statistics, the correlation coefficient is the accepted index of criterion-related validity. When, for example, it is possible to demonstrate that dowsing is positively associated with the presence of underground water sources, then dowsing has practical validity for the location of a new well even though dowsing is not considered to be scientific. The experiential rather than the theoretical value is in that case the determinant.

In constructivism, there is no need to test this link statistically. It is enough when, in the experience of the users, a particular dowser finds water so often that his or her skill goes beyond 'mere chance' and credibility in his or her powers is established through 'the people's statistics'. In the MPA, both types of validity are used side by side. At the program level, with a large enough sample, managers may look for high correlation coefficients. At the field level, inside knowledge on what a large number of community members see as reasons for failure or success, or the frequency and consistency whereby the same combinations of factors emerge as perceived strengths or weaknesses will give sufficient ground to conclude that such combinations are more than mere chance and are either explained by the program or by external factors in the communities, the program, or the area. Construct validity is the extent to which a measure behaves the way that the constructs it purports to measure should behave vis-à-vis the established measures of other constructs. Thus, while criterion-related validity gives the presence and strength of prediction, construct validity seeks to establish if hypotheses on relationships between variables formulated on the basis of theory are confirmed or not. As with criterion validity, reality is more complex than testing of a few hypotheses allow. However, this is often also apparent in statistics, since in social research the tested hypotheses seldom explain all variation and other factors, assessed and unassessed, remain of great value. Apart from testing assumed relations, the methodology therefore also seeks the interpretation of different stakeholder groups about cause and effect and adds locally specific factors through qualitative data.

One more way to know if the constructed scales are valid is the known-groups validation. This form of validation shows that a scale can differentiate members of one group from another, based on their scale scores. This test of whether the scaling works is of particular interest for managers and staff as it means that if the MPA works it enables them to distinguish meaningfully between the characteristics of top and bottom performers.

How to develop new scales? DeVellis stresses the great relevance of good theoretical knowledge. He advises to first look at existing theories and only become creative when the existing ones offer no solution. The next step then is to generate an 'item pool' of as many items as possible that are related to each construct of interest. In this stage it is better to be overinclusive, "redundancy is not a bad thing when developing a scale" (1991, p.56). In choosing the type of scale, the use of graded scenarios in the MPA made a Thurstone scale the only possible format. To develop such a scale, independent outsiders judge the ranking of different statements. The statements form a scale in themselves, that is, the scenario described by the statement at the top is of higher level than the one below it, and so on. Developed as a scale with equal-appearing intervals, this type of scales became very popular in social science research, e.g., for studies on discrimination and racism and such divergent institutions as the church, marriage, the family, and advertising.

In the late 1950s, the interval character of the Thurstone scale was severely attacked because research had shown that the personal situation and attitudes of the 'judges' had a serious influence on how they rated the order and value of the statements. In other words, persons who had gone through a troublesome divorce or were black, or white and pro-blacks, assigned a different order or value to statements on marriage or racism than persons who were happily married or were white racists (Selltiz et al., 1966). Such personal biases have not been involved in the MPA statements, and statements on gender and poverty have been guided by widely accepted concepts of equity and not by personal interpretations. Hence, the MPA scales have been treated as equal appearing.

When developing the scales, a decision had further to be made about the number of statements in each scale. As with the statements themselves, the number of steps depended on the types and number of scenarios that exist in the field and are know to be able to make a difference to service results. This meant in practice that options varied from a dichotomy – e.g., people pay or do not pay – to scales with five to seven different and progressively ordered scenarios, for example on the degree to which income covers costs. This scale ranges from not even paying for the daily running costs, via covering all costs of regular operation, maintenance, administration, and repairs, to covering the cost of expansion and at best even the cost of replacement (cost of depreciation), to making a profit.

The finalized draft scales were field-tested in four sites in Kerala, India. In this region, information on sustainability and use of improved water services and sanitation facilities was available from other, non-participatory studies so that it could be seen how well the scales worked to assess the results. The test was also needed to see if the scales gave sufficient variance, since the methodology will not be able to discriminate if all answers are the same or close together. Hence, the four locations selected were also known to vary. The pilot test showed that, in all four locations, results on sustainability were better for community managed sanitation services than for water services and that the former also had higher scores on demand-responsiveness and management and on poverty sensitiveness (a gender approach was applied in both project components). The outcome was in line with findings from other studies that had used conventional methods for the same project. These had shown that the sanitation component that was more participatory and demand-responsive was better sustained than the water services in which participation was

much lower. In the latter, participation of women and men (site selection of water points) had only resulted in greater access, especially for the (usually poor) households in the outskirts (SEU, 1994). Despite the high access, use of the water service was on average only 62% in the dry and 56% in the wet season because users had problems with the unpredictability of the flow and the insufficient amount of water made available (Kurup & Aswanikumar, 1997). In contrast, sustainability and use of the latrines were close to 100% and construction had continued to sustain coverage levels over time, irrespective of whether this was measured with conventional methods (Kurup et al., 1996) or the MPA (SEUF, 1998).

The use of scales makes it possible to visualize the scores for the different indicators of the quality of the service and its establishment and management in bar diagrams. The diagrams give women and men in communities, the local management committees, the fieldstaff, and the program managers an overview of the strength and weaknesses of the used approaches and results. Diagrams also make low and high scores from self-assessments visible for people with no or low literacy. This makes it possible for everyone in the community to see where the service is doing well and where further improvements are possible. An example of such a diagram is given in Figure 8. It gives the scores for local financing and management of the piped water supply given by the users in San Marcos, Peru. The diagram shows that scores for user payment, financial management, and service reliability (low downtime) are high, but that the community can only carry out simple repairs. Moreover, although it makes a realistic budget for the running costs, the payments do not cover all the costs of the service. In fact, for the last three years the income has only covered the direct operational costs.

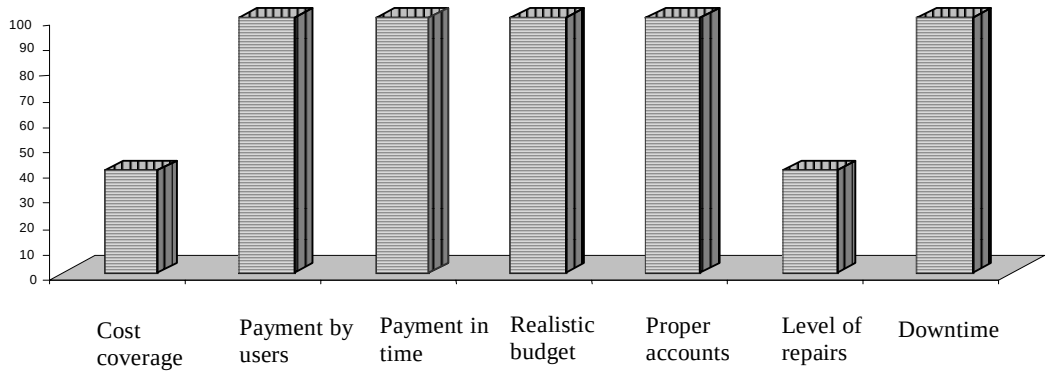


Figure 8 Community scores for financing and repairs in San Pablo, Peru

Besides using the diagrams to analyze strengths and weaknesses and plan improvements, communities, staff, and managers may also use the diagrams to compare performance across communities and factors. A condition is that all communities and staff have assessed their services and project approaches with the same methodology and have been facilitated by the same national or regional team of MPA trainers to avoid that differences come, not from local experiences and conditions, but from differences in the way the staff

teams implement the methodology. Figure 9 gives the comparison between the scores of San Pablo and those of another community in the same Peruvian project, San Marcos.

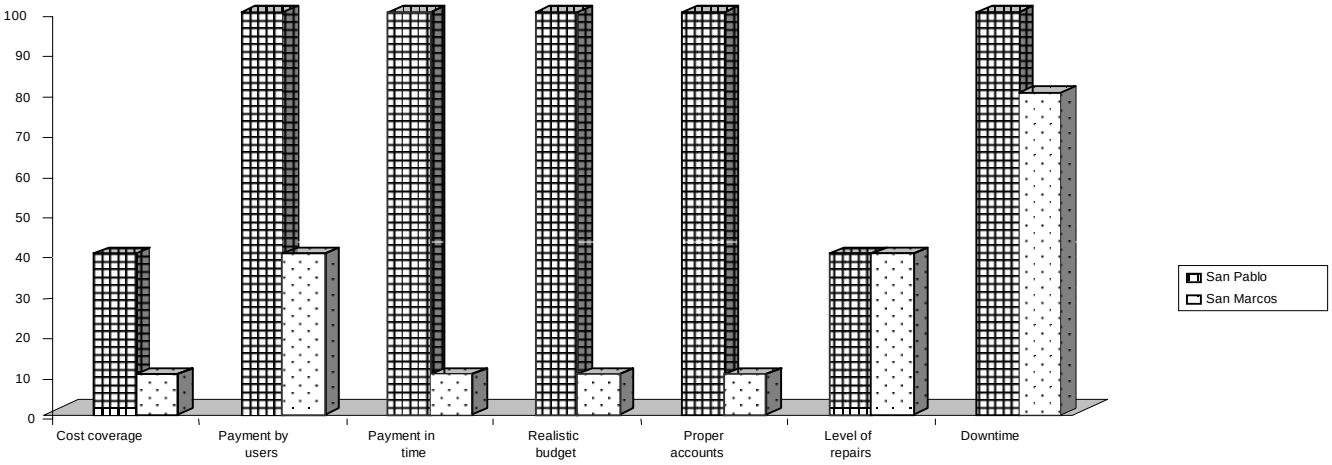


Figure 9 Comparing community scores from two communities in the same project

The figure shows that on all counts but one, the service in San Pablo (which had had more participation from women and men during planning and had a strong mixed committee that kept users informed and accounted for local management) performed better than the one in San Marcos (Box 10).

Box 10 Poor participation, poor results: The scores of San Marcos in Peru

The San Marcos system had been rehabilitated and expanded in 1995, but its users covered even less of the recurrent costs than those in San Pablo. There was also not enough local capacity to carry out more than minor repairs. (These two problems turned out to be structural as the other communities in the project also identified them. The other scores were low only in San Marcos). The water system had a poorly functioning service management organization and lacked user participation in decision-making and control. (These problems showed up in other scores and in the explanations from the participants; they are not included in the above figure).

Although the users were pleased with the low tariff for water and thought that it was sufficient to cover the costs, service delivery was inadequate and management ineffective and not transparent. This had a negative effect on payment. Moreover, in summer, women had a shortage of drinking water as water was then also used (illegally) for crop irrigation.

The local water committee kept the accounts, but it had no users register, experienced problems in collecting the charges, did not account clearly for income and expenses, and did not properly operate and maintain the facilities. Women had problems that water was muddy or smelled of too much chlorine. They had no water during, on average, two days per week and in some houses the service was interrupted every day. The committee (male members only) only got training on hygiene and stressed especially their need for training on financial management. However, they were also weak on participation, accountability, and internal control. Local women and men only participated in voluntary work for construction and upkeep and not in decision making. Three male leaders made all the planning decisions, but did not account for their management.

In large projects and programs, such comparative diagrams give managers, staff, and donors an ‘at a glance’ view of which communities do relatively better and worse on the common factors that its inhabitants have assessed. The same comparison also helps identify factors on which the projects or programs have done consistently better or worse. In Figure 10, for example, differences between communities relate to the

quality of accounting and level of repairs they are able to carry out on their own, while lack of proper budgeting is a structural weakness.

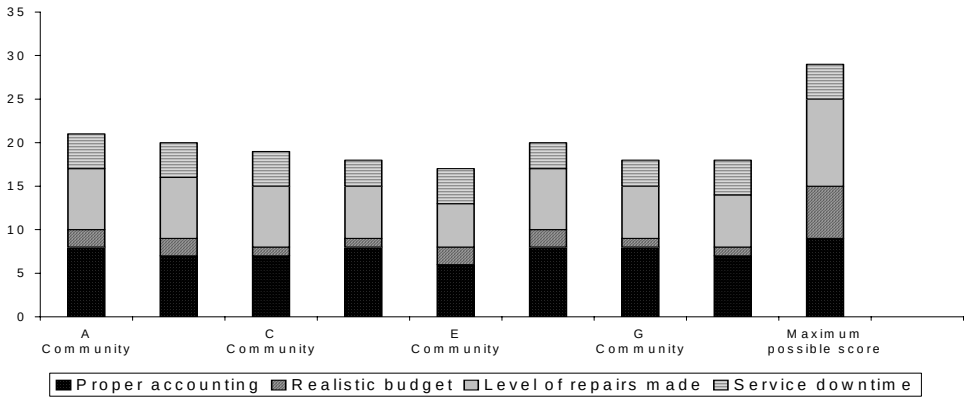


Figure 10 Comparing effective management across communities

Besides visualizing the outcomes of the sequence of the participatory assessments, the scales have the further advantage of making it possible to quantify the findings and analyze the community and agency data statistically. This is possible because, as described in Section 5.6, the community groups choose the option for each indicator on the corresponding scales that best fit the outcome of their analysis. Groups with literate members do so by reading the various scenarios and choosing the one that best represents their reality. To avoid that the order of the scale influences their choice, the facilitator presents the scenarios in the local language on large separate cards. The facilitator only places these cards into a scaled order after the group has made its choice and then seeks confirmation from the group. In non-literate groups, the facilitator orally presents the scenarios. This is also the time when discussions develop about the scenarios themselves and the relative position and possible progress of the community concerned.

Once a database with a range of values has been established, managers may download this data onto their laptops, analyze frequencies, and test for significant correlations between factors as and when they require. The methodology is thus suitable for generalizations within and between programs based on the law of large numbers of comparable data while communities to carry out their own evaluative case studies. In the next chapter (Chapter 5), such an analysis across programs (for the global study) is presented. Apart from giving the results of the global study, it provided the basis for the validation of the methodology that is discussed in Chapter 6.

6 Application of the MPA in the global study

Con el agua fui una reina, porque antes cuando no tenia agua lloraba.
(Woman in Las Gamas, Bolivia).

Prefiero no comer y pagar por adelantado del agua, porque el agua se necesita para todo (Poor woman in Villa Serrano, Bolivia). [24]

6.1 Introduction

The global study mentioned in Chapter 1 was carried out to test the assumptions on the linkages between sustainability and demand-responsive, gender-, and poverty-sensitive participation that were summarized in Figure 1. It was also an opportunity to test the new methodology. This chapter describes how the study was carried out and with what results. It sets out its weaknesses and the reasons for them and discusses the implications for the analysis and findings. This is followed by the report of the outcomes of the study and of the statistical analysis of the relationships between impact of water projects and participation by men, women, and the poor. It is concluded that these relationships exist. It is worth focusing on a participatory approach in water projects that involves the poor and women from an equity perspective in order to ensure a better service and service access. A number of factors in the communities and implementing agencies stand out as particularly important. However, not all clusters showed the expected direct and positive relationship with sustainability and use.

6.2 Organization and training

As set out in Section 2.6, the relevance of a participatory and demand-responsive approach with equity for women and the poor had not been tested earlier. This brought the WSP to undertake a second global study since its first study (Sara & Katz, n.d.) had looked at demand and participation but not at gender and the poor. Preparations began early 1998 after (as mentioned in Section 2.6) a workshop on gender had pointed out the need for statistical evidence on the relevance of gender-specific approaches. Central to the process were invitations from partners of the Water and Sanitation Program (the bilateral donor agencies) to carry out the study in the projects and programs that they support. These agencies finance the establishment costs of the regional offices of the WSP and the coordination unit in Washington D.C.

Each regional office may further negotiate the financing of specific activities with the same donors. All activities are incorporated into the annual plan of the WSP. Being a rolling plan, additional assignments may be added in the course of the financial year. To implement the global study, the WSP included an initial post for it in its annual workplan. This budget, of US $ 1 million, paid for the costs of developing, reviewing and testing of the assessment methodology, the training of the facilitators and the implementers of the MPA, the backstopping of the fieldwork, the analysis of the data and the costs of part of the reports and publications. As the costs of regional staff were part of the running costs of the regional offices, there

[24] "With the water I have become a queen, for earlier, when I had no water, I cried."
"I prefer not to eat and to pay in order to have water sooner, for water is needed for everything."

was no single consolidated budget. Through their contacts in the region, the regional officers for community development invited bilateral partners as well as other development funders (development banks and international NGOs) to join in the study. The development agencies paid the salaries of project staff who took part in the MPA training and the implementation of the research and provided the transport for the study teams. The set-up had the advantage that the WSP could carry out this and other studies without having to finance the additional costs of project staff and logistics in the field.

Many bilateral agencies appreciated the opportunity to take part in an international study associated with the World Bank together with a wide range of fellow development agencies. For the partners, the WSP combined two attractions: an international mechanism to assess, influence, and change national sector policies and programs, including those financed with World Bank loans, and a low administrative workload for themselves. The administrative workload is low because establishment costs and parts of workplans may be financed and administered under one contract. Decentralized bilateral development agencies meanwhile retain the flexibility to either contract regional WSP staff and consultants for ad-hoc services or work directly with local institutions.

The projects that joined were bilateral- and multilateral-supported water (or water and sanitation projects) in the five regions in which the WSP regional offices work. These are East and Southern Africa, West Africa, South Asia, South East Asia and Central and South America. Agencies that had helped to establish the services were national, state and/or provincial governments, development banks, bilateral development support agencies and, in two cases, an international NGO. All projects had at least one external funder. The water services covered a variety of technologies with a wide range of complexity. The overview is given in Table 14.

6.3 Samples of participating projects and services

The strong link with externally financed projects and programs resulting from the organization, mandate, and financing of the WSP has had as an implication that the projects that have taken part in the study are not representative of the water sector in the countries concerned. On the one hand, being self-selected, the projects that have volunteered to participate have probably had better results than the average project since it is unlikely that funders and managers support the participation of projects with very poor results. Seen the type of external funding agencies involved, the projects are further more likely to have used participatory approaches and to have paid attention to the participation of women or even gender equality aspects. The technical results will have benefited from the better conditions under which externally financed projects are carried out. There may also have been a greater stress on access for the poor as many funders have a goal of poverty alleviation and target the rural and urban poor in their projects. On the other hand, because of the poverty alleviation policy of most external support agencies, many projects were located in the poorer regions of the countries concerned. This may have made for more difficult conditions.

Generally, the bias is assumed to be toward projects with a stronger emphasis on participation, sustainability, gender and poverty than existed in otherwise financed community water services. It was

taken that, in the project samples, sufficient variability would nevertheless exist between individual services to test the hypotheses and obtain meaningful findings. In total, the study sample consisted of 88 community-managed domestic water services in 18 projects in 15 countries in five regions (Table 14).

Table 14 Projects in the global study and their characteristics

Country	Project	External Funding Agency*	Community Sample Size	Type of Technology **
Latin America				
Bolivia	PROSABAR	Regional Development Corporation Of Santa Cruz, Social Investment Fund, World Bank, JICA	4	B1 (3) C1 (1)
Colombia	TRANSCOL	DGIS, Ministry of Health	4	C1 (4)
Ecuador	ETAPA	CARE	4	C2 (4)
Peru	APRISABAC	SDC, NEDA	4	A2 (2), C2 (2)
East and Southern Africa				
Kenya	Kwale WSS Project	Sida, UNDP/World Bank	4	A1 (2), B1 (2)
Malawi	Malawi National Rural Water Supply Program	DANIDA, CIDA, World Vision, Save the Children	9	B1 (9)
South Africa	Tisane and Laaste Hoop Water Projects	African Development Bank; Community-Based WS Project	2	B1 (1), C1 (1)
Zambia	Northern & Western Province Water Supply Program	NORAD, Irish Aid	4	A1 (2), B1 (2)
West Africa				
Cameroon	Pro Village II	KfW	4	A1 (4)
	HELVETAS Swiss Association Rural Water Supply Program	SATA HELVETAS, African Development Fund, British High Commission	4	B1 (3), C1 (1)
Ghana	COWAP	CIDA, UNDP/World Bank	4	A2 (2), C2 (2)
	Volta Region Water Supply and Sanitation Project	DANIDA	4	A1 (4)
SouthEast Asia				
Indonesia	WSSLIC	World Bank	4	A2 (1), B2 (3)
	FLOWS	AusAID	4	A2 (2), B2 (2)
Philippines	Central Visayas Water & Sanitation Project	AusAID	5	B2 (5)
South Asia				
India	Kerala CWSSP	DGIS, DANIDA	4	B2 (10)
Nepal	RWSS Project	ADB	10	A2 (5), B2 (5)
Sri Lanka	CWSSP	World Bank, AusAID	10	A2 (7), B2 (3)
		Number of services in sample	88	

* National or local governments, or both, provided some type of funding support to all projects.

** Project Technology: A = Simple (single point, gravity, or private standpost); B = Middle (household connection and private standposts but no treatment); C = Complex (various connection types plus treatment).
Project Type: 1 = Water supply only; 2 = Both water supply and sanitation.

The sampling of service communities within projects was at random in a stratified sample. Not only the size of the participating projects, but also the total amount of funding available per region determined the size of the sample. One of the consequences of a lumpsum allocation per region for the implementation of the study was that fewer communities could be sampled in some regions and countries than others because local conditions had a considerable impact on costs. In Latin America, for example, personnel costs were considerably higher than in Asia and Africa and all materials and reports had to be translated from English to Spanish and vice-versa. In West Africa, there were also extra costs of bilingual staff and training and the translation of materials because of the participation of projects in Francophone and Anglophone zones. A particular issue in Kerala, India, was that in this state the size of the rural communities (40,000-50,000 inhabitants per community) made assessments with full-size communities impossible. Ten sub-communities were therefore chosen at random from three randomly selected communities (one per zone), based on the communities' administrative division into wards[25].

For reasons of validity, practicality, and ethics, all samples were drawn from communities that had run their drinking water supply service for at least three years. To state with some confidence that a water supply service is sustained and used, it should not be new or, as in some previous studies reviewed in Chapter 2, still under construction, but must have functioned for some time. Besides reasons of validity, ethics and feasibility also played a role. Although it would have been preferable for statistical reasons to have drawn the sample from all communities with a completed water service irrespective of whether the service was still working or not, from a development point of view it was not realistic to ask women and men in communities with a collapsed system to engage in the analysis of their service without having any funds for rehabilitation. A further reason was that, when services had failed some years ago, it would be difficult to collect all information that was required to test the hypotheses.

Consequently, totally failed services were not included and by doing so, some loss of variability on other aspects will have occurred. This relates, for example, to the extent to which a community is well organized, the presence of strong leadership , the absence of factions and conflicts, etc. The consequence of the above-described procedure was the likelihood of weaker associations due to a bias toward better performing services, although this might be compensated by a stronger correlation from group scores, as was argued in Section 5.6.

6.4 Selection and training of study teams

The particular institutional and administrative set-up brought out a difference in development philosophy between the two implementing organizations of the study, the WSP, and the IRC. For the WSP, the partners in sector development are the bilateral development agencies which finance the WSP program.

[25] A ward consists of about 500 families and has the character of a neighborhood. Each ward elects its own political representative and chooses its own water and sanitation committee. Many internal (municipal) community development projects are also carried out through wards. Because poor families live in the more outlying and often more water scarce community sections and might get underrepresented in a random selection, the wards were first dichotomized on poverty and water scarcity vs. normal conditions and a random, but not proportional, sample was then drawn from the two groups.

National research and training centers participating in developing the methodology and carrying out the research are, in this perspective, short-term consultants and not, as for the IRC, partners in a longer-term development process. According to the general World Bank philosophy, consultants must be selected through free market competition. Under this philosophy, several consecutive contracts or one long-term contract with the same organization are not encouraged, as this approach does not fit into a liberal model of free market competition.

For the IRC, the development and institutionalization of new knowledge and tools implies a longer process of cooperation and partnership with national and regional sector support organizations. Sometimes, as in the case of the SEUF in Table 15 below, these organizations began as program implementers that pioneered new approaches and from there began to provide training, advice and applied research for others. In other cases, such as CINARA and ITN Philippines, they are originally university centers involved in education and research which have developed an autonomous status after they had begun to carry out pilot and demonstration projects and advisory work. In the IRC's philosophy, the knowledge and skills for using a new water assessment methodology and capabilities to train others needed to be institutionalized into more permanent sector resource centers. Such institutionalization requires a longer working relationship with a different character than would be possible in a short-term contract between a principal and a consultant.

A further difference was the involvement of project staff. As was outlined in Chapter 3, one of the characteristics of the constructivist approach to knowing realities is that the knowledge of all stakeholders count so also project staff should participate in community-level assessments. However, with the involvement of consultants project staff have not always joined the local level assessments resulting perhaps in a lower risk of influencing local knowledge but also a loss of their knowledge. Absence of project staff also reduces chances for dialogue, mutual learning, and development of capacities for continuing to apply the methodology as a planning and monitoring tool within the projects communities.

Because time and scope to address ideological and administrative issues were limited during the preparation of the study,, the practical strategy was adopted that, where available, the work would be done together with national knowledge centers on water and that otherwise 'regular' consultants would be involved, usually from local universities or local consultancy firms for development research. Table 15 gives the summary of the resulting organizational set-up. How to deal with longer-term institutional implications was postponed until after the study and is one of the subjects of the next chapter.

For the reliability and validity of the research, it would have been better if that the teams that carried out the study with the stakeholders had had one joint training before applying the MPA in the global study. Unfortunately, this was in practice not possible. Because each regional office has its own decentralized program, preparations proceeded at different speed and following different approaches. In East and Southern Africa, the WSP worked through the Governments, in the other regions the team approached prospective projects directly. Training and implementation had further to be adjusted to the local seasons and had to take place in the three major languages of the (sub)continents: English, Spanish and French. To reduce the risks of variability due to differences in application rather than in local conditions and practices,

the same team that was involved in developing the methodology was also involved in the training. Training was focused especially on technical skills of carrying out an MPA sequence and obtaining the data. The developmental aspects set out in Section 5.2 have been added more recently.

Table 15 Organizations involved in implementing the global study

Type of implementers	Name and acronym	Participation of project staff	Countries where research was carried out
Sector Resource Center	International Training Centre the Philippines (ITN Philippines)	no*	The Philippines
	Interregional Center on Water Supply and the Removal of Wastewater (CINARA)	yes	Bolivia, Colombia, Ecuador, Peru
	Pan African Institute for Development (PAID)	yes	Cameroon, Ghana
	Socio-Economic Unit Foundation (SEUF)	yes	India (Kerala) + training in Sri Lanka
Consultants		no*	Indonesia, Nepal, Sri Lanka
Consultants and Ministerial Staff		no*	Kenya, Malawi, South Africa, Zambia

* except for the stakeholders meeting

6.5 Data collection, processing, and statistical analysis

Implementers of the global study were social specialists and engineers attached to sector resource centers or working as private consultants or in a consultancy firm. Staff from the resource centers CINARA, PAID and SEUF assisted teams of project staff and community members to do the assessments. The other teams collected the information directly with women and men community members. The resource centers had all had structural experience with interdisciplinary studies and training in water projects, having focused for ten years or more on community water supply, sanitation and hygiene. They had also experience with participatory methods and women in development or gender and development approaches in water supply projects. Among individual consultants and consultancy firms there was a variety of experience in research of water services and studies on gender relations. Differences in implementation performance were more related to the degree of training and supervision in using the MPA, however, than to the nature of the implementing organizations. Project staff and communities that worked with resource centers and consultants which had received extensive training in the methodology (including hands-on training in the field), as well as backstopping on coding, had a better performance in terms of carrying out the full sequence of the MPA tools and events, filling in the coding and including qualitative information[26]. More structural weaknesses of data collection that were experienced in the study and that have implications for the replication of the methodology are addressed in the next chapter.

[26] All implementers were trained, except the team in Malawi, but the length of training varied and in a few countries, training did not include hands-on practice of the tools with a community. In Malawi, implementation took place before the regional training had taken place, because the data had to be used also for the design of a new project.

To process quantitative data, a good codebook is crucial. It spells out exactly how to transform observations, in this case scores on scales, into numbers. These numbers can subsequently be manipulated statistically and searched for emerging patterns. Russell Bertrand has made some very relevant remarks on the preparation and the use of codebooks:

> Coding data is not a major *stage* of research, like design, or data collection, or analysis and write up. Coding is just a chore, but a very important one. A good codebook is worth a lot in data analysis, and it gets worth more every year. It tells you (and others) what you have in your data.
> [...] You simply can't analyze quantitative data without a good, clear codebook. Just as important, neither can anyone else. You can't share your data with other researchers unless you give them a codebook they can use. Six months after you finish anything but the simplest projects (those with only half a dozen or fewer variables) even *you* won't recognize your own data without a codebook (1994, p. 394).

Having been designed as a replicable methodology, the quality of the codebook in the MPA is key to the adequate use and reuse of the methodology. Much time and effort went therefore into its development and further improvement. Another remark of Russell Bertrand proved to contain a lot of truth for this development. " I should warn you, though, that just making a good codebook is not good enough: You have to use it " (1994, p. 400). When he failed to follow his own advice, this had very painful results when replicating a study five years later. He and his colleagues did the second study with fewer variables, but in reusing the coding system he did not re-code the non-relevant variables as missing values. The analysis then made no sense at all and the investigators ended up having to rewrite all the data. This was cheaper than rewriting the program, but still time-consuming, costly, and irritating. In the case of the MPA, using the codebook to enter the data, cross-checking of all data entries and working with it during a first round of data analysis was invaluable for detecting and correcting errors in the coding, as well as in the codebook itself. The latter errors were even more crucial than the former, because they involved a breach in the concepts that were being evaluated.

Four systematic errors were detected in the course of using the coding and were corrected in the database and the codebook of the MPA:

1. The first error was much the same as that of Russell Bertrand in that the missing values had originally not been defined. By that time, the correlation analysis had been done and significant relationships had been found. Rerunning the new entries provided quite some tension, as it was doubtful if new relationships would emerge and how strong these would be.

2. The second error was in the consistency of the scales. In every scale, the lowest step is the absence of the variable being measured by that particular scale such as 'no community payment' in the scales on types and effectiveness of financing. Cross-checking of the scales on this point brought out that three of the scales did not start at zero. However, as the raw scores of each community were available, it was possible to correct these scores without much effort.

3. The third error was conceptual and concerned gender. One of the working principles of the MPA is that all entries in the scales with which the indicators are measured are ranked from zero to high. This also applies to gender sensitivity. In the original coding, scores relating to men had invariably been labeled '1' and those relating to women '2' . If ordinal scales are used, women's shares are then invariably rated higher than those of men, irrespective of the underlying gender theory. If, for example, women did voluntary work such as cleaning, this obtained a higher score, and so value, than when such a task was carried out by men. Consequently, all codes for men and women were reconsidered with regard to their gender meaning and the order was either kept as it was or reversed to reflect the correct gender-sensitiveness.

4. The fourth correction was somewhat similar. It concerned the coding of gender and poverty equity in the composition of the local service management organization. While most scales had ordinal values, these particular indicators had been entered on ratio scales as the percentage of women and of members from poor families in local water management organizations. Conceptually, this meant that a ratio of 100 for a management organization with only women, where all work rested on women alone, was rated higher than a more gender-balanced organization with for example three women and two men. The values for the male-female ratios were therefore reassigned as presented in Table 16. All-poor management committees were considered far less likely than all-women water committees (in fact, they did not occur in the sample), and so here only the increased influence was expressed in the scaling. Some extra weight was further given to overrepresentation of the poor as a remedy against tokenism. (Tokenism has happened especially when externally imposed rules prescribe that local bodies must have one or two women, or one or two members of the lower classes).

Table 16 Ranking of gender and poverty equity in local water management organizations

% Female	Nature of representation	Score	% Poor*	Score
None	Women not represented	1	None	1
<40	Women underrepresented	2	1-25	2
76-100	Women overrepresented	3	26-50	3
40-75	Female-male balance	4	51-100	4

*According to the locally defined characteristics of better-off and poor families identified in the participatory welfare classification activity.

A particular problem that had to be addressed in the coding was how to deal with the different lengths of the scales. Because the number of scenarios that exist determined the length of the scales and not the constructs of the researcher, scales varied in length from a minimum of two to a maximum of seven categories. There was further the question what numerical code to assign to the missing values. In the community-level scores these had a value of either 8 (not applicable) or 9 (not known). While easy to use in a field situation, the scoring system posed problems from the point of view of statistical analysis and so all scores from the assessments were re-calculated using a 0 to 100 scale, as detailed in Table 17.

Table 17 Old and new scoring system

Number of Valid Responses Possible							
							Non-responses
							Old Scores 9 8
							New Scores 0 0
2	Old Scores	0	1				
	New Scores	10	100				
3	Old Scores	0	1	2			
	New Scores	10	55	100			
4	Old Scores	0	1	2	3		
	New Scores	10	40	80	100		
5	Old Scores	0	1	2	3	4	
	New Scores	10	25	50	75	100	
6	Old Scores	0	1	2	3	4	5
	New Scores	10	25	40	60	80	100
7	Old Scores	0	1	2	3	4	5 6
	New Scores	10	25	40	60	75	90 100

To avoid confusion with percentages and because for community members it is easier to understand and work with values of 0, 1, 2, 3, etc., the original scoring system was retained at community level. Afterwards, these scores were changed to homogenized scores for the statistical analysis. Missing values were entered as zero and marked 'missing values'. Statistical analysis of the data consisted of frequency counts, correlation between individual indicators of variables and between variables consisting of indicator clusters. For the latter, scores for individual indicators were aggregated to yield a score for a grouped variable by taking a simple average. This process yielded an aggregate score for each variable (or sub-variable) for every community. For each indicator and variable, there were thus in principle 88 observations in the sample.

Most authors on statistical analysis in social sciences treat statistics as a serious and even daunting matter. When Russell Bertrand wrote *Research methods in Anthropology: Qualitative and quantitative approaches*, his goal was to demystify quantitative research for anthropologists and make it as attractive and interesting as qualitative studies. On data analysis he has the following to say: "How you actually conduct an elaboration analysis is up to you. There is no formula for deciding which variables to test. My advice is to follow every hunch you get" (1994, p. 487). Others have insisted on testing pre-formulated theories. This Russell Bertrand finds too restrictive:

> ...data analysis should be *lots of fun*, and it can't be unless it's based on following hunches...Second...be as clever as you can in thinking up variables to test.... Third, the source of ideas has no necessary effect on their usefulness. You can get ideas from a prior theory or from browsing through data tables. The important thing is whether you can test your ideas and create plausible explanations for your findings. If others disagree with your explanations, then it is up to them to demonstrate that you are wrong, either by reanalyzing your data, or by producing new data (1994, p. 487, emphasis added).

However, correlation between variables is not the only and most important way of analyzing findings from the MPA. Internal and comparative analysis of scores in groups, community assemblies, and stakeholder meetings and by project staff allows many more people to learn from and take action on findings than when one person carries out a statistical analysis of the overall data. For managers and policy makers, a statistical analysis is, however, a useful tool to get an overview of status and trends, compare between communities and projects, and identify important relationships and factors.

When variables are measured on a scale in which order is meaningful, it is possible to test for associations between variables and calculate the correlation coefficient to measure the strength of an association. When found to be significant, the association is not due to fate or chance, but shows a true relationship, for example, gender and poverty sensitive participation in planning is associated positively with better sustained and used services. For actual values, or interval data of which the interval is known (that is, score 4 is exactly twice as large as score 2), the Pearson correlation coefficient is used to test the significance of associations. Because in the case of the MPA, most scores of community groups were ranked data on an ordinal scale of which the intervals were not known, the Spearman's rho correlation test was used to test for covariance between variables. The strength of the Spearman's rho correlation is about 95% of the Pearson correlation. Non-parametric tests such as Spearman's rho have as a further advantage that they are less stringent about how the data are distributed and can therefore be used when, as in the global study, a sample is skewed (Norušis, 1998, p. 366 & 411). Finsterbusch and Wicklin, whose study on the relationship between participation and sustainability was discussed in Section 2.6, did not use a non-parametric test which is probably why they remark that their correlations would be significant "if random sampling and other linear correlation assumptions are met, which they are not" (1989, Table 1). The Spearman's rho correlation test has also been used to test for what might be meaningful associations between individual data indicators within (sub) variables such as whether committees that had been trained and had a legal status tended to establish specific rules for the water system and were more likely to account for service management to those who sustained and used the service. The reported associations all have a level of significance of minimally .05 (indicated in the tables by *) or .01(indicated by **) signifying that the chance that a relationship is due to chance is equal to or less than 5% and 1% respectively. Testing was two-sided because the assumption was that high (or low) scores for participation, gender, and so on would be associated with high (or low) scores for sustainability and use, and vice versa. The scattergrams showed that in the present form relationships were not linear. No regression equations have therefore been calculated.

In the first testing of the data, the statistical analysis resulted in a number of significant correlations between individual data variables, but it did not produce any significant correlation between the clusters. This was of course quite disappointing, as it might mean that the conceptual framework and the hypotheses that had been formulated for the global study and which have been set out in Chapter 1 made no sense. The other possibility was that the way in which the variables had been operationalized was not correct.

In-depth discussions followed with the core team's economist who had a specialization in both parametric and non-parametric statistics and had worked with PRA methods in water catchment area development projects. The conclusion arrived at was that several changes in the composition of the clusters had to be

made to reflect more precisely the nature of the theory and the chronological order of the independent variables. Four types of changes were made, resulting in indicators list presented in Table 10 in Chapter 4:

1. The original aggregate variable 'demand responsiveness' was broken into three separate elements. The first cluster became user *demand*, or the upfront contributions by the users in cash and/or kind to demonstrate that they had a demand for the service. The second cluster remained *demand responsiveness*, or the degree and range of informed choices that the project gave to users in exchange for their demand. The degree of *user satisfaction* with the service in relationship with the users' original and continuing contributions to it became the third separate cluster that might relate with more demand-responsive services with service that were better sustained and used.

2. The community management cluster was re-classified into user participation in the sense of *community contributions* in the operation of the service, which meant looking at who were doing what kind of work to keep the service going, and participation in terms of *community empowerment*, or authority, rights and capabilities to carry out these tasks. The addition 'empowerment' here refers to power in the generative sense – power that relates to activities and the achievement of goals for the public good, such as progress and equity, and not power in the sense of domination and 'zero-sums', implying that when one person or group gain in power, the other looses. Seen in this light, empowerment meant that besides being asked to run a service, communities must also have the means and power to do so, such as an organization, legal rights and training. It also implied that they used this power well, as indicated by control of local contributions and accountability for their administration of the water service to its tariff payers. The empowerment in this cluster did <u>not</u> refer to women's empowerment of which the components, as set out in Chapter 4, were pursued by the way a gender strategy is applied in the participation process.

3. The cluster that referred specifically to gender and poverty, the divisions of burdens and benefits, was divided across a time scale into, first, the degree of equity at the start of the project and, second, a gender and poverty perspective in the operations stage. The former has been reflected in the division of contributions to construction, the second in the division of recurrent payments within the household (where applicable) and the sharing of work, functions, and decision-making in the management of the service.

4. The fourth change was that the critical review of the indicators showed that two of them related to independent, rather than dependent variables and that two other indicators had to be shifted within these two groups. The first relocation was user influence on the scheduling of the service. This indicator was redefined as part of the demand responsiveness of projects and not, as previously, as part of effective functioning. The second one was the nature of the community payment, which influences, rather than is influenced by, the quality of the payment behavior of the user households. Furthermore, the dependent data variable of leaky taps, originally placed under hygienic use was shifted to be an indicator of effective functioning and the percentages of women and poor in local water management

bodies was shifted as an indicator from participation in general to the specific indicators on gender and poverty.

The reorganized data were re-tested for correlation with the help of the Statistical Package for the Social Sciences (SPSS for Windows, 1998) and in this test, a number of significant correlations emerged between individual data as well as between clusters. The outcomes are discussed in Sections 6.5 and 6.6 below.

6.6 The tested assumptions: the links with sustained and used services

As presented in Section 1.3, the first set of assumptions of the global study was that there would be a positive relationship between the degree to which communities sustain a domestic water service and whether and how they would use this service. The second set of assumptions was that services that were sustained and used better (or worse) would also have better (or worse) scores for demand, demand-responsiveness, participation, equity, and institutional support than determined by chance alone. Figure 11 presents the correlations that were found significant, including one negative correlation (D2 and C1).

As shown in the figure, the first assumption (services that are better sustained are also better used) was confirmed. Where services have been sustained better, there has also been a greater access for all, more people have switched to using the improved system for at least their drinking water and environmental conditions at waterpoints have been more hygienic. In consequence, there was no better use of services (B) unless they were also better sustained (A). None of the other clusters directly affected use, but there were significant correlations between individual factors which are discussed in the next section.

Better sustained water services were the outcome of projects that were more responsive to the specific community conditions and needs and were better in meeting the demands of the various user groups. When a service was better sustained, both women and men in better-off and worse-off groups were generally more satisfied with the service and the value of its benefits as compared with the costs (C3). However, better sustained services were especially associated with more demand-responsive project approaches (C2). In these projects, both women and men had more often participated in a larger number of community-level decisions: project initiation, choice of technologies and service levels, choice of locations for facilities, and decisions on local maintenance, management and financing.

Economic demand for an improved domestic water system (or the degree to which community households pay and contribute to construction otherwise, C1) was *not* directly related to the degree to which the resulting services were sustained. There was only a significant positive association when besides contributing, the users exercised rights during construction and management and management committees had been trained for their tasks. (For the detailed indicators, see Table 10 in Section 5.4). In the same way, giving communities only responsibilities for maintaining and managing the service (E1) did not work, unless this had been combined with the above-mentioned rights and training (E2).

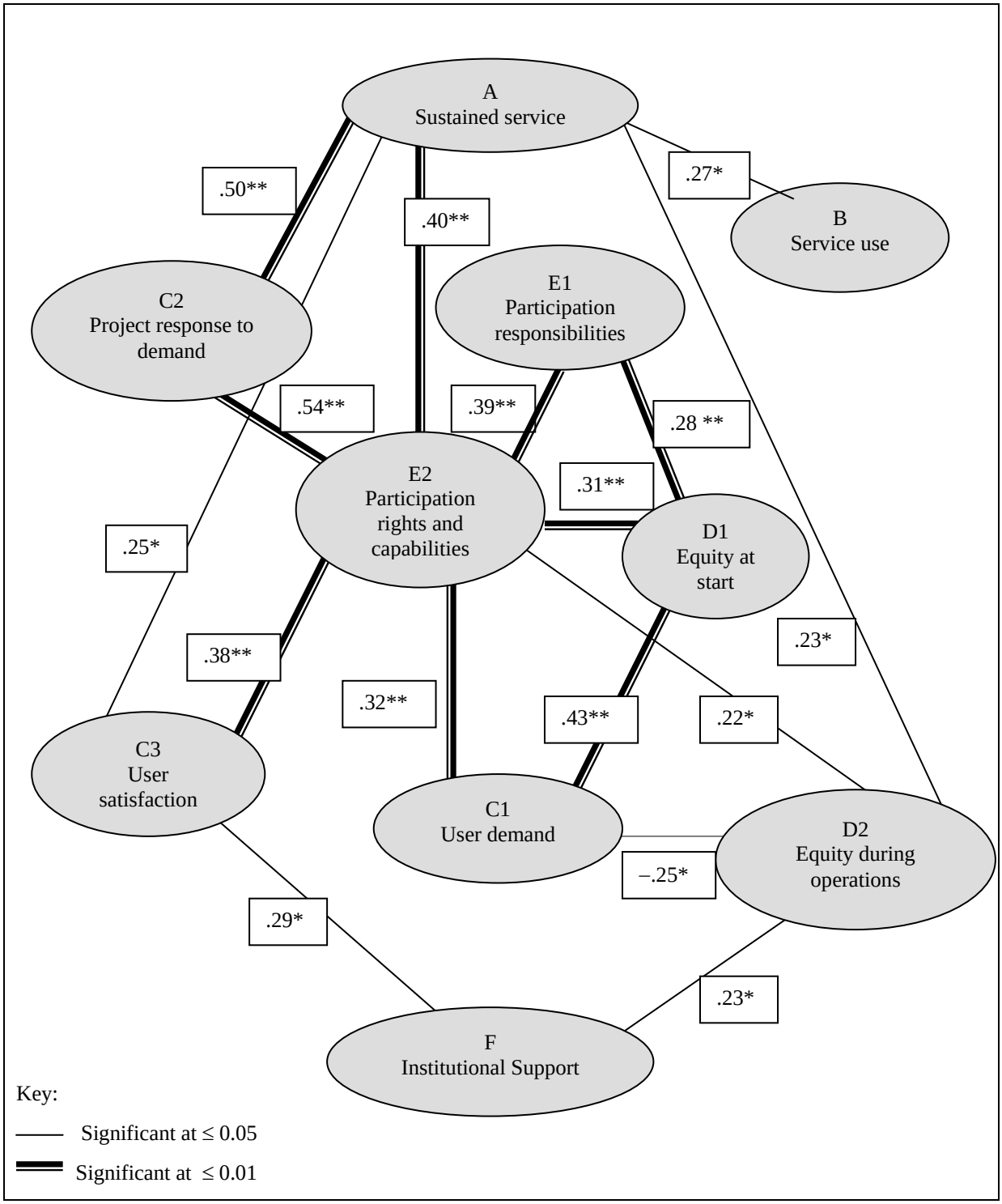


Figure 11 Relationships found at community level

Services with more equity were also better sustained. This is illustrated by the significant relationship between A and D2. 'Equity during operations' referred to a better gender balance in the composition of water committees and more people from less well to do households on these committees, a more equitable division of (un)skilled and (un)paid work between women and men, and a greater influence on service management as perceived by better-off and poor women. Equity at start, or the division of contributions to construction between women and men and between better-off and worse-off households (D1), was however only associated with better sustained services when it was combined with managerial rights and capabilities

(E2). It is surprising that no significant link was found between equity at start and during operations. Apparently, and as will also be seen from analyzing the outcomes of the gender and poverty analysis frameworks in the next section, projects and communities do not yet approach equity issues in a structural and consistent manner.

A negative correlation between initial user demand for the service (contributions to construction by women and men in better-off and worse-off groups) and equity during the later service operations was due to specific local conditions. The reason was that, in twelve services, especially in Kerala, India, the users had not contributed to construction, yet the communities had a high average score for women and the poor on committees and for sharing of voluntary work between women and men in operations. The opposite, high contributions from all, but low scores for equity afterwards occurred in four services, of which three were in Peru.

Although the assumed positive associations between institutional support (cluster F) and field results were almost totally absent, these relationships appeared when more specific agency factors were brought in. It had been the assumption that agencies with more participatory, demand-responsive, and gender and poverty sensitive projects would have significantly better results on the ground. Such homogeneous agency approaches with equally homogenous community results were not found. As an overall cluster, a more progressive agency approach was only significantly related with a higher user satisfaction (C3) and equity during operations (D2). Taken separately, however, the characteristics of the project agencies had significant linkages with how women and men community members scored the projects on the ground. An overview of these linkages is presented in Figures 12 and 13.

Project policies and realities on the ground were to some degree related. Projects that according to agency staff had a more demand-responsive policy were also more demand-responsive on the ground as experienced by women and men community members. Projects with this policy not only gave community men and women a greater voice in local project decisions and had higher user satisfaction scores, but community members had also had significantly more control over the construction and management of the services and had more often received training. In the previous section, it was already seen that both these factors were positively connected with better sustained services.

There was *no* significant relationship between the presence of a women-in-development or gender equality strategy in the projects and equity at start or during operations. An agency strategy on women's participation or gender equality was only positively associated with a greater participation of women and men in making contributions to construction in cash and/or kind (E1) and in more community control over and training for local management (E2). Clearly, project agencies with a more progressive policy on women or gender were more progressive in creating decentralized managed services, but did not have significantly better scores on implementing gender equality. The linkages that were found were not with policies on women or gender equality, but with attitudes of managers, quality of training to staff, a close cooperation between technical and social staff, and gender and socially disaggregated planning and monitoring as illustrated in Figure 13.

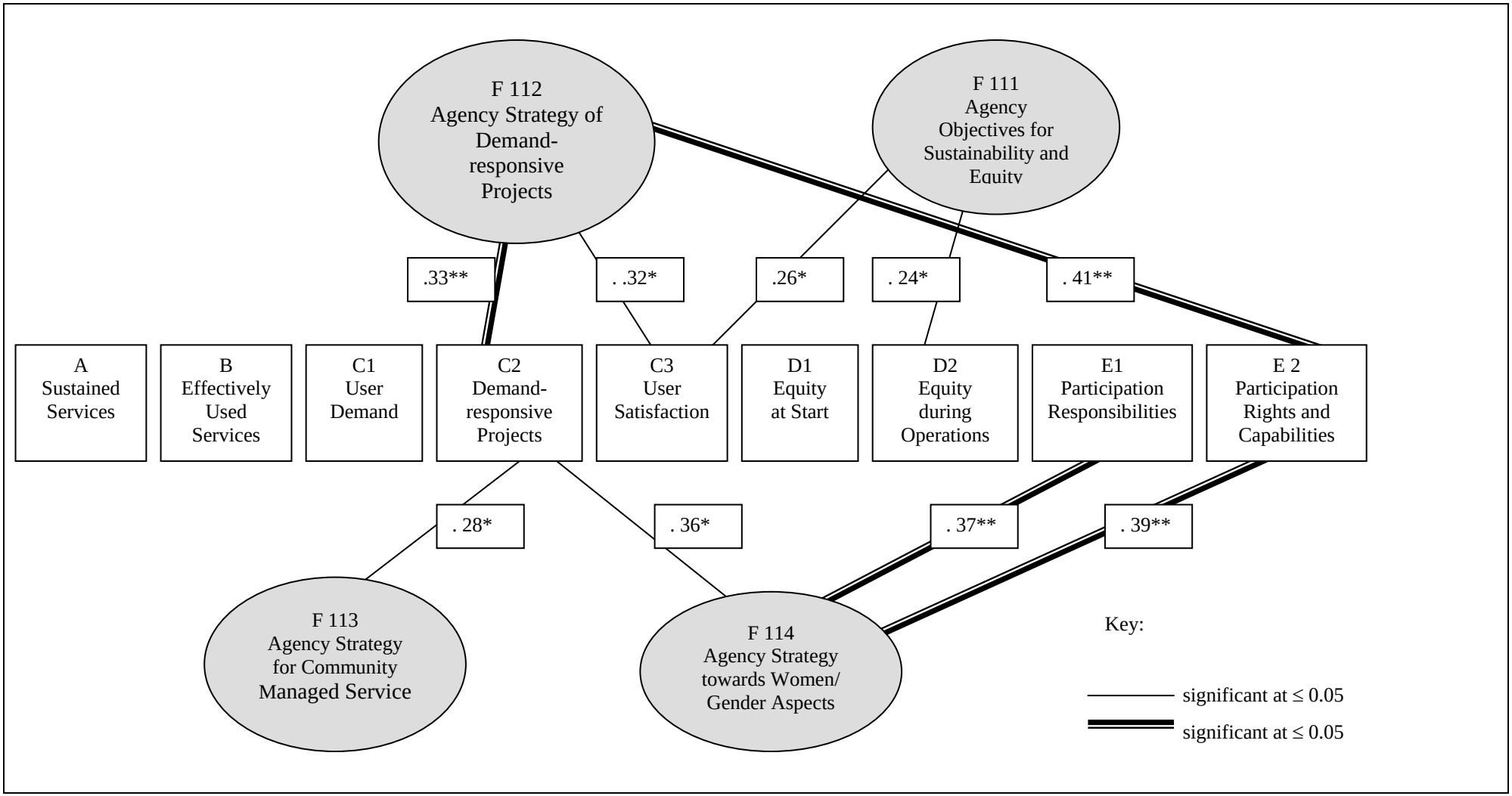


Figure 12 Linkages between agency policies and community scores

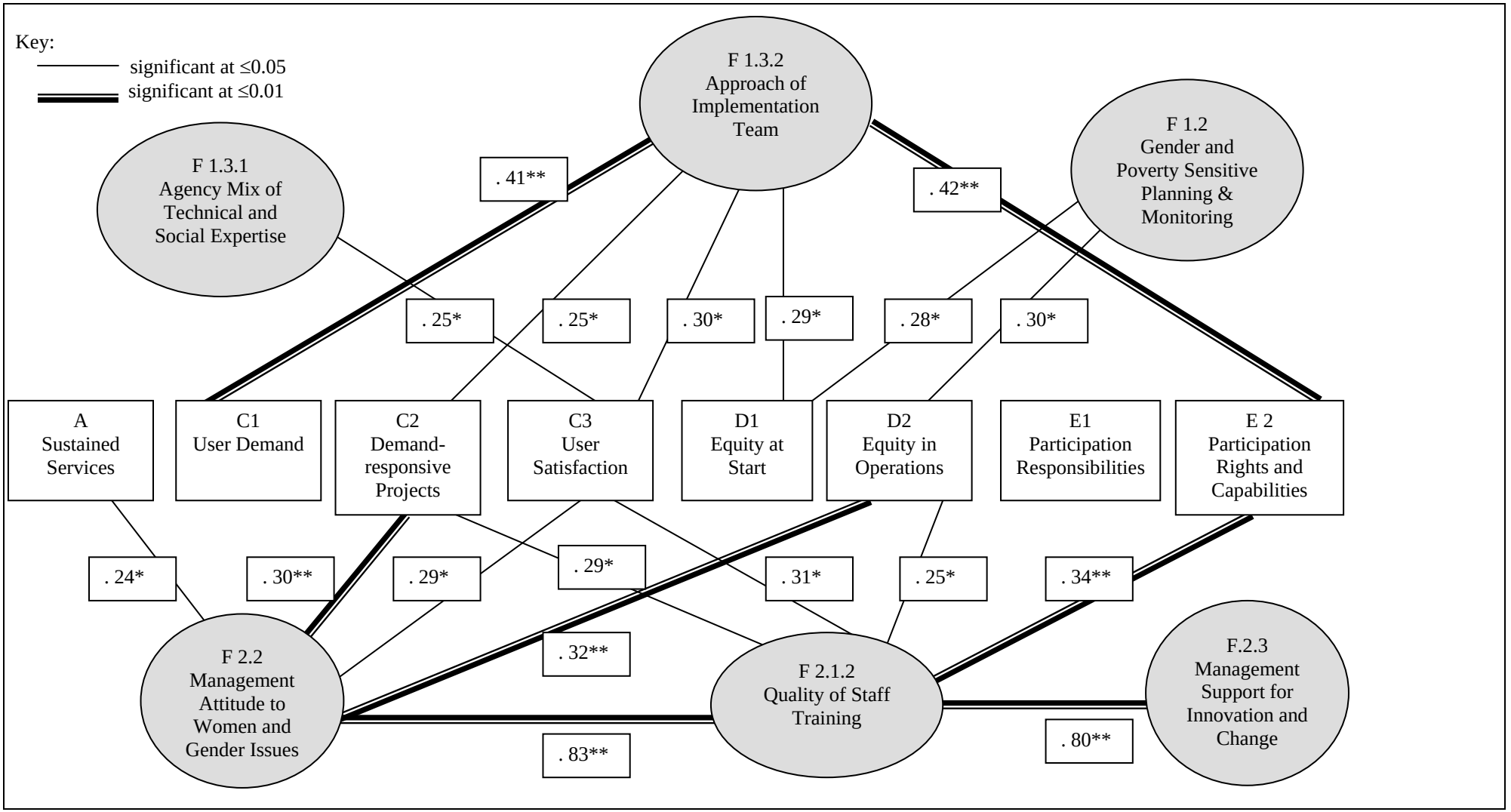


Figure 13 Linkages between agency attitudes, practices, and skills and community scores

Within the project agencies, a mix of technical and social staff, but especially a team approach, progressive managers with positive attitudes to women or gender equality, a better quality of staff training, and socio-economic and gender specific planning and monitoring procedures were the key factors associated with quality of results on the ground. Supportive management attitudes towards women or gender was the only aspect directly and significantly (though weakly) associated with better sustained services. It was more strongly associated with the demand-responsiveness of projects, with gender- and poverty-sensitivity at the outset of service establishment, and with user satisfaction. As might be expected, progressive agency management also had a relatively stronger correlation with the presence of socio-economic and gender aspects in staff training.

Quality of staff training was a central aspect. It was linked most significantly with community rights and capacities for management which was one of the more strongly linked factors with a better sustained community water service. It was also linked with a greater say of women and men community members in project decisions, a better user satisfaction, and equity during operations. Within the agencies, quality of staff training was strongly linked with progressive management.

In the field, the work of social and technical staff in a team approach had the closest links with better results according to community women and men. Where social and technical staff worked more closely in a team according to the staff's own perceptions, women and men community members had more often contributed in cash and kind, had had a greater say in local project decisions, were more satisfied, had contributed more equitably to construction had been more equitably divided, and had obtained more control over and training for management. If there was no team approach, only the link with user satisfaction remained.

From the above, it may be concluded that, in general, it was possible to confirm the initial assumptions of the global study. This is done more on the basis of the number and direction of the associations found than on the amount of variation that they explain and which is one of the topics of validation in Chapter 6. The more detailed findings are presented in the paragraphs below.

6.7 Specifics on sustainability, access, and use

The remainder of this chapter is devoted to the findings on the frequencies and individual correlations on sustainability, access, and use and the outcomes from the gender and poverty analysis. To this data has been added the qualitative data that the teams noted down to explain and illustrate scores. Because each team was free to add or not add what came up, there was quite a difference in amount of information noted. The analysis of qualitative data has therefore been incidental rather than systematic. This experience has led to adaptations in training and field books that are discussed in the next chapter.

Age and technical quality of installed services

The overall global study consisted of 88 domestic community water supply services established by 18 projects in 15 countries. The average age of the services was 5,5 years, but some boreholes and piped water supplies had existed for 25 years. Age was however not significantly related with sustainability, most likely because a number of older systems had been rehabilitated in the course of their existence. Conditions for long term sustainability are that systems are well-

designed and are built to last. As indicators for the fulfillment of conditions, women and men users had the opportunity to bring out negative points on the quality of the design and report on design deviations. They could also score the quality of the materials and the workmanship. An engineer also gave his/her views. For most of the schemes these factors had been met in general. The main exception to overall satisfaction with construction quality was Mpukha in Malawi where the water system was never completed (Box 11). Nevertheless, quite some suggestions for improvements came out in the qualitative observations, so that the scales have since been adjusted to reflect the actual number and nature of the flaws noted by each group.

Box 11 Participation of women and men and the quality of installed systems in Malawi

Women and men community members in the water projects in Malawi had not been involved in planning and design of boreholes and piped water systems, and women are much less involved in management than men. The MPA showed that this was a considerable loss.

Both women and men preferred boreholes with handpumps over piped water systems for their greater reliability and safety. Boreholes were considered the safest source of water "since its water comes from underground" while the safety of gravity-fed water was not guaranteed due to the lack of chemicals for treatment. Communities further fully controlled boreholes and their maintenance and repair, while the government controlled the gravity-fed water supplies. In Kaledzera, for example, the Water Monitoring Assistants of the Ministry of Water Development repeatedly interrupted the water flow without warning in order to clean the tanks.

Commenting on the design of their 42 boreholes, women in Thyolo and Phalombe district villages said that the Afridev pump was more appropriate and women-friendly than the Climax pump. In Phodogoma village, women who had problems with this pump had complained to the chief who, together with the chairman and (mixed) water committee had expressed to the donor the need to install a new, different pump. Installation was now under progress. Reviewing the technical quality of the pumps, the women in Phodogoma suggested further to control the amplitude of the sweep of the pump-handle of the Rider handpump by placing two blocks at either end. The blocks would prevent people from pumping water at full force and amplitude and so prolong the lifespan of the pump.

All women and men in the focus groups disliked the location of the washing slabs, drains, and soakpits. In only one case had women been asked to select the position of washing slabs. Due to the lack of consultation, washing slabs had been located too close to the pumps. The preferred distance was 15 to 25 meters away for more sanitary conditions. Construction teams had directed the drains toward, instead of away from, roads.

Problems such as water shortage and high salinity in boreholes were related to failures of the technicians to consult local women and men on their knowledge of local groundwater conditions. In Yuwa and Kaledzera, only local men had participated in site selection "despite the fact that women are the major users of water... The argument or the influencing factor was that men are the household decision makers despite the fact that Phalombe is purely a matrilineal district" (Robson Chakwana, Bright Sibale, Novice Bamusi & Alice Naphio).

In Mpukha, the water supply had never been completed. The intake had no filter and village men had problems to reach it for deblocking. They had anyway no right to maintain the intake. The storage tank and distribution network were both incomplete. As a result, only part of the community had access to the water supply. In one part, the pipeline crossed the river and had been washed away. Out of the 20 taps, only five still delivered water, each for over 1000 people. Alternative sources were one unprotected well and the river.

The generally positive scores on system quality may have had something to do with the finding that in almost two out of every three services local water committees could monitor the quality of construction and exercise some control over it. In two-thirds of these communities, women participated in the monitoring. Focus group discussions such as in Malawi brought out that exclusion of community women and men from local design and construction means that local knowledge and commitment, which would have increased durability and reduced risks of contamination, remained unused (Box 11). However, because of the lack of refinement of the scoring for system quality (there were only three options, acceptable, unacceptable, or in-between), no correlation between the quality of the installed systems and the degree and kind of influence from local women and men could be established. The experience that community women and men will list specific errors led to a refinement of the scales for system quality as reported in Section 7.2. This is expected to lead to greater variation in the scoring and so allow for the establishment of more specific correlations.

Institutional sustainability

For all 88 services, the teams assessed the local institutional situation. In the MPA and as set out in Section 5.4, a high degree of institutional sustainability at community level has been defined as the existence of a local water management organization and the presence of specific capabilities, authority, rules, and accountability in the organization. Furthermore, various gender aspects and their relation with sustainability and use were looked at as part of the gender analysis (see the next section).

All services turned out to have a local management organization which was functioning, that is, active in managing the service. Only in Ngenglikok (see Box 9) was the service in practice managed by a single local leader. Local management organizations had received some kind of training in 68 cases. Fourteen services (or 15%) had not received any kind of training support. Water management organizations that had a legal status (39) were rarer than organizations that had no formal status or authority (48, no information for one service). However, most services (64 out of 85 for which data is available) had established local rules on water management and/or use. The least information (for 78 services) was available on accountability. This was also the least observed aspect of good management: in almost half of the services, there was no accountability at all, while in four services this was only to fellow-office bearers. In the others, accountability was usually to a mixed user assembly, but in two services, both in Nepal, the water committee accounted for their management only to the men. It is clear that the improvement of the managerial capabilities is a high priority, the more so since this was such an important cluster in explaining the overall technical, administrative, and financial performance of the services.

Technical sustainability

For technical sustainability, the indicators were based on those of the Minimum Evaluation Procedure: water quantity sufficient to meet all domestic requirements, water quality meeting the criteria of the users and the engineers and, for service reliability, the usual duration of interruptions (see Table 5 in Section 3. 6). In addition, it was assessed which level of repairs the communities were authorized and capable to carry out as this may have a considerable bearing on duration of breakdowns. Added was further an important criterion for women, namely whether the hours of delivery were predictable for them. All 88 water services were found to be working. However, only 55 of them were regular and delivered enough water and 50 out of 84 had predictable service hours. Quality of water was better.

Over two-thirds of the services met the quality criteria of the users and out of every eight services five had had their water quality tested at least once. Speediness of repairs was low. In more than 60% of the services, repairs took longer than two days. This is likely to force users to go to other and often unsafe sources because without special provisions stored water will be depleted after 1-2 days. However, shifting to other sources, and their relative safety, was not explicitly assessed. Downtime periods were significantly lower in situations where communities also carried out more complex repairs. However, only seven local management organizations took measures to promote safe water use when the service was interrupted. Some of these are presented in Box 12.

Correlations between individual factors, as given and analyzed in Appendix 1, gave further support to the assumption that to function well and be widely used, a service needs to be well designed and built and that this is related with women and men community members taking part in local planning decisions. Although the size of the correlations is not strong (as was generally the case in the study), the correlations showed that a good quality design and construction according to that design were significantly correlated. They showed further that when women and men community members took part in

initiation and technical planning of the service, the score for 'construction matches design' was higher than determined by chance alone. Chances were also higher that the water service was predictable and that users had switched to the new service. That in better constructed services accounts were better kept is harder to understand as one would think that quality of construction would be sooner correlated significantly with technical rather than administrative performance. The only thing that can be said is that, as shown in Appendix 1, better account keeping is also significantly associated with many other characteristics of better water services, e.g., a higher level of repairs (which is in turn significantly related with lower downtimes), better user payments, and a better coverage of recurrent costs and so fits into the overall picture of what is characteristic for better services.

Box 12 Community water management for reduced infection risks during service breakdowns

Breakdowns and interruptions often force women to go to alternative and less safe water sources. In only a few communities did the local management bear the implications in mind and looked for ways and means to limit the negative consequences. In La Laguna, near San Pablo, Peru, the JAAP - the Administrative Council of Drinking Water - let women know when the service would be interrupted, for example for cleaning the reservoirs. The water inspector in this council was a woman. When in Mwambuli, in Malawi, a borehole broke down and could not be repaired quickly, the all-male Main Water Point Management Committee negotiated with the Water Point Committees (mixed, one for each borehole) to allow the users from the broken borehole to draw water from the others without having to pay. In some of the Kerala services, local water and sanitation committees (all mixed) encouraged well chlorination to make drinking water safe when piped water services broke down or if women preferred dug wells over public taps because they were located within their compounds and privately owned.

Financial sustainability

Indicators of financial sustainability are that users pay for water, payments are made on time, and income covers in any case the operation and maintenance cost (Table 10 in Section 5.4). Paying for water was common: in almost 90% of the services users paid directly for water. In two third of the services all user households paid. However, in 17 services not all were paying either because they could not or because they got away with non-payment. Only a small number (eight services) formally exempt poor families from payment. Payments were often in arrears, mostly for less than half a year (42%) but in a quarter of the services arrears of more than half a year existed. Only half of the services were able to cover the full operation and maintenance costs. One quarter of these could also pay larger repair costs and another quarter made profits. The others had tariffs that were too low and/or insufficiently collected to cover the real costs, so that longer-term sustainability is threatened.

The MPA gave projects the possibility to discover structural problems by comparing the individual community scores. When staff of the Volta Region Community Water and Sanitation Programme in Ghana saw that in their program low scores for financing and financial management were common, they looked at their inputs and concluded that the water committees were not really trained for their financial tasks. Therefore, the project planned specific changes in their training Programme (Box 13).

Where women and men community members had participated in decisions on the type of water service that was installed, the service performed better, financial performance was better and local management had a stonger position. Table 18 presents an overview of significant linkages (for all correlations and an overview of detailed findings on significant linkages see Appendix 1).

Table 18 Associations between community influence, service performance, and cost-recovery

		r [1]	N [2]
Cost recovered during last three year	Community members took part in choice of technology	. 40*	79
	Community members took part in maintenance planning	. 37*	79
	Users pay more timely	.32*	79
	Service has lower downtime	.27*	79
	No leakage at waterpoints	.29*	58
	Poor women & men and better-off women more satisfied	.30-.37*	55-79
	Water committee prepares (realistic) budget	.28*	78
Water committee had some control over design and construction	Cost recovered during last three years	.55**	79
Water committee has legal position	Water supply regular	.25*	87
	Speedy repair (or alternative supply arranged)	.30**	80
	Water source reliable	.32**	87
	Cost recovered during three years	.44**	79
Committee monitored user contributions	Users contributed cash to construction	.31**	77
Training given to community/committee members	Management set realistic budget	.36**	78
	Degree to which all users pay	.33**	81
	Management kept proper accounts	.30**	75
	Cost recovered during last three years	.24*	79
Community made rules on water use & management	Cost recovered during last three years	.53**	79
Community water committee accounts to users	Users contributed cash to construction	.34**	78
	Committee set realistic budget	.40**	78
	Cost recovered during last three years	.51**	78
	Women have voice in service schedule	.42**	55

[1] Correlation coefficient [2] Number of services for which this data was available

Cost-recovery was generally better in communities with more democratic decision making (that is, directly involving women and men community members) on technology choice and maintenance arrangements. Surprisingly, there was no significant link with a greater say of the users in the choice of the local financing system. The latter was only significantly correlated with who is paying: either all pay or poor people have been formally exempted (see Appendix 1).

Box 13 Improving financial management in the VRCWS Program in Ghana

In the Volta Region Community Water and Sanitation Programme in Ghana, water and sanitation ('Watsan') committees have been trained to complete facility management plans, open accounts, and keep basic financial records. However, the MPA revealed that training was not yet effective:

"The general picture that emerged from the analysis is that communities have problems collecting user fees and that the reasons for this are varied. One reason is the inability of the Watsan committee to develop a realistic cost recovery regime that is understood and acceptable to the people. Furthermore, a number of community members do not see the need to pay for water that used to be free and an open access. This group of people are not willing to pay not because they do not have money, but for the reason that water is a common property and that there is no need to pay for it. A number of them also do not [want to] pay -it is just intentional. While some people might not pay for economic reasons, there are few in the communities assessed. This category of people are mainly the aged - both females and males - and the sick. All the communities exempt the aged and sick from paying for water. [However], it has been discovered that the facility management plans... [are] only theoretical. The cost estimates are not realistic and do not reflect the actual cost of running the systems.

The project planned the following adjustments to the training of Watsan committees:

- identification of requirements for operation and maintenance with the committees
- develop a realistic cost estimation mechanism, which is acceptable to the community
- training of the committees in cost estimation and budgeting
- animation to change the community members' attitudes towards paying for water
- change in pricing policy and strategy (currently flat tariffs)" (Festus Kwame Kwadzokpo, training officer VRCSSP, Ghana, n.d.).

In addition, breakdowns were shorter, users paid more often on time, and the local management organizations prepared a (realistic) budget and accounted for service management to the users. The management organization itself was also

stronger: it had more often been trained, had a legal position, had established rules and had had influence on construction quality. Other significant correlations with a better financial situation were a greater say on the part of the users in the choice of technology, service levels and maintenance system and more user groups were satisfied.

Social sustainability and access

Social sustainability was defined as the degree to which the intended user population accepts the new service (Section 5.4.). As was seen in Section 2.5, acceptance is closely related to (physical) access which in turn depends on the number of facilities and their distribution over the settled areas. Access to (service) water was inadequate: based on the social maps, all or virtually all households had good service access in only 40 percent of the cases. From a social perspective, all households should have enough water to meet their basic household needs and that is safe to drink. From a public health perspective, the coverage level should be 75-80% to achieve an impact on public health (provided also sanitation and hygiene are improved). If access for three-quarters of the households is taken as standard, the percentage of services that meet this standard increased to 78%. The households that did not have access were not always poor. However, better-off households usually have the means to make other arrangements which the poor do not have.

From the qualitative data, six factors emerged that played a role in the inequitable distribution of access to improved water services:

1. *Faults in design and installation.* In a small number of services, problems with access were due to inadequacies in construction. In one of the services in Colombia, for example, the slow sand filter was not built according to design. This caused long periods of irregular water delivery and raised operation and maintenance costs. Communities and teams in Lékié, Nyong and Kellé in Cameroon found that problems with water quantity and quality were partly due to declining groundwater tables and partly to faults in construction because wells had not been made deep enough. They had also been sited too far from the households, especially in the more hilly areas. The project had changed its prospecting techniques and communities and project jointly decided to improve the locating procedures of wells to make sure that they would be as close as possible to the inhabited areas.

2. *Design limitations*. Issues of a restricted technical feasibility affected both gravity-fed and groundwater schemes. In gravity-fed schemes, it was not always possible to serve the houses located above the source. In addition, the pressure in the distribution net was sometimes insufficient to serve the houses in the higher elevated locations. However, the latter was also due to behavioral factors (overconsumption and water wastage). The same problems occurred in pumped piped schemes, e.g., in Kerala (see Box 8). In handpump and well schemes, the local hydrological situation had, in a number of cases, impeded the location of waterpoints in places that would give an optimal access over the community.

3. *Overconsumption of the available water*. In several services, problems of water shortage and inequitable distribution were aggravated by the social problem of overconsumption or the drawing of more water per person per day than the design of the water service allows. Overconsumption reduces the waterflow in piped systems and puts greater pressure on the recharge of wells. The problem is made more serious by using water from drinking water supplies also for domestic productivity. Qualitative data showed that such use was universal. Who benefited from such use depended on who lived in the locations where the amount and regularity of the supply allowed for the extra use of

water. Whenever a household had the opportunity to use water productively, it usually did so irrespective of the social stratum to which it belonged. However, better-off households generally have better opportunities to use domestic water productively at home, for example to raise animals or exploit an orchard or vegetable garden. In some services, e.g. in Ghana and Malawi, the productive use of water was one of the major causes of user conflicts at the waterpoints because it led to competition for such uses between men and women
and between women who used water only for domestic use and women who also used it for domestic production.

4. *Failure to keep up with population growth.* Over time, new households settle in new areas outside the sections served by the existing system. In a few piped supply schemes, communities had undertaken expansions of the water supplies, but this was an exception rather than the rule. Only one community with handpumps had expanded the waterpoints on its own. It appears that in either type of project, implementing agencies have not addressed this aspect in the planning of the choices of technology, the selection of the locations, and the training on technical, financial and managerial aspects.

5. *Inability or unwillingness to pay the required amount.* Not being able to join a service was not only a matter of being unable to pay, but also of unsuitable financing systems or unfair charges. For example, when new households in San Miguel in Peru wanted to join the service, the JAAP (the local water management body) gave the new user household the right to connect at 10 soles per day of work. The total amount to be paid, 300 to 400 soles, covered not only the cost of the new connection, but also compensated for the work that the other households had put in during construction. New households in this community did not taken a connection, first, because the charges for labor were higher than the value of the original inputs and second, because they could not pay the required amounts as lump sums. In other services, it has been possible for poor people to pay the connection costs in installments and since the tariffs are usually quite low, this has increased access for the poor. Especially single women heads of households paid cash in installments, instead of putting in labor for construction.

6. *Lack of demand*. In some piped services, households did not connect because they were satisfied with their use of indigenous water sources or because they had an improved private source.

Poor families were affected most and access was significantly better when there were more poor people in the water management committee (r= .43**). Lower access resulted often from implicit discrimination against the poor (for case descriptions from the qualitative data, see Box 14 below and Box 8 in Section 5.4). Where especially poor people lived in the hinterland and at higher altitudes, they had either not been connected or had worse delivery. They depended more on public connections and had no storage facilities to cope with gaps in delivery and irregular service hours. Costs and conditions of connection made private connections less affordable for them and where services were poor, they had fewer resources - money, means of transport, servants - to get water delivered from elsewhere.

There was, however, evidence of structural inequity from the nature of the payment systems. In all but nine services, water tariffs were flat, i.e., households paid the same amount, irrespective of used amounts, purposes of use and differential benefits and capacity to pay.[27] Yet the participatory welfare classifications showed that virtually every

[27] In eight other services, tariffs were the same for all, but the very poorest or old and sick were exempted from payment. See also Section 6.7.

community, including those that projects classified as poor, had also groups that did better. Households with best conditions benefited disproportionately from domestic water services with a flat tariff, as they had larger houses and more utensils, clothes and animals and used more water for domestic hygiene. Although both poor and better-off families used domestic water productively, better-off families had better access (e.g., private sources as well as access to public sources) and more resources, such as capital, land and labor, to use water for cash earning or expenditure saving purposes, while paying the same tariff as groups with fewer resources for either use.

Box 14 Differential access for the rich and the poor

In Convenio, in Colombia, "there are two areas that are very well differentiated both socially and class wise: Santa Barbara and Las Delicias/La Mirada. The bigger proportion of poor live in Santa Barbara, which is located high in the slope and at the extremity of the distribution network. Las Delicias/La Mirada is located in a lower area, of easy access to the tank reservoir. Here lives the majority of the rich people" (Sandra Bastidas and Javier Fernandez, translation by the author).

In Lanchepamba, San Miguel, Peru, "there are 17 households without access to the water service because of their location above the level of the source. Of these, 5 are better-off families and 12 are poorer' (The project team in Lanchepampa[1]; translation by the author).

In Argao, the Philippines, "most of the communal faucets were installed along the road (highway) which could be easily be seen, and where most of the rich and middle class households are located. Since these social classes could easily afford to have HHC [household connections], a lot of the communal faucets are now without use. These communal faucets could have been of more use to very poor households that cannot afford to pay the cost of connection which was approximately P 3,000 (US$ 75) per household.... Related to the lack of water supply facilities for the poor households, some of the poor are being exploited since they are paying more. The cost of 3 pails of water (20 liters per pail) [from a standpost] cost P 2 whereas the cost of water from the Cooperative cost P 4 per 1000 liters (Karen Jacob, the Philippines).

[1] Jenny Bardalez Celiz, Nurse, Irma Vigo Aguilar, Midwife, Gustavo Chavez Vargas, Engineer, Mauro Reyes Vasquez, Sanitation Technician, all of San Miguel, Raul Reyes Vasquez, project engineer, Luis Dario Sanchez, engineer/MPA facilitator, CINARA.

Acceptance and use were significantly associated with more general access (r=. 34**). Communities where, according to the users, more households had shifted to the use of the service had also a higher percentage of access and women had more frequently participated in the location of facilities (r= .32*) and the choices concerning local management and financing (r= .29* and . 38*).

Environmental sustainability

Threats to environmental sustainability were defined in Section 5.4 as threats *to* the water service from insufficient and/or contaminated water sources and threats *from* the water service due to inadequate drainage. The delivery of enough water to meet domestic needs was a serious problem in many

services and was acerbated by environmental problems of declining water sources and the neglect of productive use of domestic water within households. Of the participating services, 60 percent delivered water throughout the year, but 28 percent had seasonal shortages, and ten percent never supplied enough water to meet the primary needs of the users.

Not surprisingly, problems with the water source (or their absence) are significantly associated with a more (or less) problematic service and there is some indication of local measures, although in its present form the MPA does not sufficiently bring these out. The occurrence of water shortages in the system was significantly associated with the shortage of water in the source (r=.46**, see Table 19). Where the source was adequate, water delivery was both more reliable and sufficient to meet basic needs and households had more often fully switched to the new service for at least their drinking water.

The quality of the water was more often experienced as good when the water source was protected. Where the water source was not protected, communities had more often established rules on water use, although in its original form the MPA has not documented the specific nature of these rules. The correlation between source protection and speedy repairs is harder to understand. It may be that water services that are better at repairing breakdowns are also better at protecting the source, but as it was not established who protected the water sources, the agency at the time of construction or also the communities during operation and maintenance of the service, this could not be established.

Table 19 Correlation between water resources and water supply, use, and management (N=87 services)

Water source has enough water over the year	Enough water in service for primary domestic needs	. 46**
	Water delivery is regular	. 49**
	% Households always using water for at least drinking	. 35**
Enough water for primary domestic needs	Water supply is regular	. 82**
Water source is protected	Experienced water quality is good	. 24*
	Quick repairs - usually 2 days, or alternative arranged	. 29**
Water source is unprotected	Rules on water use	. 23*

*= Significant at the 0.05 level ** =Significant at the 0.01 level

Qualitative information on why the sources were inadequate was not collected systematically. It is therefore not possible to say which factors are the most important: poor design and/or construction, (including a failure to use local knowledge of women and men on the adequacy of the source and involve them in the control of proper construction, e.g., whether contractors dig the wells to the agreed depth), surpassing of the design population because the system has continued beyond its design period without expansion or the population has grown faster than foreseen, and/or the use of more water than originally envisaged.

As already mentioned, the qualitative data indicated that domestic water was used for household level production as well as consumption. The particular purposes of use were related to culturally specific gender divisions of tasks and served to meet practical needs, save expenditure, and generate income. Women used domestic water not only for drinking and hygiene, but also to grow vegetables, raise small livestock, process palm oil, produce shea butter, brew beer, and produce food for sale. Men sometimes also grew vegetables, irrigated certain cash crops such as coffee plantations and tobacco nurseries, watered herds, and made bricks for sale and to construct and repair their houses. The latter activity caused depressions at waterpoints that got filled with stagnant water and became risks for health (mosquito breeding) and small children. Where water was scarce or caused problems (such as in the case of brick making), frictions between women and men and between families who used water productively or only for domestic use were widely cited as a cause of conflicts. In the Volta and Upper Regions of Ghana, water committees introduced rules on water consumption and set restricted and supervised opening hours and conflict management was a major and time-consuming task of male members in the water committees.

Environmental risks due to the water systems also existed. The transect walk teams gave negative scores (stagnant water at public water points) in 13% of the services. However, in 22 systems this environmental aspect was not assessed. In the other systems, environmental problems through inadequate drainage of wastewater were significantly less prevalent when women participated in service management. More details can be found in the outcomes of the gender and poverty analysis in the next section.

Characteristics of best and worst performers

There were clear differences in characteristics between the thirteen services with the highest and lowest scores for sustained service and effective use. They are summarized in Table 20.

Table 20 Characteristics of services with the best and worst sustainability and use (N= 26 services)

Characteristic	Thirteen best services	Thirteen worst services
Project initiation	By the community, through initiatives of leaders and people (7 cases) or through a public assembly with women and men (5 cases)	By the community in three cases. The project (four cases), local leaders alone (four cases), or a group of only women or only men (one case each) had initiated the others.
Decision-making during planning	Both men and women felt they had participated in choices about technology or service level and location of facilities (11 cases); local management organization (all cases); and local maintenance and financing arrangements (12 cases both). Overall, planning decisions were made democratically with a process that included women's participation in 88 percent	Local women and men had had a say on technology and services levels in three cases, and in location of facilities and local maintenance and financing systems in four cases. In only half of the cases, women and men participated in choosing the local water committee. Democratic planning choices were made in 34 percent of the communities.
Composition of local water management organization	Women participated on all of the water committees but one. Six committees were gender balanced (female members between 40 and 75 percent). In four cases, women were over-represented, and in two they were present but under-represented. 61 percent of the best performing service communities had either a gender balance or more women in the local service management organization.	In three committees there was no woman on the committee. Thirty percent had a composition that could be called gender balanced. None had more women than men. Indeed, in almost half, women were underrepresented (compared to 15 percent in the best performing services)
Influence of women	Poor and better off women felt they could influence decisions about service management in all but one community. In the case with no women on the committee, women still felt they had a voice, since major decisions were made in user assemblies.	In two cases, poor and better off women concluded that women participated equally with men in decision-making.
Training	Training for maintenance/ management/ hygiene in all communities	Training in seven communities
User satisfaction	In sixty percent of the services, users felt that service and benefits were worth their contributions. There were hardly any differences between poor and better off, women or men.	In ten of the 13 cases, users were either disappointed or believed that they were contributing more than they got, or both. In half of the cases, women and men rated that the service met only half to three quarters of their demands
Cost recovery	Four communities covered at least the operation and maintenance costs of the service and three made profit (data cover last three years). Two did not meet full operations and maintenance costs (data missing in four cases).	For all but one service, funds were insufficient to cover the day to day operating costs. In one situation, income was sufficient to pay for these costs, but not to meet larger repairs.
Administration	Ten communities made budgets, one did not (two had missing data).	One service organization prepared an annual budget
Accountability	Ten accounted for service and financial management with both women and men users.	Two accounted for service and management to those that were using the service and sustained (or were expected to sustain) its operation.

Better sustained and used services had more often been initiated by women and men community members and women and men had taken part more often, and in more decisions, during local planning. The local organizations that manage the services more often also had women members and, according to other women, both rich and poor, these female members were not on the committee in name only, but had an influence. There had been more training, administration, cost-recovery and accountability were better, and users were more satisfied.

6.8 Outcomes from the gender and poverty analysis

In this section, the results from the use of the gender and poverty analysis frameworks are presented following the chronological order of a water project from initiation to impacts. The issues covered are, however, the same ones as those presented in Tables 7 and 8 in Sections 4.5 and 4.6.

Decisions to initiate the project

The MPA uses six indicators for decision-making during the planning phase of a water project: who, according to women and men community members, made the decisions on service initiation, choice of technology and service levels, locations of facilities, and choices on local management, maintenance and financing arrangements. Options are: the project staff, the local authorities, local men, local women, local women and men, or all groups together. In almost two-thirds of the services in the global study, women and men community members had participated in the decision to initiate a water service project. Women and men together initiated sixteen projects, usually in a general community assembly. Five projects had been initiated by only men and one by only women. In forty projects, they had participated in the decision along with others (leaders and project staff). Services initiated by or with a mixed group of women and men had significantly better scores for source reliability, quality of installation, accounting, and functionality than when only a single sex, leaders or outsiders had been involved, although the correlation coefficients are again small[28].

Access to information

Information is a necessary resource for people's participation in local decision making. If only leaders, men or the better-off get information and women or the poor do not even know that a water project is being undertaken or that planning decisions are being made, the latter have no possibility to express their views and influence the choices that affect their lives even more than that of the other groups. The design of the MPA allows local women and men, project staff, and managers to see who in the communities has had access to information before making various planning decisions. Unfortunately, this information was not collected and coded in the same way throughout the global study. While in West Africa and Latin America the community members assessed who it was that had received information on which subjects prior to decision making, the other assessments focussed on whom the householders got information from, without distinguishing the subjects and if access differed between the sexes. Analysis in the global study was therefore limited to the presence and sources of information.

In 20% of the projects, the users had <u>not</u> heard that a water service was being planned. Where they had heard earlier about the project, they mostly learned this from external project staff (two-thirds of the cases). In the remaining one-third, the source of information was the local council or leadership (5 cases).

Participation in planning decisions

Participatory and gender-sensitive decision making on at least some of the planning aspects occurred in over 85% of the services. In only one case in the sample had the community not had a say in any of the decisions during this phase. However, in none of the projects did women and men community members in every sampled community participate in all five planning issues that were assessed.

[28] Construction according to design .39**, source reliable and protected .25* and .30**, downtime two days maximal .31** and proper budgeting and accounts keeping .38** and .31**

The projects themselves varied considerably in the degree of gender-sensitive participatory planning. Participatory planning was most prevalent in the projects in East and Southern Africa (with the exception of Malawi) and in the projects in South and South East Asia, with the exception of Kerala. In Kerala, people's participation and participation of women were higher in planning community-managed sanitation than in planning the only partially decentralized water supply services. In participating projects in Latin America and West Africa, decisions were more often made by leaders, who were often only men. In the four study communities of the water program in Upper Region in Ghana and in three of the eight communities in Cameroon, the local traditional or political leaders had made all of the planning decisions and, in five other services, all in Latin America, the local leaders and men had made all planning decisions.

The most usual was that the users chose the water committees, and the least usual was that they chose the technology and service levels. The choice of the members of the local water management organizations had been a joint decision in 77% of the services. In two-thirds of the services, women and men had participated in decisions on the location of the facilities and on local financing arrangements. Participatory planning was least common in the choice of technology and/or service level. Yet, in almost half of the services, communities had had some say in choice of technology and/or service levels and, in 41% of the cases, men and women users had taken part[29].

More democratic and gender sensitive procedures in decision-making during the service planning phase were in several ways significantly associated with better service performance and use. Although the coefficients of determination were again low, the picture that emerged makes sense (Table 21).

Table 21 Participation of women and men in planning decisions and service performance

		r[1]	N[2]
Women and men users take part in locating water service facilities	Construction according to design	.40**	81
	% Access to the water service	.32*	83
	Shift to water service, at least for all drinking	.27*	87
	Water source is protected	.27*	87
	Supply is predictable	.23*	84
Women and men users take part in planning local maintenance	Caretaking by community	.39**	86
	Lower downtime	.22*	80
	Water quantity meets basic primary needs	.25*	88
	Cost recovered during last three years	.37**	79
	Rules made on water use/management	.42**	85
Women and men users take part in planning local financing arrangements	% Access to the water service	.38*	78
	Users are paying for O&M	.35*	78
	Maintenance by community	.33**	78
	Complexity of locally made repairs	.23*	78
	Accounting for service	.35**	78

[1] Correlation coefficient [2] Number of services for which this data was available

A gender strategy in the location of water supply facilities went together with better access and use and better protection of the water source(s). Gender-specific participation in planning of local maintenance was correlated positively with users' experiences of a lower down time and better sufficiency in amounts of water and services had better cost-recovery. Participation of women and men community members in decisions on local financing corresponded with more general access to the service, local maintenance and repairs with a higher complexity, more general payment and

[29] In the revised version of the MPA, the question of who has taken part in what planning decisions is assessed and analyzed separately with groups of poor and better off women and men. This was not yet done in the global study.

accounting for services to women and men. There was however, no significant correlation with budgeting and quality of accounts and with cost recovery. Finally, a say for women as well as men in local management arrangements was significantly associated with a better access to the service, a more general use, and lower downtimes.

Division of contributions in construction

Community members had contributed in kind, through labor and materials, to the construction of 90% of the services and in cash to 62%, but contributions rarely reflected differential capacities and the high participation of women was only partially translated in a share in management. For 73 services, community members recalled *who* did the work. The use of a gender-specific definition of labor and materials[30] has as a result that in only two cases, both in Latin America, women had not contributed any physical work to the new water service. In two other services, in Zambia and Nepal, women were the only ones who contributed in kind as well as cash; men only gave cash. In 90% of the projects, contributions of labor and materials came from *both* sexes. Special arrangements for women were made in Tamulito in Indonesia (see Box 15).

Box 15 Division of contributions within and between households in eight communities in Indonesia

The participating communities in Indonesia had adjusted the total contribution for construction to the payment capacities of the different households, as determined by community consensus. A condition for such a decision is that the project rules allow the communities to decide modes and amounts of contributions. The two participating projects, WSSLIC and FLOWS were flexible on that account.

One community in each project (Wailolong and Lamu) adjusted the cash payments to the capacities of the households. In all others except in Tamulito, cash contributions were at a flat rate and compulsory for all. In Talumelito, contributions of any kind were not compulsory for the rich as they had their own water supply systems and were not expected to be users of the proposed new system. They often volunteered some cash contribution to show solidarity. Contributions in kind (labor and materials) were also compulsory. However, except for Tamulito, the amounts were adjusted to what a household could contribute. In Tamulito, the poor had to contribute the same amount of labor as anyone else, but the hours of labor were scheduled flexibly, so as not to cut into their income earning activities.

Households in all FLOWS communities contributed materials according to capacity to pay, but all had to provide a fixed amount of cash and labor. Community schedules were worked out for labor contribution by each household and monitored by Water Committees or village heads. In Lewoloba, Tanedeng, and Mokantarak, defaulters had to pay a fine of Rp. 5000 per day when a household failed to provide labor as agreed. At that time, the daily wage of agricultural labor was around Rp. 2500-3000 per day.

Both men and women contributed construction labor and materials at all sites, except in Talumelito, where women's labor was limited to providing food . Men everywhere generally dug, constructed, installed. Women carried materials to and fro and provided food for the workers. Cash was usually handed over by the man although it came from the family's savings managed by the woman from joint earnings of both. Thus, women contributed cash together with men at all sites, including Talumelito. The worksite in Talumelito was up a steep hillside and it was a community decision not to require women to participate in the manual labor. Talumelito was also comparatively better off as compared to the other three communities at the Gorontalo project site (Nilanjana Mukherjee, 25 May 2000).

When payments in cash were made, both women and men generally defined these as a joint contribution from the two sexes. An exception were two communities in Peru, where the women defined payments as joint, but the men defined them as male only. In Limaï, where the project was women-initiated, only women gave cash. User contributions during construction generally did not reflect differential capacities to contribute. Contributions in kind were either totally voluntary (one third of the cases) or consisted of the same amount of work time for all households (50% of the cases). Only ten communities had adjusted the workload to the differential capacity of the households. Six others had exempted households which, due to illness, age, or composition, could not provide labor.

For cash contributions, one in four communities considered equity aspects. In six of 53 services built with cash contributions from users-to-be, the amounts were adjusted to households' differential payment capacities. Another six exempted the very poor. One community, in Zambia, did both. Although adjustments to differential capacities to contribute occurred most often in the projects in Zambia, Cameroon, and Indonesia, there was no consistent pattern, as everywhere the approach depended on the initiative of individual communities. The phenomenon that women and men belonging to the same household paid separately occurred especially in areas where women culturally have their own means of production (Box 16). This does, however, not mean that both sexes have the same financial resources since that depends on the size of women's and men's income and of the size of their financial responsibilities for the family. A flat rate for both can press heavier on one group than on the other.

Box 16 Differential payments by women and men in households in Ghana and Cameroon

In six communities in West Africa (one out of four in Upper Region in Ghana and five out of eight in Northwest, Central and Southwest Province in Cameroon), women paid less than men. In the local gender culture, adult women and men within the households each had their own resources and payment responsibilities and also paid separate towards the installation of the water service. Because women's incomes were usually lower than those of men, the communities concerned decided on a lower contribution from women than from men. However, this was not done in all cases and also the proportion that women paid as compared to men varied considerably. Additional case studies can give more insight into how such decisions were arrived at, why other villages with the same culture did not do the same, and why in one case women's financial contribution was half that of the men and in others less than one fifth.

Control during construction

For the construction period, two types of community monitoring and control have been assessed:

- of the construction work by the contractor or government agency that installed the service ('external community control') and
- of labor and cash contributions by community members ('internal community control').

As indicator for external control, it was measured whether members of the community had had any influence on the quality of local design and construction and, in case of user contributions to construction, the timing of the construction period. In projects in Latin America, for example, the practice exists of the "*veeduria* or taking a look (= community inspection of the works) during the construction, which is a very important contribution for the sustainability of the system" (Team from CINARA, Colombia, 15 December 1998).

The indicator for internal control was the presence of some kind of community monitoring and control of household contributions and whether this included actions taken against defaulters. In 40% of the services, users and/or local bodies had no control over the construction of a service, which they afterwards had to sustain. Control over local contributions was absent in 20% of the services. Women shared in external control in 40% and in internal control in 80% of the cases. With both forms of community control, participation of women in monitoring and control was associated with more influence of women also in other aspects and somewhat better service results (Table 22) .

[30] In the MPA, contributions in kind have been defined as all kind of labor, materials, transport, and time. This includes the preparation of food and drinks, necessitating such inputs as the transport of ingredients and fuel (and sometimes paying for them) and the delivery of the prepared meals.

Table 22 Women's control and service performance (N=77)

		r[1]
Women share in community's internal control over community contributions in cash/kind to construction	Women participate in decisions on local financing	.40**
	More equitable water tariffs	.25*
	Women are strongly represented (40% or more) on water management organizations	.40**
	Women have influence in water management decisions according to poor women	.36**
Women share in community's external control over quality of design/construction and/or implementation schedules	Women participate in the location of facilities	.46*
	Women participate in choosing local maintenance system	.54*
	Households make joint cash contributions	.77*
	Cost recovery during operations and maintenance	.55*
	Accounting for service and management to users	.51*

[1] Correlation coefficient [2] Number of services for which this data was available

Where women took part in monitoring and control of local contributions to construction, they also had more often an influence on how local service operation was financed after construction and there was a somewhat higher chance that the tariff system would be more equitable. Where they had an influence on the local quality of construction and timing of construction investments, there was a significant chance that they could also influence the location of the new facilities and the planning of how the service would be maintained; that the families made joint cash contributions and that afterwards, the payments for covering operation and maintenance costs and accountability were better.

Decision-making in management

An important indicator in the Gender Analysis Framework is decision-making. For a domestic water service, there are two major phases for women's participation in decision-making: during the already discussed design and planning of the services and during service management. Figure 14 gives an overview of the representation of women in the local organizations that manage the services for the sample as a whole while Figure 15 gives the geographic project breakdown.

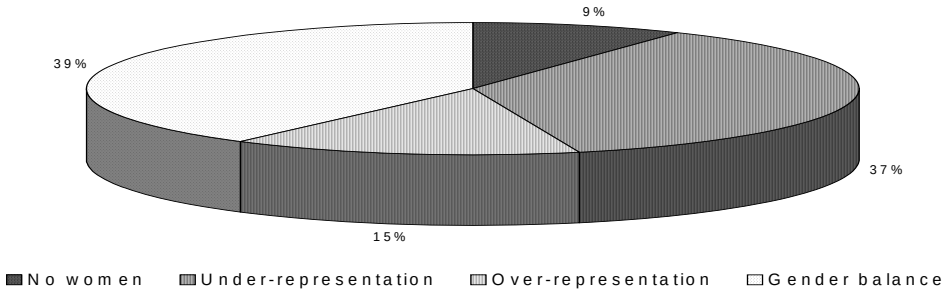


Figure 14 Gender balance in local mananagement organizations

At first sight, women's representation in water management organizations shows a fifty-fifty situation. A gender balance (here defined as women constituting minimally 40% and maximally 75% of the members of the water service management organization) was present in 37% of the services. Over-representation of women occurred in 15% of the services. In these management organizations, more than three-quarters of the members were women, meaning that they had a strong majority in management, but also carried most of the burden. Under-representation of women, where they constitute less than 40% of the committee members, existed in almost as many cases as gender balance, namely in 32 services (37%). Eight services had no women in the service management organization.

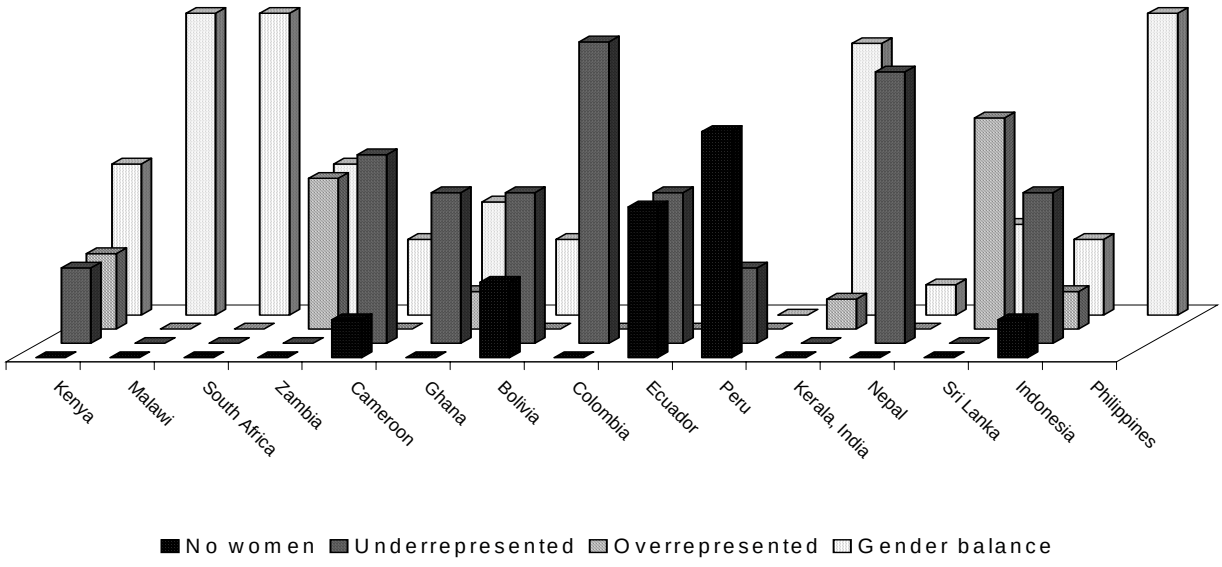


Figure 15 Gender and local water management by project location

Over-representation was especially the case in the services in Sri Lanka. Seven of the ten services were in this group. The others were in Kenya (1), Zambia (2), Kerala in India (1), Indonesia (1), and Ghana (1). Six of the 16 services in Latin America (in Bolivia, Ecuador, and Peru) had no women in the local management organization while one each was in Cameroon and Indonesia. Services in Nepal and Colombia also had underpresentation of women.

The degree to which women were present in service management in the sample was nevertheless fairly high and may be a combined effect of the absence of failed systems and the high presence of services installed with donor support, but only comparative studies with communities where such factors were absent can bear this out. Having one or more women on water committees was related significantly with better access and predictability of water supply, but made no difference for technical and financial sustainability (see Appendix 1). However, when more than 40% of the members were women, chances that budgets were made for maintenance and repair and that accounts were properly kept were significantly higher.

There was further a significantly positive relation between representation and influence of women and of poor people in service management. However, local teams had established the socio-economic background of the committee members in only 57 of the 88 services. A higher proportion of women (40% or more) in water management organizations, which was the case in 55% of the 88 services, had a correlation of .68** with a higher share of the poor in water management (data on 57 services).

Access to services was significantly better when a higher percentage of members of water committees came from poorer families. Furthermore, with a higher proportion of women and poor people on the water committee, poor women were significantly more often of the opinion that women had influence on water service management (r= .41** , N= 77 services and r= .56** , N= 53 services). There was, however, no significant correlation with quality of service delivery and service management or a more equitable tariff system.

When the *level* of management is taken into account, the situation becomes less positive. In fifteen of the 88 services, the communities had two levels of service management, the first for local level management, and the second for higher level decision-making. In eleven of these services, nine in Malawi and two in the Philippines, there were no women on the higher level committees, although women formed the majority on operational committees (60% on average in both groups).

Within local water management organizations, men invariably occupied the chair, and women predominantly held posts related to financing. Only the women-initiated service in Limaï in Cameroon had a female chairperson. Njinibi in Cameroon, another more gender sensitive community, and the SIWASSCO service in the Philippines, had a woman vice-chair. Secretaries were also generally, but less often, men. In a few cases where women had a financial function, they did the unskilled work of tariff collection, while a male financial secretary did the skilled work of administering the accounts. However, in most cases there was only one financial function. In many cases (44%), the projects had not given training. Where qualitative data was given, it showed that the treasurers sometimes did house-to-house collection, but there were also services where the users came to the treasurer for payments or paid at the user assemblies or where all members of the water committee took part in fee collection, so that the burden of obtaining payment would be more equitably divided.

Access to paid and unpaid jobs and division of work

The global study showed that, although in almost all services both sexes had contributed physically to service establishment, women were generally less well represented on service management organizations than men and, in these organizations, tended to spend more time than men on physical work and were less often paid. Table 23 gives data on the division of work and payments in cases where such arrangements have been reported. Taking care of the water points, which is mostly unskilled work such as cleaning and reporting of problems, was mostly done voluntarily. Although in a number of cases women were more involved than men and, as will be seen below, did most of the caretaking for public facilities, men also contributed in 60% of the cases. Some degree of gender equity is thus already found, but communities and projects may enhance it by consciously considering the division of work between women and men.

When the work was paid, for example, which was the case for 68% of the skilled work (maintenance and repair) and 18% of the unskilled work (caretaking), it was almost exclusively men's work. Payments for monitoring problems and preserving the hygiene of public facilities occurred mostly in the services in Latin America, where it was part of the work of the operators.

Table 23 Type of paid and unpaid work by women and men in service operation and management

Nature of job		Caretaking		Maintenance and repair		Management	
		N*	%	N*	%	N*	%
Volu ntary	Women	16	21	1	1	5	8
	Men	1	1	17	25	12	17
	Both	46	60	5	7	43	60
Paid	Women	0	0	0	0	4	5
	Men	13	17	41	59	0	-
	Both	1	1	6	9	8	11
* Total number of services		77	100	70	101	72	101

Having the more skilled work of maintenance and repair was in many places still only a man's prerogative and was then often paid. Nevertheless, in almost one fifth of the cases, women also maintained and repaired water supplies although, in all but one case, there was then also a male operator or mechanic present. Mixed teamwork was less often paid. Paid work in maintenance was not, however, significantly correlated with either maintenance that is more complex or a lower downtime. Service management was much more a voluntary job and, in that case, it was in 60% of the cases done by women and men together. When management work was paid, e.g., in the case of administrative work, women's share was better than in technical maintenance. Paid work in service management by either women or women and men was significantly correlated with both better cost coverage (r= .29*) and payment by all (r= .25*), but not with payments made in time.

On the division of work between female and male members of water management committees, qualitative data came from 16 services in West Africa and two in Peru. All together, the members of the local water management bodies identified 36 tasks, technical (13), environmental protection (2), managerial (7), financial (5), sanitation (2), hygiene (6) and esthetics (1). Although caution is needed given the limited amount of data and their geographic spread, findings on task divisions gave an indication of a change of gender conventions regarding technical work. In West African communities, for example, both women and men in the water committees did technical work, such as checking and fastening nuts and bolts, oiling chains, managing valves, and desilting chambers. Protection of the environment involved the cleaning and protection of the catchment area and desilting of drains at waterpoints. Work done outside the community, e.g., checking lines, desilting intakes and reservoirs and buying spares, was exclusively men's work, unless it was done as communal labor when both sexes would take part. Site development for esthetics was a woman's activity, but men sometimes helped, e.g., by laying a circle of stones around the waterpoint and keeping them whitewashed. Cleaning was a woman-only job, but men might help in weeding and clearing waterpoint sites and access paths.

Managerial work involved the organization of community labor, monitoring of the various aspects of the service, writing invitations to meetings, holding committee and user meetings, receiving and catering for visitors, and managing the distribution of water, including setting opening hours, locking and unlocking waterpoints and settling disputes over water. Whether women or men organized meetings and wrote invitations depended on the local division of functions so on these points the picture was mixed. Management of conflict was generally done only by men, with the argument that it

required male authority. In Limaï, however, where women had initiated the service, they also managed conflicts, although the management committees of the boreholes were mixed. The division of work in financial matters depended on who was the treasurer and data varied accordingly. Financial tasks included collecting water fees, bookkeeping, accountability, and water selling. The latter happened in Hotzo-Ve in Ghana and was a paid woman's job. Water was sold at ¢ 10 (US$ 0,008) per bucket. In two cases, the committee had taken up sanitation management. In Etordome in Ghana, the female committee members inspected *and* cleaned the communal toilet block, a '24 seater'. In Polloc in Peru, the male committee members inspected the (private) latrines. The analysis of the division of voluntary work and time inputs in meetings sometimes brought out that especially the poor were activ. For example, in Argao, the Philippines, “the rich are mostly working at Cibu city and are just too busy to get away from their work” (Karen Jacob, 16 December 1998). In Lanchepampa, Peru “in community organizations, there is more participation of poor women than of rich women” (Maria Lucia Borba, e-mail, 11 June 1999). “The medium and poor men and women are available to do the work while the rich are busy with their businesses” (The team in Phodogoma, Malawi, December 1998).

A time division estimate was made with women and men committee members in fourteen of the eighteen services. (In two others, women and men community members helped with the work and a detailed division could not be worked out. One committee, in Mbazoa in Cameroon, had only men and another, in Ngenglikok, was inactive due to a management conflict with the local leader, see Box 9). The amount of time which female and male users and managers dedicate to the upkeep of the community water service is closely associated with the type and number of tasks they carry out and so estimates have varied greatly. They are also very rough and do not represent true time studies. Nevertheless, the data is indicative of local gender relations and has been an eye opener to the women and men in the communities concerned. In six services, women committee members spent more time on the service than men, while in three services both sexes spent about the same number of hours per month on service upkeep. In the five others, men committee members spent somewhat more time than women committee members, mainly because they periodically checked waterlines and intakes. Only in Limaï, Cameroon, was significantly more time spent by men. As already reported in Box 6, this was an a-typical service as far as gender relations are concerned and women’s solidarity and organization was reflected in the division of functions and workload. Women who had married into this village had united to reduce their isolation and meet their gender needs. They had initiated the water project, had discussed it in a village assembly, and had financed the downpayment by cultivating a women’s field.

Women and men had both contributed labor to the construction of the system. The project had been fairly demand-responsive in that the local water committee had chosen the location of the facilities and had set the tariff and payment system in which cash contributions were sex-adjusted. Women led the (mixed) management. The first area-based water committee had five women and four men, with women as President, Secretary, Treasurer, and Accountant and a man responsible for hygiene conditions. The second area committee had four women and one man. The women held the same functions as above while the man was ‘chef de propreté’ (chief of cleanliness). For the umbrella committee at community level, the women had invited the leader of the local youth group, a young man, to be the Joint President.

The quantitative data (community scores) showed that financial management was difficult as payment discipline was generally poor. In only 25 of 81 services, users paid on time (no data on seven services). The work was also time consuming in communities that used home visits for tariff collection. Sometimes, as in Etordome, Sapimo, Wiiro, and Song Obeam, all members of the committee helped collect water fees. Upkeep of hygiene and sound environmental

conditions around waterpoints were almost exclusively women's work and it was especially the cleaning that made them spend more time on maintenance than men[31]. The reduction in women's work that comes from a closer water service might thus partly have been eliminated by new tasks in the public sphere: the upkeep of waterpoints and the collection of water fees.

Control over service management

Women's membership in a water management organization does not necessarily mean that they also take part in decision-making. It is not uncommon that they are members on paper only or may attend meetings, but have no say in management. The degree to which poor and better-off women felt they really had an influence on their water service was a topic of assessment in the focus group meetings. In general, women felt that they had an influence on water service management in almost three-quarters of the services for which information on this point was available (Table 24). Having an influence varied with their degree of representation in service management A chi-square test showed that the significance of the differences lay between 0,99 and 0,995.

Table 24 Influence of women on decision-making and gender balance in committees (N=88 services)

Do women participate in water service decisions?		Composition of Water Management Organization				Total
		% Gender-balanced	%Women over-represented	% Women under-represented	No women	
Yes	Rich and poor	69	46	38	50	52
	Rich only	3	8	16	13	9
	Poor only	6	38	3	0	9
No		20	8	34	38	25
No information		3	0	9	0	5
Total %		101	100	100	101	100

Women's sense of influence was strongest where services had a gender balanced committee, followed by services where women were over-represented. Nevertheless, in eight per cent of the services with a water management organization consisting of mainly women and in twenty per cent of those with gender-balanced management, women felt that this made little or no difference to the influence of their sex on service management. Having women in the management organization is thus by itself not a sufficient indicator of influence; it needs to be combined with an assessment of difference made, in the management organization or through other mechanisms of decision-making such as user assemblees.

Eight services had only men in the management organization. In five of them, women still felt they had an influence. In San Miguel in Bolivia and Lentag and Zhagal in Ecuador, the women said major decisions were made in user assemblies which both sexes attended and where choices were made jointly. In Longalo, in Indonesia, women also could attend meetings and have some influence, but as discussed below this was only for women from better-off households. In

[31] In three communities (Kaliisa in Upper Region, Ghana, Limaï in Cameroon, and San Marcos in Peru men helped with cleaning work. As seen above, Limaï had a special gender situation. Kaliisa in Upper Region was somewhat distinct as well. Women and men not only shared physical work for upkeep, but women also did technical maintenance tasks such as pump tests. The water committee was gender balanced and the pump caretaker was a woman. Giving technical training to women as well as men was a strategy in the Cida-supported project. This strategy was having its effects, as two other study villages also had women caretakers, but other than in Kaliisa these women shared their position with one or more men. Kaliisa and Limaï would make interesting communities for in-depth study.

Mbazoa in Cameroon, the committee was also all-male, but both women and men had chosen the members of the water committee and had decided on the financial contributions (they were lower for women than for menn the other three communities, Polloc, San Marcos, and San Miguel, all in Peru, women were not represented on the water management organization and they also said they had no influence in any other way.

In the majority of the cases, there was no difference in the sense of influence for women from better-off and poor families. However, in eight cases (three in Indonesia, three in Nepal, one in Sri Lanka and one in Peru), women from better-off families dominated women's decision-making, that is, they said they had an influence, but poor women didn't. In an equal number of services, however, it was the better-off that did not attend meetings and kept aloof from anything that had to do with the water supply. These families had made their own arrangements for an adequate and reliable water supply. Those who attended meetings and spoke out were the poor women, who were most affected by problems with the water service. (Cases in Sri Lanka and Latin America).

Women's representation on water management committees significantly increased service effectiveness and benefits for women. (Table 25). Where women were represented in service management, chances of leakage at (public) waterpoints observed during transect walks were smaller, financial management was better and, according especially to poor women, women had an influence on water-related decisions. Focus groups also scored significantly more that in those cases their water-related work time had become less.

Table 25 Composition of water committees and service performance, management, and workload

		[1]	N[2]
Women constitute 40% or more of the water management organization	No leakage at (public) waterpoints	.34**	58
	Budget made for operation and maintenance	.34**	78
	Accounts properly kept	.38**	75
	Women participate in management decisions according to poor women	.41**	77
	Water-related work for women reduced[32]	.27*	70

[1] Correlation coefficient [2] Number of services for which this data was available

A more equitable share of women and men in service control generally went together with a better service performance and management and a greater say of women in planning decisions. This is illustrated in Table 26.

Table 26 Women's say in service control, service planning, and service delivery

		r[1]	N[2]
Users have a voice in scheduling the service	Users do preventive maintenance	.59**	55
	Women participated in planning local maintenance	.37**	55
Women have influence on management, according to poor women	Women participated in service initiation	.52**	81
	Women participated in choosing the management	.24*	81
	Women participated in choosing the financing system	.51**	81
Women, or women and men do (paid) maintenance/repair	Water delivery more predictable	.39**	81
	Water supply delivery more regular	.27*	79
	Water quantity adequate for basic use	.24*	77
	All, or all except poorest pay	.22*	77
	Level of cost-recovery achieved over three years	.36**	77
Women and men share (paid) management	All, or all except poorest pay	.25*	77
	Level of cost-recovery achieved over three years	.29**	77

[1] Correlation coefficient [2] Number of services for which this data was available

[32] The correlation increased to r=.36** when gender-balance was used instead of 40% or more women in management

Where users (women) had a voice in scheduling the delivery hours, they were usually also involved in maintenance and chances were greater that they had had a say in local maintenance planning. In addition, a greater say in planning decisions for women in general was positively correlated with a greater say in service management, especially according to poor women. Furthermore, in cases of shared and/or paid maintenance and management work, service delivery and cost recovery were generally somewhat better.

Access to training

As seen previously in Table 20, training is important service performance. In most services (84%), communities had received some type of training, but there were fourteen services where no one had been trained in connection with the water supply[33]. In addition, training had often covered only one or two subject areas. In fact, in only one in three services had the local water management been trained in maintenance, finance, and health/hygiene and had community women or women and men been trained on health and hygiene aspects of water and sanitation. This is shown in Table 27. Opportunities for refresher training in new skills or for new functionaries were almost invariably absent. The worst training conditions occurred in services that had been built in Cameroon, Nepal, and Zambia. Training in technical skills for maintenance and repairs was the most common and the high number of services in which this training was given to both sexes is a further confirmation of the growing role of women in the maintenance of new domestic water services.

Table 27 Extent and types of training for women and men in 88 community-managed services

Nature of training	Participants	No. of services	%
Technical	Women	3	3
	Men	38	43
	Both	23	26
	No training	20	23
	No information	4	5
Total		88	100
Health/hygiene	Women	16	18
	Men	6	7
	Both	35	40
	No training	23	26
	No information	8	9
Total		88	100
Financial	Women	4	5
	Men	8	9
	Both	31	36
	No training	39	45
	No information	5	6
Total		87	101

When only women were trained, it was mainly on health and hygiene. From a gender perspective, this has been a questionable strategy. Targeting only women and girls places the responsibility for domestic, community, and personal hygiene of all household only on women and overlooks the responsibilities of men and boys for personal, family, and community health and hygiene. Such women-only training in hygiene reconfirms gender stereotypes and may lead to less

[33] A specific factor in the weakness of the correlation coefficient for training in that table is the absence of segregated data on type of training received, as obviously training in maintenance is more likely to correlate with repairs and downtime than with, e.g., quality of financial management. The MPA foresees in the identification and analysis of training disaggregated by subject, sex, and class, but due to an error in the coding some of the data was clubbed together, so that no full analysis could be made.

effective programs and an even greater work burden for women and girls. On the other hand, where health/hygiene education was given only to water committee members and not to other community members, the consequence was that sometimes only men were trained in water-related health and hygiene. No health training was also common, affecting 23 water services mostly in Cameroon, Malawi, and the Philippines.

Training had least been given in financial matters, so that women (who often had posts as treasurers) had fewer training opportunities than men (who more often were operators and mechanics). Much training on financing was also given to women and men committee members in general, rather than in (also) specific courses for treasurers. Earlier, it was reported that financing arrangements in communities seldom included the preparation of realistic budgets for service delivery, maintenance, and repairs and that tariffs insufficiently reflected local differences in benefits and capacities to pay.

Training in itself is no guarantee that those trained can and will practice their new skills. In the application of training, assessment results showed some transition in gender relations with some men assisting in taking care of preserving hygiene and some women trained for maintenance and repair work and sometimes (but much more rarely than trained men) having a paid job (see Table 23). Progressive projects may train women in technical and financial skills, but whether the women can practice these skills and be compsendated also depends on local gender relations and whether projects have effectuated any changes in these relations together with women and men in these communities (Box 17).

Box 17 Gender norms and applying technical training

Making investments effective in technical training for women requires not only addressing technical skills and availability of tools and spare parts, but also gender relations in communities. Commenting on findings in Kaledzera and Yuwa in Phalombe District, Malawi, the facilitators observed: “Even though some women were also trained in such skills [maintenance and repairs], they do not practice because they consider such jobs as men's domain”.

In Mwambuli, in the same district, women did occasionally participate. The community had six boreholes with handpumps built in 1991 with assistance from DANIDA. “Later, when the local people were trained in maintenance of the water facility, they were able to provide skilled labor. Both men and women can dismantle and assemble the water facility on their own during the preventive maintenance or when there is need for repairs. Men are involved in the actual maintenance and repairs. They are also involved in the actual purchasing of the spare parts. Boys assist men during repairs and maintenance. Women are involved in sanitation issues such as sweeping and mopping at the borehole point. [However], women who have undergone training join men in the actual maintenance also,” according to the one female and three male team members. (A. Naphiyo, R.B.M Chakwana, N.S Bamusi and B.B. Sibale, December 1999).

Practical and strategic needs

Qualitative information on the type of needs of poor and better-off households that the water service was meeting either partially or fully was available for all but one of the projects[34]. The outcomes confirm earlier data on the inequitable distribution of benefits from domestic water services between poor and better-off households. Using domestic water for productive needs prevailed especially in the more prosperous households (Fig 16). Overall, the differences were not significant, however.

[34] This aspect was assessed with the help of a new tool to assess experienced benefits (see footnote 7 on p. 18 in Ch. 4), with which the team in Malawi was not familiar. For reasons given earlier, they did not have training.

Other benefits related to broader development benefits such as savings in water collection time and improved hygiene conditions. Unfortunately, the coding of the perceived benefits was sex-disaggregated in only seven projects. It was therefore not possible to see if women and men had different reasons for appreciating and supporting domestic water services. Differences in the seven projects were not significant.

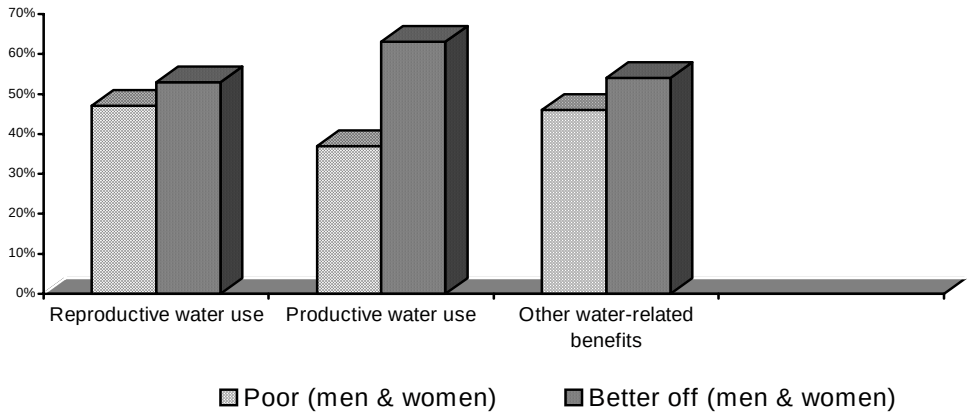


Figure 16 Needs met by the domestic water service in poor and better off households

For reasons mentioned in Chapter 4, no distinction was made between practical and strategic benefits. It was assumed that, through content analysis of the actual statements, it would be possible to distinguish between the nature of the benefits. In practice, this was not possible. Both women and men mentioned mostly the domestic and productive uses of water and time savings and workload reduction for women and children when the water situation was improved. Whether these improvements represent only practical benefits (i.e., without changing existing gender relations) or also strategic interests is open to debate. Having more time and earning income may well be part of the process whereby women and girls improve their positions. It depends on what the time and labor reductions and economic activities mean for gender relations, what girls and women can use such time and energy gains for, and if they themselves can decide on the use of such gains and the benefits emerging from them. This requires much more in-depth discussions than is possible with a rapid assessment and it has therefore been decided to drop this aspect of the gender analysis. Further noticeable was that all benefits mentioned were related to water and, in a few cases, sanitation. No one mentioned whether the participation processes during planning and construction had made any difference for the relative positions of women and men. Since benefits of participation are important, the adjusted tool now asks women and men to list the benefits of the service and of the participation process.

Agency policies and institutional arrangements

In total, project teams from 18 projects and community teams from 88 community water services took part in the global study. Agency policies could be analyzed for 74 services. The great majority (84%) already had as a policy to achieve sustainable services. Eight services were established without a particular policy and four had only construction aims. The services created without a particular policy also had no gender objectives or strategy. Agencies with gender policies mostly had a women-in-development policy, but one in five had a women's program as an add-on that was limited to health/hygiene aspects. A women-in-development policy was present in half of the cases and one in five projects had a

policy of promoting greater equity between women and men. The differences are presented in Table 28. Agency policies on gender were particularly reflected in a more gender-sensitive operation and maintenance approach on the ground. Although none of the correlation coefficients is strong, they all point in the same direction. The association with payment within household is strongest, but this was very culture-specific as generally women and men were not paying separately.

Table 28 Correlation between gender policy of project agencies and results on the ground

		r[1]	N[2]
Implementing agencies had a Women-in-Development or Gender and Equity policy	Gender approach in operation, maintenance and repairs	.39*	77
	Participation of women in decisions on technology choice/service level	.29*	77
	Participation of women in planning of local operation and maintenance	.47*	77
	Equitable division of payments within households	.54*	41
	% of demands of poor women that the service meets	.30*	59
	% of demands of rich women that the service meets	.37*	53
	Service giving value for cost according to poor women	.25*	68
	Service giving value for cost according to rich women	.28*	53

[1] Correlation coefficient [2] Number of services for which this data was available

A negative correlation was found between agency gender policy and women's participation in the location of new water facilities, the composition of the water committee, and the impact of the service on women's work (r=-.24*, - .29* and -.30* respectively). For locations and management, the reason was the inconsistency between policy and practice[35]. The negative correlation for the impact of the service on work is spurious, however. The reason is that the second step of the three-step scale, with the scenario "water-related work of women has decreased, though they still have longer working days than men," while not representing a full gender balance, is already a positive development. Although the correlation itself was negative, it was therefore not a negative development that relatively more services with a WID or gender policy fell in this, rather than in the highest category[36].

Following the gender analysis framework in Table 7 in Section 4.5, the groups scored the agency procedures, attitudes, and skills of the 18 projects on five characteristics: (1) data disaggregation by sex and/or socio-economic levels, (2) staff expertise on gender and poverty, (3) training including gender and poverty aspects, (4) the attitudes of managers to gender and poverty and (5) their active support of gender- and poverty sensitiveness in implementation. This gave the following results:

- Twelve percent of the agencies did not use data disaggregated by sex and/or class in their planning and monitoring. Over three-quarters of the project agencies distinguished for sex and/or socio-economic level in data collection and

[35] In 13 services, the situation was better than the policy led to expect. Women (co)decided on location of facilities during planning even though at the time the agencies had no policy or a welfare policy on gender. In 16 services, however, women did not participate in choosing locations, even though staff scored the project as having had a WID or gender equity policy. The same applied for gender in water management committees. Five services established under a WID or gender equity policy had no women on committees or an underrepresentation of women. Five other services had a gender balance or majority of women without a WID or gender policy in the projects at the time.

[36] The principle of the MPA is that for a significant *positive* correlation, projects with a WID or gender equity policy have a predominantly high score (score 3). However, in this case they had more often a score 2, and so the correlation was negative. However, score 2 in itself was already an improvement. With a more refined scale, this would not have happened.

one in four collected specific information on women, gender and/or poverty, but in only 12% was this data *actually used* to adjust plans and strategies.

- Participants in the stakeholders' meetings generally expressed that staff did not have enough expertise on gender and poverty. In only four projects out of 18 were staff and community representatives of the opinion that social staff had the necessary expertise. Technical staff was scored to have expertise on poverty in one project and on gender in another project. In all others, the teams scored that as social and technical staff they needed more expertise in these areas. Staff commented that they were not clear what a gender approach stood for and how to operationalize gender policies in water projects (see also Box 18)

Box 18 Gender and gender capacity building in projects in Ghana and Ecuador

"Initially gender was never taken into consideration though there was already discussion on it, it is only now that some attempts are made to put it into practice. Despite the effort, the staff capacity is limited because they have not been trained on gender sensitive approaches. One of the reasons for a delay in applying a gender sensitive approach is that it was initially considered to be a women [sic] empowerment approach.....A social department was part of it [Upper East and West Regions Community Water Project, COWAP] and it still exists as part of the project with no specific expertise on gender, poverty, and demand responsiveness. The staff are more familiar with participation. Gender, poverty and demand responsiveness are new ideas on which they have not had any training yet. Also, gender had often been looked at as empowering women to dominate men which could bring problems in implementing their activities in the field ..... Sustainability, equity and participation/cty [community] management ownership are adopted, but the options for presence and definition of gender are not field applicable and are not clear" (Comments from the participants in the stakeholders' meeting of the Community Water Project (COWAP) in Upper Region, Ghana).

"This analysis showed that level of expertise of project staff [sic] was limited in social aspects of gender, poverty and demand responsiveness which are the key policy factors of focus. Technical training for staff [is included] but this excluded poverty, gender and equity aspects" (Reactions of the participants in the stakeholders' meeting of the Volta Community Water Supply and Sanitation Project (VCWSSP) in Ghana.

"..la promoción del enfoque de género no contaba con herramientas e instrumentos sensibles a esta concepción, por lo tanto los esfuerzos realizados por funcionarios de CARE no son visibles actualmente"[1] (Comments from the participants of the stakeholders' meeting in Ecuador).

[1] The promotion of a gender focus lacks tools and instruments that are sensitive to this concept; the efforts that the staff of CARE have made are therefore not actually visible.

- The management of seven projects[37] had generally been supportive of some form of women-in-development or gender and equity approach in implementation. However, there was unanimity

  that this positive attitude had been combined with a formal recognition of and incentives for a gender approach in project implementation existed in only one project (in the Philippines).

- In over 40% of the projects, staff were of the opinion that the managers had positive attitudes to women's participation at the time of project implementation, but that only ten percent had adopted principles of gender equity. The correlation between agency skills and practices and results in the field in Fig. 13 shows that managers' understanding of and appreciation for gender and their support to staff are particularly important for the practicing of more participatory approaches that enhance equity for women and poor people.

[37] The projects in Kenya (Sida supported), Kerala (DANIDA and DGIS supported), Indonesia and the Philippines (AusAID), Ecuador (World Bank supported Social Investment Fund), Volta region in Ghana (DANIDA) and Peru (SDC and DGIS supported).

The findings show that, in general, the agencies involved in supporting community water projects recognized the presence of gender and socio-economic inequalities within communities. However, this has remained limited to an awareness of such inequalities and positive attitudes among staff and management to their reduction and making a start with the disaggregation of planning and monitoring data within the agencies. The transition to the systematic reduction of inequalities in the field and to measures in agencies to actively support staff to do so had rarely been made. Participants also felt they lacked knowledge and skills for reducing inequities in domestic water supply, although this contributes to better services. There is thus quite a lot of work to be done in human resources and organizational development to better operationalize and practice equity between women and men and give poor people more equal opportunities and benefits.

The results of the global study have led to the preliminary adoption of the hypotheses elaborated in Chapter 1 and have reconfirmed the findings of the earlier studies described in Chapter 2. They have added evidence to the latter that, for better sustained and used domestic water services, a gender and poverty focus and support from multidisciplinary and skilled agency staff backed by supportive managers are significant factors. However, before going into the overall conclusions on the use of the methodology and the outcomes of the global study, the analysis of the methodology itself needs to be addressed.

7 Testing the MPA and strategy for scaling up

> *Haste is always the parent of failure* (Herodotus, The histories.
> in A.D. Godley (Ed.), 1986. Book 7, Ch. 10F, section 1. Harvard: Harvard University Press).

7.1 Introduction

This chapter contains the validation and critique of the methodology in view of the experiences of the global study and the demands for rigor in constructivist and positivist social research that were discussed in Chapter 3. More specifically, answers have been sought to two questions. By developing the MPA methodology and using it for the global study, have initial objectives been met and does the MPA meet the criteria of soundness pertaining to the two schools of thought? Attention is paid to the problems experienced with data collection, the acceptance of the methodology by others in the Water and Sanitation Program, and the problems that occurred during its first replication. Further use requires steps to preserve and further develop the quality of the MPA. A strategy has been formulated to strengthen the methodology and protect its integrity.

7.2 Strengths and weaknesses of the participatory process

The objectives as elaborated in Chapter 1 were: (1) to test the hypothesis that greater attention to gender, the poor, participation, and response to demand paid off in increased sustainability and (2) to develop a participatory and gender and poverty-sensitive methodology for this test. This methodology was grounded in the positivist and constructivist epistemologies for social research described in Chapter 3 and must therefore meet the criteria of soundness of research grounded in both knowledge conceptions. In the previous chapter, it was seen that the outcomes of the global study confirmed the hypotheses, although design and data collection suffered from several weaknesses which have limited the strength of the findings.

The methodology had, however, to meet more requirements. It should allow the participating communities to share in the knowledge gained. With the help of the tools and with reasonable demands on their time, they should be able to draw their own conclusions and use these to plan further action. These conclusions should not only concern the effectiveness of their water service, but also gender equity in the planning and management processes and service delivery, and give insight into how poor people have participated and benefited as compared to those who are better off. Project staff and managers should be able to use the information to monitor and evaluate services and undertake problem reducing action without being overburdened by the number of indicators and the duration, complexity, and costs of the process.

Participation

All assessment teams used the participatory methods discussed in Chapter 4 together with women and men community members. Participation was easier than in conventional surveys and non-sequenced rapid appraisals because of the

prolonged stay in the communities, the use of a planned sequence for which local arrangements were made, and by starting off with mapping, which tended to draw in many participants. Other factors that favored participation were the involvement of organizations and individuals that had already used participatory methods, the training with hands-on practice together with a pilot community in each region during the preparation stage, and the community review meeting that was introduced later and in which the groups presented and discussed the results of the whole sequence. For some communities, the assessment was the first experience with a participatory approach:

> The [water] programme has not really been participatory in its approach as [we] never experienced [the presence of] project staff. This assessment was the first experience of truly including villagers of all levels, class and sex (Comments from the community representatives during the stakeholders' meeting of one of the two projects in Cameroon, no date).

At the same time, the decentralized management of the study, in which each region had its own task manager, had the negative consequence that qualitative data and data on participation were not collected and recorded. Later efforts to fill the gaps were only partly successful because of the departure of staff members who had managed the activities in India, Nepal, Sri Lanka, and the Philippines. Table 29, which gives the breakdown per region, is therefore incomplete. Another problem was that the participation of poor vs. less poor community members was not recorded well. Adjustments have been made in training and in the field guide to improve this aspect.

Table 29 Average number of community participants by sex and region

Region	Average number of participants per community	
	Women	Men
East and Southern Africa	12*	9*
West Africa	51	48
Latin America	22 (1/3 poor)	23 (1/3 poor)
South Asia (Kerala)	21 (1/2 poor)*	11 (1/2 poor)*
South-east Asia (Indonesia)	25 (1/3 poor)	37 (1/2 poor)

* Average per focus group; no averages per community

Numbers say nothing about the nature of participation. While designed for participatory use, it continues to be possible to use the methodology in an extractive or manipulative manner as is the case with all participatory methods. There is no guarantee that this had not happened in some places. Using the methodology to carry out contract work for the distant headquarters of a large international organization has increased the risk of extractive use. To avoid such use, careful balancing in the selection of suitable times for participation and in managing the process and process duration were needed to avoid problems of loss of attention, skipped discussions, and exerting pressure on participants for quick results:

> La discusión en grupos focales es una buena herramienta para obtener la opinión de los usuarios sobre los proyectos de agua y saneamiento, sin embargo aplicar las tècnicas con estos grupos en una sola sessión o en dos se convierte en una tarea larga que ocasiona el cansancio de los participantes, lo que se evidencia en su falta de atención. La aplicación continua y con poco tiempo de las técnicas en grupos focales, no permite obtener discusiones y reflexiones relacionadas con el tema de que trata cada una y finalmente se

convierten en una manera de extraer información sin retroalimentación, situación que es reforzada por la premura del tiempo de los participantes (Team from Ecuador, 15 December 1998)[38]

Gender

Both women and men community members took part in all assessments. Only one event of those summarized in Table 29 had no women. In all others, although not exactly fifty-fifty, attendance was quite equally divided between women and men. Experiences with the integration of a gender perspective nevertheless showed that awareness and practice of a gender-sensitive approach has to be strengthened further to counteract blindness to gender inequalities embedded in local and organizational routines. In communities in Peru, for example, only men assessed the technical quality of works through the review of the design drawings and visits to the intake, transmission line, and storage reservoir. Women were excluded both from contributing and enhancing their knowledge, quite contrary to what happened in Indonesia (see Box 6). There is also a need to encourage a shift from women's participation and empowerment to working on gender equity with both women and men. In Kerala, India, female staff who had empowered women to unite around common interests of water and sanitation and take up new positions in water management as latrine masons and in local government, have now also begun to address men on their responsibilities and roles in enhancing gender equity.

Especially the tool developed to assess which demands the services meet for women and men needed further improvement as it could not bring out any distinctions between the benefits from a better water supply and from participatory and managerial processes. In the revised tool, both groups now list benefits which they experience in their lives from the water service itself and from the local participation process in planning, construction, maintenance, training, and management. They then divide the benefits into two rows: one with benefits that make life better for all household members, and one which represents improvements in girls' and women's positions in the family or community in comparison with those of boys and men. The distinction between practical and strategic benefits has been dropped as the concept was too theoretical, hard to translate and explain in practice. Rating of the benefits according to their importance and costs has remained the same. Lessons such as those above have been fed back into the field guide and training program, but learning will continue and mechanisms need to be found to practice the sharing of new lessons as part of the further development of the methodology.

As was seen in the previous chapter, it was possible to link the different ways in which women participate in comparison with men to the degree that he services were sustained and used and met the demands of different user groups. It was also possible to link these results with several agency factors. However, the comparison of the indicators for the organizational level with recent gender theory in Section 4.5 brought out that the indicators used for this level do not cover all relevant aspects. There are at least four gaps that should be filled:

1. An omission that was also pointed out by the participants is the ratios of females and males in the technical, social, and health staff involved in the projects at field level. More female staff is an organizational indicator of gender sensitiveness because this facilitates the participation of local women and has a role model function.

[38]Focus group discussions are a good tool to get the opinions of the users on water and sanitation projects, but to apply the techniques with these groups in one or two sessions becomes a big task that makes the participants tired and becomes evident in their loss of attention. The continued application and the limited time for the techniques in focus groups do not leave much time for discussion and reflections on the theme that each of them covers and finally translates itself into the extraction of information without feedback, a situation that is reinforced by the time pressure of the participants.

2. A second addition to be made, following from the literature reviewed in Section 4.5, is to add an indicator and scale on institutional procedures, which are the unwritten and written rules and routines on working with women and men in water projects the field.

3. Another, and crucial, indicator should measure the availability of resources to enable local women to participate, e.g. by providing special training and support. Even more importantly, it should measure whether sufficient *time* is built into the procedures for women's consultations during planning and decision making and to meet with them as part of process monitoring and project evaluations.

4. Finally, it needs to be seen how, in a reliable, easy, and concise manner, the values, norms, and attitudes on gender that form the organizational culture of the project agencies can be measured. As argued in Section 4.5, the priority in the MPA is to assess staff culture concerning gender and a gender sensitive approach in *field programs*. The organizational culture on gender in one's professional work is of course related to the internal organizational culture on gender, that is, the ways in which women and men staff interact as colleagues and in hierarchical relations, but it was argued that it would be too far-reaching and possibly counterproductive to address both angles at the same time. However, this is an assumption that needs further exploration.

When not only external consultants use the MPA for sustainability analysis, but also project staff and management take part and use the outcomes to plan improvements, more effect on the gender relations in the organizational culture can be expected. The latter already happened to some extent during the stakeholder meetings when staff concluded that they needed more knowledge and skills on understanding and applying a gender approach in their projects.

While the gender analysis of organizational aspects can still be considerably improved, the current methodology has nevertheless gone farther than most gender researchers in determining the links between theory and practice. Most of those who have studied gender in organizations and whose work was discussed in Section 4.5 have done so through case studies of the organizations only and have not looked at linkages with field conditions. Hannan (2000a & b) is an exception but her case study approach was of necessity limited to field projects that had already been implemented in the 1970s.

Aptitude and experience of facilitators

Although skills to help poor people and women participate to make their interests count can to some extent be learned, they strongly depend on a combination of personal aptitude and experience. Both characteristics were not always present. A good facilitator has a natural sensitiveness for people and a talent for improvisation, characteristics which enables him or her to naturally adopt a participatory style and notice and react quickly to all kinds of exclusion and domination whether they stem from inequities in gender, class, or other characteristics (Box 19).

Choosing and retaining the right type of facilitators are therefore important aspects of the institutionalization of the methodology which is discussed in Section 7.4 on scaling up. Other mechanism than training for improving sensitiveness and skills are to have peer review sessions and record keeping on how team members handled gender and poverty aspects during the day or the sequence. These mechanisms have not been used systematically in the global study.

Box 19 Attitudes and skills to deal with domination : training and personality

Skills for dealing effectively with domination of the powerful over the powerless come from not only training, but also require experience, creativity, and a natural ability. The field experiences brought this out quite clearly. In one assessment, for example, a male village leader had positioned himself in between the men's and the women's group, which were sitting on either side of the room where community meetings habitually took place. While taking part in the men's discussions, the leader closely followed the women's discussion and regularly influenced it by making side remarks. A quiet word then passed between the facilitators, whereafter the facilitator of the men's group invited the village leader over to his side to elaborate a particular point on one of the cards used in the discussion. By asking more questions, the facilitating engineer brought about such a lively debate among the men that the leader became fully engaged, sat down on the other side and no longer bothered with the women. At the end of the meeting, the men were invited over to the women's group to hear the outcome of their exercise and make clear that no secret business was going on.

In the same group of poor women, a new activity involved the listing of expected demands and demands met from the water service. When the facilitator found out that several of the women could write, she handed over markers to the group and soon all women were discussing and the younger women were writing the points on the cards and reading them out for the voting with seeds.

During a transect walk in a pilot assessment at a training session, one of the teams paid visits to a sample of households. Voting on facilities would normally have been done with focus groups of women and men, each with their own facilitator. The facilities in the particular community were household rainwater tanks so voting was done in households. Not everyone could handle the different situation and make the necessary improvisations. In one case, the male facilitator initially forgot to invite the women of the house and, after correcting the omission, he sat turned away from the women and spoke exclusively with the male head of household. This led to the problem that the male head of the household then also voted first and that he and his wife, daughter, and mother all insisted that his vote was the vote of the family. Eventually the situation got sorted out, but it would have been prevented through a better gender approach and some improvisation, e.g., drawing separate voting lines for the man and the women either outside in the sand of the yard or on pieces of paper.

Duration, timing and compensation

To avoid overburdening, the four to five days of activities that a full sequence lasted were carried out in periods of three to four hours.

> La realizaciòn de las tècnicas requiere la inversión de mucho tiempo, tanto por parte de los facilitadores como de las comunidades. Es imposible realizar jornadas más extensas de tres horas, debido a que no se mantiene la atención y participación. Además, las comunidades no pueden ausentarse por más tiempo de sus labores cotidianas[39] (Teams from Colombia and Peru, 15 December 1998).

The timing of sessions was adjusted to the hours that were most convenient for the participants. In the communities in the Philippines, for example, sessions took place during the afternoon:

> It was easier getting the women to attend since the men were the income-earners. But the women cannot also be available during the mornings since they have to prepare the needs of their husband and children. The women were only available in the afternoon from 1-5 p.m. After 5, they have to go home to prepare supper (Karen Jacob, The Philippines, 16 December 1998).

[39] Doing the techniques was time-consuming for the facilitators as well as the communities. Working for longer than three hours was impossible, because attention and participation start to drop. In addition, communities cannot spend more time away from their daily work.

Representativeness was another issue. “For the employed community members, they did not want to participate since they too have household tasks to perform which they were not able to do during the day” (idem, ibid.). Other teams also commented on this issue and so a simple sampling procedure was worked out and is being tested to see to what extent representation in the focus group meetings can be made more balanced.

The issue of compensation could not be resolved. Only in Kerala did the resource center decide to give a small compensation to women and men community representatives who were more extensively involved. Other implementing organizations and the WSP decided against this on the principle that work for the community should remain unpaid if the communities themselves do not give any payment for this kind of work. Implementers nevertheless felt uncomfortable about this.

> We need the community participants for 4-5 days and their attendance should be consistent. This meant for most poor families a big dent in their income for 4 days. It actually meant no income for 4 days. I myself felt uneasy asking for their full-time participation for 4 days (Karen Jacob, The Philippines, 16 December 1998).

Overall, it has nevertheless been possible to use the MPA for the intended purposes within the intended time (costs are discussed in Section 7.4). However, skills development for gender and poverty sensitive participation and the systematic collection and documentation of qualitative information need more attention. Linking of data collection with local analysis and problem-solving action occurred as documented in the boxes, but was incidental rather than structural. These weaknesses are not restricted to a global study since managers of large programs also press for rapidly obtained quantitative information and attempts are made to address these issues as part of scaling up (Section 7.4).

7.3 Scientific soundness of the methodology

Positivists and constructivists have both formulated criteria which research must meet. As set out in Section 3.6, sound methodologies and studies generate findings that are real, complete, plausible, reliable, relevant, replicable, are used to act upon, and apply, or can be transferred, to more than one situation. Furthermore, they must be internally and externally valid, that is, they measure what they are expected to measure and inferences which come from the social and political perceptions of the investigator are defensible.

Real data

Faking data is more difficult when using PRA methods compared to questionnaire surveys (especially when the latter have mostly closed questions), but only when the records include qualitative findings and process information. Qualitative information consists of summary notes on participation and outcomes of the various participatory tool sessions and reasons for certain strengths and weaknesses, photographs of participatory processes, and transcripts of outputs from participatory tools such as welfare classifications and social maps in Figures 5, 6, and 7. As mentioned above, users of the methodology in the global study did better in assessing and recording the quantitative information compared to the qualitative data. Yet, the latter are as crucial as the former because they qualify and explain the scores given on the scales:

> Este tipo de valoraciòn ....proporciona una mayor profundidad en las respuestas que otros métodos como la encuesta. Permite una mejor comprensión de las situaciones, genera una mayor confianza y permite modificaciones mientras se ejecuta. En consecuencia, demanda un cambio de actitud por parte del investigador, quien debe aprender a ver, escuchar, preguntar y respetar[40] (Team from Colombia, 15 December 1998).

Completeness

As already mentioned, not all participants summarized the essential aspects of processes and discussions on outcomes of participatory tools. Those who did, while generating important insights, left intriguing questions unanswered. It was, for example, not clear how, in weighed tariffs, the different amounts for the poor, for women, or for productive uses had been determined and why only these communities, and not others in similar situations, had done so. It was also unclear what kind of incentives agencies gave to staff that were gender and/or poverty conscious and scored positively on these factors in the stakeholders' meetings. Because the methodology depends for its insights and actions on a combination of quantitative *and* qualitative information, in the future more emphasis is needed on the recording of qualitative aspects, not merely as a precaution against faking, but to enhance the validity of the information, since the more consistent the recording, the better and more systematically this data can be analyzed. Of the quantitative data, those on assessing benefits and value for costs were completed least (see Appendix 1) as the distinction was found to be hard to translate both language-wise and concept-wise and the tool was new. As mentioned above, simplifications have now been introduced.

Plausibility

As the first four rows in Table 30 indicate, the methodology delivered plausible outcomes for positivists since consistency with the studies reviewed in Chapter 2 was high, while some relevant insights were added:

- Users' cash payments were *not*, as in other studies, related to better maintenance, but to whether local management succeeded in achieving a higher level of cost recovery. The latter is a more complex issue than the purely economic principle of payment for water. A capable local water management organization was central to better sustained services and, apart from having been trained and having working rules and regulations, as found by Sara and Katz, it had a legal status, was active in monitoring and control, and was accountable to users;

- Better results were obtained when women along with men took part in more planning decisions and shared more equitably with men the unpaid and paid work as well as control in service establishment, management, and maintenance and repairs;

[40] This kind of assessment ... gives a greater depth in responses than other methods, such as the survey. It allows a better understanding of the situations, generates a better confidence, and allows modifications during the implementation. In consequence, it demands a change of attitude from the investigator, who needs to learn to see, listen, ask, and respect.

Table 30 Comparison of key findings of six studies on participation and sustainability

Finsterbusch & Van Wicklin, 1989	Narayan, 1995	de la Barra Rowland, 1979	Miller, 1980	Sara & Katz, 1998	Current study
Deskstudy	Deskstudy	Fieldstudy	Deskstudy	Fieldstudy	Fieldstudy
With *more participation* projects (incl. water services) were better sustained and more effective	With *more say in decisions*, water services were better sustained and more effective	With *more participation in contributions and through a local organization*, water services were better sustained	With *more say in decisions*, water services had fewer breakdowns (significance not determined)	With *user initiation* and *more say in decisions*, water services were better sustained and more effective	With *more empowered management*, services were better sustained; *user initiated* had more often lower downtime
When people participated in *more phases*, more people participated and there were more capacities and benefits	With participation *in more planning* decisions, with more groups and with women and men, projects were more effective	Not assessed	With participation *in more planning* decisions with more groups, water services had fewer breakdowns	With participation of households *in more planning* decisions, water services better sustained	With participation *in more planning* decisions, by more groups and women and men, results on empowerment were better. No *direct* link with sustained service.
User participation in maintenance went with better maintenance	Effective *maintenance* significantly higher when users participate	Not assessed	User participation in *maintenance* went with better maintenance (idem)	No correlation assessed	Community *maintenance* went with more reliable service, and with better results when by both sexes, and when paid
More participatory projects had higher social benefits or lower costs	In *more participatory* projects, users are more satisfied	Not assessed	Not assessed	People who contributed labor were more satisfied with service	Services *planned with women and men* had a higher value for cost according to poor women and better-off men. No link with contribution
Better sustainability (and specifically better maintenance) linked with high user commitment, cash contributions, provision of information and users' control	Cash (down) payment, two-way information, community control, and user satisfaction with more *participation*. Women's participation *negatively* correlated with cost recovery	*With* participation (in cash/kind/local management organization) more services were functional than *without* and more often had done maintenance and repairs. Separate factors made no significant difference.	With cash contributions, services had fewer, but not shorter breakdowns. (idem)	No clear data could be obtained.	Not payment, but *cost-recovery* related to maintenance (lower downtime) and *repairs by women and men* went with better reliability and *more* control from users and women was positively related to *cost recovery*
Sustainability was *not* correlated with the presence of a local management organization and correlated *negatively* when locally initiated, democratically formed and equitable	Not assessed	No significant correlation for local management organization alone	Where local management organization present, fewer breakdowns (idem)	*Sustainability* positively associated with formal management organization and training	All had a local management organization, sustainability *not* correlated with way of initiation and formation, but those *with women* had better access and predictability and access was also better with more *poor* people in it
Simple technology associated with better sustainability	Appropriateness of technology and availability of spares significant external factors, but participation remains significant	Not assessed	Not assessed	No significant linkage with type of technology	No significant linkage with complexity of technology; quality of installation mainly with predictable and used service and women in monitoring

- A higher representation of poor people in management was significantly associated with a greater access to services for all. In general, poor users (women and men) mentioned fewer benefits from an improved service than users who were better off, especially in connection with productive use of domestic water within households.

- Only Narayan paid attention to agency policy and organizational factors. To her findings that agencies that were more flexible[41] also had more participatory and demand-responsive projects and that a responsive approach was linked with a policy of participation ('participation as a goal'), this study added other correlations. These are a correlation between field achievements and project objectives aiming at sustainability and community ownership and not construction (Narayan did not find a relationship on that point); an agency's women and gender focus; progressive agency management and staff training; and especially, a team approach of technical and social staff working in implementation.

Negative case analyses were used to identify why assumptions did not hold. Examples are the cases where women were absent from local water committees, yet stated that they could influence key decisions in general assemblies, and the cases where participation and accountability were low, but sustainability and satisfaction were high because the service had for years been effectively run without any direct participation from the users other than payments. The technique could, however, be used more consistently by making it an explicit part of the community review meeting and training the facilitators in its use. Its positivist antipode was used consistently: all significant negative correlations were investigated and accounted for (see Appendix 1). Going back to the communities to sort out findings that were inconsistent was not tried because this was financially not feasible, but through e-mail a clarification could sometimes be obtained for inconsistencies that showed up during analysis at the global level. Another method to check the validity of findings, disinterested peer review, was limited to the review of the methodology and the general synthesis report and is reported in the section on use below.

The strength of the correlations, explaining some 16-25 percent of the variation and often less, was considerably smaller than the correlation coefficients that Narayan found in her desk study (.6 to .7, which explains 36-49 percent of the found variation). This may have two explanations. The first is the rather limited variation in the sample of participating projects. The self-selected sample was biased toward more participatory projects. In a desk study, a much wider range of reports could be drawn from participatory and less participatory projects and programs. Second, many of the government projects that participated in the current study were bilaterally financed. Such projects, as well as NGO-supported projects, tend to lay more emphasis on and offer a better scope for participation with a gender and poverty focus than projects implemented through regular government procedures and financed from national funds and/or international loans. In Narayan's sample, 26% of the projects had multilateral financing and 3% had only government financing. In this global study, 18% of the services had had a multilateral donor and none had been financed exclusively with national funds.

Besides the possible influence of sampling differences, the discrepancy may also stem from the presence of systematic bias when participation has been rated based on project reports. Narayan herself pointed out the risk of the 'halo effect', or the tendency of coders to make their ratings consistent and carry over a generalized impression from initial ratings to the

[41] Although it was not clear how she measured this.

next ones. “A coder aware of the hypotheses to be tested is more likely to score projects high in participation when the projects are highly effective, and vice versa - in other words, all good things go together ” (1995, p. 16).

It is doubtful whether the measure adopted by Narayan to prevent bias (combining the input scores of the first coder in the regression analysis with the output scores of the second coder) was a sufficient guarantee against this halo effect if both coders were aware of the hypotheses being tested. Moreover, the tendency to rate in favor of this hypothesis may have been reinforced by another common type of systematic error, the 'generosity effect'. This is the tendency of the coder to overestimate the desirable qualities of subjects that the coder likes (Selltiz et al., 1966). Low correlation is furthermore less serious when the associations reinforce each other in the general theory (and provided that they are independent which is discussed below): “even if each of the correlations proved to be quite low, their cumulative effect would be to support the validity of the test and its underlying theory” (1966, p. 160).

Validity or verification.

To be credible for positivist social scientists, findings should also be internally valid , i.e., reflect real differences without systematic or random errors from other factors or from the instrument itself. Regarding validity, a distinction can further be made between pragmatic and construct validity. Construct validity, or the degree to which not directly measurable characteristics such as participation, sustainability, and use were indeed measured through the instrument, was present because it was possible to confirm the hypotheses after the theory on some of the relationships had been reexamined. However, as will be shown later, not all doubts could be removed

Pragmatic validity, or the degree to which the instrument provides a correct prediction of reality, was not determined. It is not a difficult test to add because, at the end of each project assessment, a ranking order of services is available which can be compared with the staff’s own ranking of the performance of these services on the aspects considered. The MPA foresaw doing so in a more constructivist sense, by checking with the communities at the end of a sequence whether the outcome was a correct representation of their reality and whether there were other factors that might explain the outcomes. However, such a crosscheck was *not* systematically done. A community review session covering the experienced correctness, completeness, and implications for action has therefore been explicitly added.

The possibility that other than the investigated factors control the relationships can not be excluded. First, qualitative information on other, local factors that may have played a more dominant role in better or well sustained and/or used services was not entered into the data base and therefore not analyzed systematically. Second, and probably due to the self-selection procedure that was already mentioned, the scattergrams of the scores showed that relationships, although significantly associated, were not linear. This made it impossible to carry out a multiple regression analysis in which the possible influence of other factors is controlled (Norušis, 1998). In addition, multi-collinearity was not tackled adequately[42].

For constructivists, statistical validity, and the comparison of findings with earlier statistically tested findings is irrelevant. They require verification of the match between the constructed realities of the facilitator and the stakeholders, in particular the end users: in this case the women, men, and local water management organizations in the communities.

[42] While the tolerance statistics were below the limit for all variables but one, where it was borderline (i.e., around 1.0), some multi-collinearity was present.

In the MPA, the first verification happened at the time when the particular stakeholder group used the outcomes from a particular tool to choose the relevant scenario on the corresponding scale. In Chapter 4, it was reported that the groups did not do their own scoring everywhere and so this verification did not always take place. Also important was that the facilitators stressed that groups had the possibility to give intermediate scores as the options could not always match the situation of the groups. In-between scores did indeed happen, albeit not very often. Member checks were further possible at the end of the sequence, provided that the groups presented the results to the community, as well as during the stakeholder meetings when individual or subgroup scores were discussed and overall scores agreed upon. Member checks have now been explicitly included as a step in the sequence.

The gender and poverty focus in the MPA reduced the risk of the three types of validity errors which occur when investigators are gender blind, as Howard-Borjas (2001) has pointed out. Risks of omission, incompleteness, and misinterpretation of women's knowledge and needs were reduced by the integration of a gender analysis framework in the tools and scales, the participation of women in all mixed sessions (with process management for their equal involvement and use of sex-disaggregated voting and scoring techniques to bring out differences in views and practices), and by having sessions with women and men in separate groups or sub-groups. However, and as mentioned earlier, a gender perspective was not always included in assessing the technical aspects of the water service and not all facilitators had the same aptitude for being gender sensitive. Perhaps this was why there was little variation in the scores on technical aspects. This part of the MPA has since been improved by also disaggregating scores on these aspects according to the three groups concerned (women, men, and engineers) and making them sensitive to the number of shortcomings that each group mentions rather than their presence in general.

It was a challenge to ensure that the poor could express their own experiences and views. Having separate meetings with poor women and men was easiest in communities where the poor lived in separate parts or where each group had their own facilities, such as yard taps or rainwater tanks so that, during the transect walk, a cross-section from each group could be visited. Separate sessions were more difficult to realize in communities in which the three groups lived mixed and shared provisions. In those situations, differences for better-off and poor women and men came from open discussions with the two groups (women and men). In such situations, there is, however, always a greater risk of incomplete or wrong information because of the dependency of the poor on work and business from the better off. Often, there are also problems of speaking out in the presence of the more powerful while the better-off are reluctant to expose benefits for fear that this will lead to changes in, for example, the financing system: "Las personas procuran ocultar los bienes que poseen, por temor a ser intervenidos por el Estado a través del cobro de impuestos o incremento de tarifas" (Team from Ecuador, 15 December 1998) [43]. When meetings were mixed, teams had to triangulate in private talks afterwards or through other tools to bring out aspects of inequitable access and benefits (Box 20).

Reliability

Both positivism and constructivism use specific measures to assess whether the data is reliable, i.e., collect the same information in more than one way and compare the outcomes for internal consistency. In the MPA, four measures for checking internal consistency (triangulation) have been built in:

[43] People tried to hide what they possessed, for fear that the state would change the conditions of the loan recovery or increase the tariffs.

- using one type of source repeatedly (discussions with different key informants: members of the local water management organization, operator, local leaders);
- using different sources for the same information (social map and transit walk);
- using different methods for the same information (observations and discussions);
- using multiple investigators of both sexes and with different backgrounds.

However, the quality of the work will benefit from emphasizing triangulation more during training and checking periodically whether teams practice it in applications.

Box 20 Triangulation for reliability of findings in Kolubung, Nepal

Kolubung Water Supply Scheme No. 2 was located in Illam district in the foothills of the Himalayas in east Nepal. It had been managed by the community for three years and served all 33 households. The two women members of the water users committee (WUC) that managed the service were the wives of two other WUC members. Since the completion of the water service, local families had installed three illegal private connections. (The Department of Water Supply and Sanitation designed the system for public taps only). Two of the illegal taps were in the courtyards of WUC members. The taps had not emerged in the community social map, but were discovered through observations and discussions during the transect walk.

The transect walk not only corrected earlier information on differential access and benefits and gave insight into the agency's lack of recognition of and design for local demands for different service levels. It also revealed another instance of how, with a more responsive and cooperative agency attitude in planning, design, and construction, a technically better and socially more equitable service could have been established (i.e., designed also for house connections and with better served households paying for their higher service level). "Even before the scheme was handed over to the community, one of the taps was often either running dry or offered just a trickle of water. The community's complaints to DWSS either went to deaf ears [sic] or were buried under the 'good design' and 'good technology' concept. Once the scheme was handed over, the community decided to take matters in their own hands. The local mason diagnosed the technical fault and it was decided to shift the location of the tap by 50 meters to a flatter surface from the sheer slope where it was located earlier. A demo was conducted for the local DWSS staff and, after seeking their permission, the deed was done. The WUC and the three beneficiary households shared the funding for this initiative. Total expenditure: Rs 20000, WUC paid 1200" (Shalini Sinha, backstopping from WSP, New Delhi, 14 September 1999).

Training and review workshops were held to enhance intercoder reliability, i.e., ensure that independently operating teams carried out the assessments in the same way so that differences in outcomes and not in measurement were compared. The best would have been if all facilitating teams could have been trained together in one place. Because the study was global and was carried out in three languages (English, Spanish, and French) and fieldwork took place in 15 countries over a period of more than a year, this was logistically and financially impossible. Instead, regional training took place in East and Southern Africa, West Africa, Latin America, and Southeast Asia while in South Asia a member of the core team trained the facilitators in local workshops. In the same way, in regional workshops or through personal backup, scoring and results were reviewed and clarified at the end of the country-level assessments.

Generalization of findings

To relate to a wider reality than can be found in the participating communities, the findings should be generalizable or, for constructivists, transferable to other realities and be open to reproduction and corroboration by others. The absence of random selection of services from *all* served communities, including those in which the service had collapsed and the bias for more participatory projects limited the representativeness of the study and made results less generalizable. However, generalizability was enhanced by several other factors:

- the spread of the study over five world regions and a wide range of countries;
- the representation of different types of technology and service levels (both of which failed to explain variations in performance);
- the random choice of participating services from those that had continued;
- the use, within communities, of a standardized PRA sequence designed to bring in a crosscutting of stakeholders and local conditions. In case of private facilities, PRA techniques for representativeness were combined with positivist sampling techniques;
- the recording of places and times and, but only to a very limited degree, the cultures in which the particular results were obtained.

Flaws in reprentativeness were no exception. They existed in all but one of the studies carried out earlier that were reported in Section 2.5, although this does, of course, not exonerate those in the current study.

Use of outcomes

Because the MPA was used for a global evaluation with policy objectives and was not part of monitoring in a particular project or program, use of the outcomes for action has depended on the initiatives of the communities and projects themselves. Although cases of follow-up action were present and some of them are reported in this document, they appear to date to be more the exception than the rule. For some participants of the review workshop in Colombia, this was a source of frustration: "[the methodology] cannot give an answer for solving community problems". For others, the possibility for action came especially from the encounter between the functionaries and the users in the final review meetings:

> Tomando en cuenta los tres elementos PLA (*Participación, Aprendizaje, Acción*), se tiene que la *participación* está presente durante todo el proceso, aunque es un tanto dirigida por las técnicas planteadas de antemano, especialmente a nivel de la comunidad. El *aprendizaje* constituye una segunda constante [sic], muy especialmente para los diferentes funcionarios y facilitadores involucrados, a nivel de la comunidad el tiempo disponible para la valoración es escaso, lo cual limita el aprendizaje de las técnicas y estrategias por parte de ellos. La *acción* se plantea básicamente a partir del reencuentro funcionario-usuario, en todas las comunidades se culminó con una reunión de reflexión sobre la información obtenida, estableciendo de manera muy clara tanto las fortalezas como las limitaciones observadas. De ello surgieron compromisos y acuerdos para la realización de otras actividades de ajuste.[44] (Feedback from the facilitators from Colombia and Peru during the regional workshop on the results of the global study in Latin America, 15 December 1998).

[44]Taking into account the three PLA elements (Participation, Learning, and Action), participation is present during the whole process, although the pre-determined procedure of techniques has a directive element, especially at community level. Learning is a second aspect that is continuously present, especially for the facilitators and functionaries involved. For the community, the time involved is short which limits the possibilities for them to master the techniques and strategy themselves. Action happens mainly through the encounter between the functionaries and the users: in all the communities this culminated in a meeting to reflect on the information obtained, which established in a very clear manner the strengths and the weaknesses observed. From this meeting emerged compromises and agreements to carry out other activities for adjustments

Replicability

Finally, there are the criteria for replication: clarity on what data were found where and with what methods and tools and openness about shortcomings. Both checking the findings and replication of the study are possible because the methodology and the global study have been described in detail. The continued availability of the data and codebook makes it possible for others to return to the same communities to check or build on the findings or to replicate the investigations with other communities. In so doing, the shortcomings and errors reported in this book should help to make replication better.

7.4 MPA peer review, replication, and quality control

A methodology that is not used is not useful and, to be used, it should be useful in the eyes of the prospective users. Within the World Bank, two senior Anthropologists (a woman and a man), a female senior Community Development and Gender Specialist (water), and three senior Economists (men), two stationed in South East Asia and the others in Washington D.C., reviewed the MPA and the global study synthesis report. External reviewers included a female senior Researcher-Anthropologist at Wageningen University in The Netherlands, a male independent Community Development Consultant from South Africa, the Social Development and Gender advisor of the development cooperation agency of the Australian Government, AusAID, and the former managing director and engineer of WATERAID, a large water-related NGO in the UK.

The combination of participatory and statistical methods in one methodology raised several doubts among the Economists in the World Bank. The Principal Economists in the Bank in Jakarta and in the Transport, Water, and Urban Department of the World Bank in Washington D.C., rightly pointed out the sampling weakness and the need to ensure intercoder reliability. Having intercoder reliability "will also be crucial to convincing the target audience that this 'subjective' stuff really could be measured and its impacts demonstrated" (Pritchett, 2 September 1999). They further feared that having left out services that were *not* sustained would create a bias against the possibility to find anything. (It did not, thanks to the remaining variation within the sample, but it certainly limited the strength of the findings). The principle of constructivism that ultimate scores are achieved by consensus raised particular doubts:

> On the "scores by stakeholders" there may well be a tradeoff between the benefits to the community and the benefit to research. One does not have to be particularly skeptical to imagine that the score "by the stakeholders" might be quite susceptible to all kinds of "extraneous factors". I would guess one forceful and unhappy person in a group can change a group dynamic considerably. Some attempt to assess the "reliability" would be useful--e.g. do exactly the same procedures in parallel with randomly allocated "groups" that is, divide the group into those whose last names begin with A-L and those whose names begin [with] N-Z and do the exercise simultaneously in parallel. The question is how much difference will there be in rankings of the two groups within the same communities versus between the different communities (L. Pritchett, 2 September 1999).

The reviewers nevertheless characterized the methodology and study as a very interesting endeavor, although further consultations between the economists and anthropologists led to the conclusion that the too strong claims regarding statistical evidence had to be avoided.

External reviewers commented that better monitoring of service sustainability and evidence of the relevance of community-managed services established and operated with a gender and poverty focus were extremely relevant.[45] Use of participatory scoring and review was supported because this not only enhances insight, but also gives marginalized groups such as women and the poor a voice and a greater opportunity to become aware of, and defend, their common interests.[46] Both economists and anthropologists use ratings and rankings, but one of the main differences in what has come to be known in development projects as 'participatory methods' is that the latter make a clear distinction between the worldview of the researched and the researcher and try to catch the salience of the perspective of the researched. As Price pointed out, the use of only interval data, analyzed with parametric statistics, may contain hidden flaws while they are technically correct.[47] However, scoring methods and analysis should be made more transparent than in the methodology guide and the synthesis report on the findings.[48]

Criticism was voiced on the degree to which gender inequalities in water supply can be addressed when they are part of a much wider socio-political order to which the researchers also belong:

> ... the crux of the matter is that the relationships which people have to social and political hierarchies is one of the major determinants underlying their ability to interact with delivery programs and processes related to these

[45] "Monitoring the sustainability of water and sanitation services is an extremely important activity. It is currently not done well in many developing countries; poor people's water and sanitation, in particular, are not well monitored. Attempting to prove links between sustainability and various other factors is also an important activity. Many of us in the sector instinctively believe, for example, that community-managed schemes that recognize gender issues and focus on poor people's needs are more likely to achieve sustainable benefits than remotely-managed schemes that do not do so. But we have not yet proved this. So I applaud the Program for working towards that task" (Jon Lane, former director Wateraid and reviewer of the methodology, in his comments on 3 October 1999).

[46] "Thus, the methods as used capture not only the user opinion/valuation but also captures *why* in the open discussion format. The *why* (cause and intention and detail on the valuation) is just as important as the ranking itself. These participatory methods as used on the group level rather than the individual level stimulate a collective discussion and analysis among members of the focus groups. This approach facilitates the "learning process" among stakeholders. They are, perhaps for the first time, able to evaluate selected aspects of the water service among their peers and come to an understanding of their participation, needs, and benefits as a subgroup (i.e. women, poor). Such a group consensus should place them in a better position to articulate their needs for positive change" (Lisa Price, University of Wageningen, 15 February 2000).

[47] "The use of only interval data analyzed with parametric statistics only typically provides greater confidence in the interpretation of results (among policy makers and the like) with a certain amount of rigor as a given assumption of this approach. Flaws in rigor, however, are often hidden. In sampling, for instance, I have seen panel data sets that cover 6 years conducted by economists on farm management where the "random sample" consisted of every 10th house on the main roads in villages. By all appearances this would meet criteria for rigor and random sampling, however, the poor, who are officially members of these villages, live on the outskirts, and none fell into the sample. The results of the study led to erroneous interpretations regarding wealth, production, and land accumulation"(idem, ibid.).

[48] "The report presents empirical evidence from the field that clearly shows gender and social equity matter for sustainability, particularly in expressing demand and participation. The section on the top 10 communities in particular shows the value of gender and poverty sensitive approaches. The report provides clear links between community empowerment and institutional action. It also illustrates the value of considering gender, poverty and community participation at all stages of the project cycle and provides some practical access points to achieve that. The section on the statistical methodology is not very satisfactory. I wasn't left with a clear picture of how the methodology, including scoring, works (and I'm more informed than other readers will be). For example, there should be a simple explanation of the process, using participatory tools, testing variables using a range of indicators and a scoring system to establish correlations (perhaps in a box). Then explaining how those indicators were scored to produce a sustainability assessment e.g. technical, social, financial, institutional and environmental and what the scoring actually reveals.... [The report} also doesn't provide sufficient coverage on what funding agencies need to do practically in terms of programming and project design i.e., how to build MPA into programs... Your objective in promoting sustainability and equity rather than coverage targets as sector goals .....could be more explicit" (Nina Gapihan, AusAID, 30 January 2001).

> programs.... Women in particular are the most disadvantaged and, because many of these interrelationships are not immediately evident, both to the recipient communities and researchers, they are often ignored. Even if these relationships are patently evident, researchers whose presence in the 'research process' is itself based upon securing access and participation from these socio-political orders, tend to conveniently ignore them. The gender biased nature of Tribal Chieftainships that proliferates throughout most of Africa, largely pre-determines a social order that, regardless of whatever gender sensitive approach is advocated for water and sanitation delivery programs, will almost always disadvantage women. This is further exacerbated by Local Government officials who themselves have been drawn into the process by the very same socio-political orders that militate against gender equality. With all the best intentions in the world, no matter whatever gender sensitive participation process is advocated, it will not address these fundamental root problems, unless they are explicitly challenged up-front. (Akri Stavos, DRA, Durban, South Africa, 24 January 2001).

At the same time, Stavos recognized the impossibility to address the wider socio-political order in participatory assessments: "Unfortunately, in all likelihood, such a 'challenge' will almost inevitably sink the process before it begins, either because there will be no room for negotiation or the cost (time and effort) of sensitizing local authorities becomes prohibitive". This does not mean, however, that changes cannot be set in motion since getting together physically and becoming aware of social inequalities and common interests through a process of participatory identification and analysis are first steps in organizing for corrective action. More problematic is the fact that, because the MPA was used in a single global evaluation, groups were left to their own devices in situations where, as Stavos points out, inequalities may be so embedded in the socio-political order that change is very difficult and the newly found awareness only leads to frustration. In her comments, Gapihan took the issue of action for equality one step further by stressing that the objectives of improving sustainability and equity had not yet been addressed. She suggested that the MPA be adjusted for use in planning assessments for planning and indicates how funding agencies may build it into their agency project cycle.

Finally, the limited degree of social differentiation practiced in the MPA (i.e., only gender and class) was regretted, but the viewpoint that such finer differentiation is not always necessary and realistic in a rapid review was supported as well. It was feared that a division into only two, and occasionally four, generic categories of sex and class would do no justice to much more complex realities of social differentiation. The contrary viewpoint was that the current divisions were realistic in that they were likely to bring out the major differences. While other potentially differentiating factors such as age or ethnic group may be added when required, the utility of such greater resolution should be weighed against greater complexity, longer duration for the communities involved, and analytical utility (Price, idem, ibid.).

Replication of the methodology

Already during its inception, others began to use the methodology and for other purposes than to test assumptions as evidence for policy makers and program managers. While still under development, parts of the methodology were utilized for sustainability prediction and sustainability monitoring in two World Bank supported projects in India. Sustainability prediction took place in 30 water supplies in batch I of a rural water supply and sanitation project in Karnataka in South India (Abyankar & Iyer, 1999). After the field visits, the field data were converted into a sustainability index for each village and divided into three subgroups: sustainability being likely (a weighed average score of 0.65 and more), uncertain (between 0.50 and 0.64), and unlikely (below 0.50). The predictions will be checked against future performance. A start with sustainability monitoring was made in the Swajal project in Uttar Pradesh in

North India (Iyer, 1999). The same approach as used in Karnataka was replicated to monitor sustainability with villages that were already maintaining their service for at least six months. The phenomenon of sustainability monitoring was well received and the Karnataka project staff has started to replicate the surveys as part of their regular implementation supervision. The two cases, however, also showed that the MPA is open to several threats from reductionism:

1. *Loss of methodological merit*. In the assessments, the use of participatory methods and tools was dropped. They were replaced by a social and technical questionnaire survey. External survey teams were trained to apply nine questionnaires[49] so that the women and men community members did not themselves assess their service by means of the participatory tools and scoring scales. The role of the users was reduced to that of passive respondents. The power of assessing the situation and identifying improvements shifted to the outsiders who did the analysis and to the local water committees with whom they discussed the results.

2. *Reduction of time for dialogue and analysis*. The duration of the assessments was reduced to 24 hours. An innovative aspect was that the teams spent the night in the village and socialized with the villagers. This led to better communication and exchange than would normally happen in a survey:

   > The village visit generated great enthusiasm amongst the village community as well as the team members. Unused to the idea of project staff staying for more than a few hours, the communities were touched at this display of sincerity in attempting to understand them better, and delighted to host the teams for a day and a night. In the process, a great deal of information and knowledge was shared by both sides. In most meetings, there was good participation from women and girls. Debates went on late into the evening and the degree of excitement and community involvement was so high that the event assumed a carnival-like atmosphere. Many villages also arranged late night cultural programs and, in one case, a volleyball match also took place between visitors and the community. Needless to say, the community won! (Iyer, 1999, p. 3)

   However, since the same amount of information was collected as in a five days' participatory sequence and time had to be spent on reporting, meals, and social events, the scope of the different community groups for participation and dialogue was reduced.

3. *Gender blindness.* Local women disappeared as actors from the assessment of the community services and became passive respondents for two of the nine questionnaires. Because the assessment no longer involved local participatory data generation and analysis meetings, women's opportunities to meet and, perhaps for the first time, collectively discuss and analyze the domestic water service disappeared. Visits to the system installations were made by the technical task team and so apparently did not involve community men and, even more probably, community women. This means that opportunities for exchange in which community women and men and technical task teams share their respective knowledge on the technology and its functioning and all arrive at a better understanding were

[49] The nine questionnaires covered the general socio-economic profile of the community; the technical conditions of water supply; technical conditions of waste water and solid waste disposal; technical conditions of latrines; financing (costs, tariff and tariff billing and collection); institutional aspects (composition, functions and effectiveness of local water management organization); household demand (demands and demands met); social aspects (participation by women and poor); and tapstand monitoring (on water quantity, quality, reliability and equity of access).

not present. Tapstand monitoring involved a team of about 20 persons and included community members, but as all reporting was in sex-neutral terms, except for the remark on participation from women and girls in the quote above, it was not clear if there were also women tapstand monitorers. It was further not clear whether women spoke out at meetings and whether the organizers facilitated the meetings to make them gender sensitive. No separate meetings took place with women or the poor. The preliminary results of the assessments were discussed in closed wrap-up meetings between the survey teams and Village Water and Sanitation Committees. In these meetings, all team and committee members gave each parameter a score by means of a voice count. There were no accounts of whether women and the poor were represented on these committees, to what extent they attended these meetings, and whether independent voting was possible. Gender analysis was limited to the statement that "Women and socially disadvantaged groups [were] yet to be fully empowered" (Iyer, 1999, p. 4).

There was further the problem of the validity of the parameters. The organizers of the above-described surveys gave the methodology the separate name of Village Immersion Program and organized the surveys before the parameters of the MPA had actually been tested. Therefore, the immersion teams used the first set of indicators to predict the sustainability of the respective village schemes which was the set that failed to show significant correlations between the clusters. Similar problems may occur when, in replication, new factors are added or scales are changed without testing the new combinations for being equally good predictors.

The above experiences show that there are considerable risks that, in replicating and scaling up the methodology and using it for new purposes, its principles and/or rigor are negatively affected. Lessons can be drawn from the experiences with PRA which spread rapidly, but where quality suffered in the process. Since its development in the 1980s, many organizations and individuals have adopted the methods, have adjusted them for new sectors and new purposes, and have developed new tools while some, e.g. Guijt (1993a) and Guijt and Kaul Shah (1998), have strengthened their gender dimensions. Experiences continue to be exchanged through a journal by and for practitioners[50] and applied researchers meet occasionally in workshops or publish readers to review and share the latest developments[51]. As reported in Section 3.5, scaling up nevertheless brought many problems: PRA became so rapid, shallow, and frequently used that, in some places, PRA fatigue developed and quality began to suffer.

On the other hand, SARAR, the specific participatory planning methods for the domestic water sector, remained confined to a small group of sector specialists. They had developed the methods and had trained a small group of fellow-practitioners. The methods were hardly institutionalized in organizations and remained separate from PRA methods. The tools were developed further to include new health and hygiene aspects under the acronym PHAST, but there has been no consistent effort to make the process and subjects gender and poverty sensitive[52].

Since the MPA is built on PRA and SARAR methods, it runs the risk of being affected by the same problems of too rapid scaling up and too little institutionalization and quality control. This may happen especially when its application continues to increase and a wide range of consultants, including those without previous experience with the

[50] PLA Notes, published by the International Institute of Environment and Development, London, UK.
[51] In 1993, for example, a workshop on gender and PRA was held at the Institute of the Development Studies at the University of Sussex, Brighton, UK and more recently, Blackburn and Holland published a reader with papers on the institutionalization of participatory methods (Blackburn and Holland, 1998).
[52] Project for Health and Sanitation Transformation, which was started by the WHO and scaled up by the WSP.

methodology, are hired to work with project teams or carry out assessments on their own. Perhaps the risk of poor replication is even greater for the MPA because it consists of one procedure and is designed to be brief. The risk is considerable that its use becomes a routine with the main purpose of obtaining the information that program managers or donors want - with shortcuts in participatory methods and gender and poverty sensitiveness. At the same time, since further replication and development is only now beginning, there is the chance to reflect on these issues and plan to minimize the above-mentioned risks through the formulation of a replication strategy.

Enhancing and preserving quality

The first two elements of a strategy to promote and preserve quality are to clearly lay down the principles, methods, and tools of the MPA and its gender and poverty perspectives in a manual and link the use of this manual to sufficiently in-depth training. The compilation of manuals has always been avoided in PRA, because it was feared that, in this way, adaptation, flexibility, and creativeness might be replaced by thoughtless routine. The absence of stricter definitions of what PRA should be, what objectives it should meet, and how these can be achieved in different kinds of applications has, however, also been one of the reasons that many PRA applications have become sub-standard. One way to protect PRA and MPA applications from the possibly restrictive influence of manuals is not to spread these manuals freely, but to link them to training that is sufficiently long and professional to cover knowledge, skills, and attitudes for using participatory and gender and poverty-sensitive tools in an appropriate manner. Those trained would be women and men field staff of governmental and non-governmental agency projects and programs who can apply the MPA in their day-to-day work. Especially this group has the opportunity to build up a database for project/program monitoring which consists of quantitative community scores and qualitative community files while the originals remain in the communities.

The third element for enhancing and preserving quality is to establish and work with specific teams who are accredited as trainers and backstoppers for project and program agencies that wish to use the MPA. Such teams should consist of a trainer of either sex with complementary educational and professional backgrounds. They would be selected by the inquiry team that is described below. Team members should be selected for their personal aptitude, their expertise and experience in using participatory work with a gender and poverty perspective, and their capacity to develop the attitudes, skills, and knowledge for such methods in others. The development of a good means to assess personal attitudes towards participation, gender, and poverty and aptitude for training, such as a test that can be part of the recruitment process, would help in identifying suitable candidates.

The trainers will preferably be attached to local organizations involved in training and other support services for the water supply sector or for development in general in order to institutionalize the methodology into national support capacities for sustainable development. However, they might also be autonomous teams which establish themselves as accredited independent consultants, or belong to more than one support organization. In the case that local development organizations are involved, it needs to be agreed that the trainers are not any arbitrary staff members who happen to be available, but rather that they form durable teams where the members are chosen for their professional and personal aptitudes. In this way, they can continue to build up experience and contribute to the further development of the methodology.

Working for longer periods with teams that are either linked to national organizations or become accredited local consultants has several advantages. A first advantage is that it ensures that skills and experience with gender and poverty

sensitive PRA are institutionalized within countries. Providing training services by skilled trainers also enhances the economic viability of the organizations. Accreditation of a limited number of teams should be preferred over working with many different consultants on short contracts because, in the latter case, it is hard for local organizations to survive and build up expertise. At the same time, the knowledge that accreditation is subject to periodic review will stimulate a higher commitment and better quality performance. Other advantages of durable and mixed teams of national staff are: a better availability of trainers and backstoppers; a greater cultural appropriateness (although differences in class and cultural background between trainers and community members may still be substantial); ability to adjust MPA language use and translate scales; institutionalization of knowledge and skills, including on how to deal with conflicts; lower costs; the recognition and strengthening of national capacities among local people and institutions; enhancement of gender equity in support services, and the possibility to build up a network of colleagues who, through their contacts, can share knowledge and encourage new developments in the use and contents of the methodology. Building a network of accredited teams further helps to avoid institutional monopolies and pressures to accept less suitable staff when the most capable persons are not available at the required times and places.

The fourth element of the strategy is the establishment of an international and independent peer inquiry team for the MPA. Such a team would consist of specialists in participatory methods and research, gender, poverty, and non-parametric data analysis who are not financially or otherwise involved in the replication of the methodology. Its members would engage in the periodic and critical review of the MPA and the recruitment and accreditation of the trainers and would contribute considerably to the protection and strengthening of quality.

Finally, as a fifth element, there is a need for means to exchange experiences, feed lessons back into the methodology, and communicate about its further development and uses. Several possibilities for other uses of the MPA are discussed in the next section. Periodic meetings, a web site, an electronic periodical, and electronic conferences are some of the possibilities to remain in contact and cooperate for continued learning and mutual development.

Other sectors have taken up the issue of quality control of methodologies that have been subject to great controversy. In the environmental sector, this has resulted in the establishment of the ‘seven pillars of NOAAA’. The seven pillars are the key items that a panel of independent specialists organized by the National Oceanographic and Atmospheric Association of the United States of America identified as common weaknesses in even the best applications of the contingent valuation methodology[53]. They therefore made the convincing dealing with these items the criteria for the sound application of this methodology. Since then, the “seven pillars” have become internationally recognized conditions for good practice in the application of contingent valuation procedures. The same panel also developed an agenda for the further development of the methodology, aiming especially at making the methodology less time-consuming and contentious (NOAAA, 1993).

Some aspects of the strategy for quality application of the MPA that are described above are currently being implemented. A training and field manual has been prepared that reflects the experiences and lessons of the global study. Integration of training into local sector support organizations is taking place in connection with the implementation of new (now project- and program-specific) assessments. The organization of a peer inquiry team has been foreseen, but not

realized. Its organization depends on the wider recognition of the methodology, the ongoing demand for its implementation, and willingness to invest in quality control.

Costs

Implementation of all activities of the global study took twice as long and cost twice as much as originally estimated (see Section 2.7). The additional time and costs were due to the development of the MPA. This development was originally not foreseen, since it was anticipated that the study would be done using conventional questionnaire surveys. Without development costs, replication will be less costly. An estimate based on price and exchange levels of September 2000 is given in Table 31.

This estimate has as its assumptions: training of MPA trainers will be regional or international, last two weeks (including one week in the field), has 15 participants, two trainers and one peer reviewer, and has at least five days for preparation, travel and reporting. It is further assumed that those trained will in turn train 20 project staff (five teams of four persons) locally, but under the same conditions. Not included are the costs of establishing and functioning of the inquiry team and the exchange mechanisms. The costs of these elements should either be financed separately or be covered through a system of surcharges on every replication.

7.5 Potential of the methodology for other uses and sectors

The two purposes for which the MPA has been used to date (a global study and evaluations of completed services in specific agency projects and programs) are not the only or, for many groups, the most useful ways of using the methodology. The global study is most relevant for policy makers, funders, and researchers on basic because it has demonstrated the relevance of a gender and poverty approach and demand-responsive participation for sustained and used water services through a large, cross-cultural study. It also gave an overview of achievements and problems and showed which community and institutional factors have a relatively strong relation with various aspects of sustainability, access, and use. When used for project evaluation in a sample of completed services, it gives an indication to the implementing agencies and funders of how participatory the projects have been, how well and equitably they have involved women and the poor, and what the current situations are with regard to access, sustainability, and use. From these findings, lessons were drawn for new projects and for organizational and human resource development in the agencies concerned.

To date, the assessments that have taken place were at a stage in the agency project cycle and for a purpose that made the information gained more relevant for higher-level outsiders than for local staff and women and men in communities. Using the MPA as an ad-hoc study at end of a project cycle makes participation rather frustrating for the latter groups. This was also indicated by some of the participants in these studies.

Prediction and monitoring

It is more interesting to use the MPA for prediction and monitoring at a time when available support can still be reorganized to benefit especially communities with lower prospects of sustainability, access, and equitable distribution of benefits. Use as a tool for prediction was already shown to be possible and in the two projects where this was done before testing had been completed, the data could easily be rerun using the adjusted model. A pilot application of the MPA as a

Table 31 Cost estimate for replication (US$ Sept. 2000)

A	ToT course for facilitators	Tariff in US$	No. of persons	No. of days	Total amount		
1	*Trainers*						
	Fee	750	2	20	30000		
	Per diem	220	2	18	7920		
	Travel	2000	2		4000		
	TOTAL					41920	
2	*Peer reviewer*						
	Fee	750	1	18	13500		
	Per diem	220	1	16	3520		
	Travel	2000	1		2000		
	TOTAL					19020	
3	*Participants*						
	Per diem & travel	220	15	16	52800		
	TOTAL					52800	
4	*Course costs*						
	Materials	75	18		1350		
	Venue and services	80		14	1120		
	Travels to & from field	600			600		
	Villager compensation	1	50	5	250		
	TOTAL					3320	
					Sub-total		117060
5	*Overheads (15% of sub-total)*				0.15		17559
					TOTAL (A)		134619
B	Training of project teams						
1	*Trainers*						
	Fee	300	2	20	12000		
	Per diem	150	2	18	5400		
	Travel	400	2		800		
	TOTAL					18200	
2	*Peer reviewer*						
	Fee	750	1	18	13500		
	Per diem	220	1	16	3520		
	Travel	2000	1		2000		
	TOTAL					19020	
3	*Participants*						
	Per diem & travel	100	20	16	32000		
	Materials	75	24		1800		
	TOTAL					33800	
4	*Course costs*						
	Venue and services		(project)		N/A.		
	Travels to & from field		(project)		N/A.		
	Villager compensation	1	50	5	250		
	TOTAL					34050	
					Sub-total		105070
5	*Overheads (15% of sub-total)*				0.15		15760
					TOTAL (B)		120830
C	Field Assessments						
1	Trainer (in backstop capacity)						
	Fee	300	1	20	6000		
	Per diem	150	1	18	2700		
	Travel	400	1		400		
	TOTAL					9100	
2	Peer reviewer						
	Fee	750	1	18	13500		
	Per diem	220	1	16	3520		
	Travel	2000	1		2000		
	TOTAL					19020	
3	Travels to & from field		(project)		N/A.		
	Villager compensation	1	50	10	500		
	Materials	100			100		
	TOTAL					600	
					Sub-total		28720
5	Overheads (15% of sub-total)				0.15		4308
					TOTAL(C)		33028
					GRAND TOTAL		288477.5

monitoring tool taught that, in an ongoing project, the MPA is useful to permit a shift from an approach focusing on individual households to a community management approach by determining the differences in access to water and sanitation between households. The community organizations intend to use this information to plan, and subsequently account for, better access for all (Box 21).

Box 21 Monitoring the effectiveness of a project strategy

To test the applicability of the methodology for monitoring achievements and progress, a pilot assessment was done with a project for the construction of rainwater tanks and latrines of Plan International in Java, Indonesia. Mapping and matrix voting showed that, although the poor had benefited from the improved water and sanitation facilities and sustainability and use were both good, better-off and middle class households had significantly better water supply and sanitation than the poor. The assessment was a revelation for the villagers because the outcomes gave them for the first time an aggregated overview of the community situation as a basis for planning and monitoring the (ongoing) installation of new facilities.

Adaptive management

For project staff and managers, comparable monitoring scores facilitate comparisons across communities to identify those that require specific support and identify weaknesses that are common weaknesses and require adjustments within the project. An example is the Volta Rural Water Supply and Sanitation Project where, upon finding that financial planning was weak in all established services, staff revised the training manual for the water and sanitation committees:

> A review of the Watsan training manual indicates that the content is silent on cost estimation and cost recovery. The Watsan committees are not introduced to the process and techniques of developing O&M budgets. This has created a gap in the performance of the Watsan committees when it comes to the use of an effective revenue generation method to cover O&M costs. The project has decided on the development of guidelines for budgeting and cost recovery for the different types of water supply and sanitation facilities. Training modules for Watsan training should include modules on cost estimation and cost recovery (Kwadzokpo, 1999, p. 67-68).

For managers, the most effective use of the methodology would be as a long-term monitoring tool in combination with an adaptive management system. Having established a baseline and built up a database, it would then not be necessary to generally replicate assessments, but only to repeat the assessment of those aspects and in those locations where it is needed. Linking data to Geographic Information Systems and/or Management Information Systems while preserving access to underlying qualitative information, analyzing data statistically, and producing tables and graphs on a wide range of aspects as and when required, are other uses of particular interest to managers.

For women and men in communities and for the members of local water management organizations, use of the methodology for monitoring and adaptive management is also more than a separate study or end evaluation. For them, the methodology is a means of situation analysis, identification of problems, and planning of improvements and a way to enhance accountability for service delivery and equity of management. However, its power to generate local improvements and accountability depends to a large degree on the quality of facilitation and the kind of support available for change within the community as well as from outside agencies.

Pre-planning and planning

A further use is for (pre)planning. New domestic water supply services and sanitation facilities are not planned in a vacuum. Wherever people live, they have sources of water and practices for the disposal of wastes. Yet new projects usually begin as if the local situation is an empty slate and do not take into account the services already present and their use, maintenance, financing, and management. An initiative to use the MPA for evaluating the existing service as a basis for planning a new service, reported in Box 6, gave community women and men new ideas about the need for the service (which the leaders had previously thought superfluous), its design (which underserved areas to serve, different design of waterpoints with provisions for washing and bathing), its scope (the need to include or add a household sanitation component), its quality of construction (control over the contractor), and the participation of women (women's neighborhood committees to plan local waterpoints and control quality of construction). It also led to a great appreciation of participatory and gender-sensitive methods. However, no change occurred in appreciating the limitations of poor women and men to attend meetings in a central place far from their own habitation: they would not have taken part in the review meeting if the assessment team had not gone to collect their representatives.

However, evaluative assessments only lay the basis for what aspects to plan. They do not ensure that women and poor people will share in the subsequent planning decisions and do not tell how to make locally best fitting and most equitable choices for social, institutional, environmental, technical, and financial arrangements. This requires participatory and gender and poverty specific planning tools used in a sequence that supplements the evaluation sequence and processes of the MPA. How this would fit into the changing planning paradigm for water supply projects in World Bank supported programs is part of the conclusions of the final chapter.

Use in other sectors

Although the MPA was developed for and is used with domestic water supplies, its principles, procedures, and development may also be adjusted for application in other sectors. Within the domestic water supply sector, this applies in particular to the development of a sequence and scoring system to assess community sanitation and hygiene improvement projects. But also local water resources management, irrigation services with farmers' groups, community health projects, catchment area development programs, and other community based development activities lend themselves to the development and testing of sector-specific versions of the MPA.

At micro level, participatory methods have since long demonstrated their value for enhancing development. The World Bank has recently introduced the use of these methods in its work at macro level.[54] The MPA adds the possibility to practice participatory methods at meso level in large agency projects and programs. By combining the quantification of PRA data with the preservation of their participatory character with communities and by incorporating gender and poverty perspectives, the methodology fills a gap in the methodological toolkit and combines the advantages of PRA methods with many of those of the more conventional social and technical surveys.

[54]See 'Voices of the Poor' (Narayan et al., 2000 and http://www.worldbank.org/poverty/ voices/index.htm (18 April 2000). This is a global project carried out to confront the macro-economic data for the World Development Report 2000/2001 with the realities and needs that poor women and men expressed through participatory methods as a challenge to poverty alleviation policies and interventions and development at large.

8 The MPA and decentralized domestic water services

> *If we can really understand the problem, the answer will come out of it, because the answer is not separate from the problem* (Krishnamurti, The Penguin Krishnamurti Reader. Mary Lutyens (Ed.). New York: Penguin Books).

8.1 Introduction

The Methodology for Participatory Assessment was developed to meet three major objectives. In the short term and used in a global study, it had to inform policy makers and program planners about ways to make decentralized community-managed domestic services more sustainable and effective. Specific attention had to be paid to approaches related to demand, demand-responsiveness, gender, and poverty. A special objective for the study team was that the global study used a methodology that made community women and men equal partners in data collection, learning, and validation and remain the owners of the local knowledge which conventional social and technical surveys do not permit. When the implementation of the methodology showed that its value went beyond a one-time use for a global investigation, a third objective became to describe and evaluate the methodology itself and to explore its potential for other uses, in particular those associated with the new planning approach to decentralized water services. This final chapter peruses the outcomes. Section 8.2 contains the main conclusions of the global study and the recommendations for sector policy adjustments for better sustained and used services with more equity in gender relations and for poor people. It also discusses what the findings add to insights that have emerged from earlier studies. Section 8.3 links the global study and the methodology itself to the new paradigm for planning and supporting community managed water services that was presented and analyzed in Chapter 2. Section 8.4 presents the conclusions concerning the validation of the methodology. Finally, in Sections 8.5 and 8.6, the issues are summarized that remain to be resolved and steps are presented for the further development of the quality and the range of uses of the MPA.

8.2 Conclusions from the global study for policies and programs

The global study was carried out on the initiative of the Water and Sanitation Program of the World Bank to get more insight into the impacts of segmenting domestic water services in large programs according to differences in user needs and capacities, both within and between rural communities in the South. In particular, the study had to give insights into the presence of gender and poverty perspectives and any associated differences in service results concerning: the access to the services, their technical and administrative quality, the quality and role of cost-recovery, and the participation of women and men, and the poor, in the projects and their benefits. Two previous studies (one desk study and one field study) carried out by the World Bank had not included these gender and poverty perspectives. They had also not used participatory methods.

The outcomes of the global study, which were presented in Chapter 5, confirmed that gender and poverty sensitive participation and demand responsive approaches have significant and positive relationships with the longer-term results of community water projects. Using comparative participatory methods applicable to any type of water technology and in different geographic and cultural settings, the study committees covered 88 rural domestic water services in 18 agency projects in 15 countries and was carried out with groups of, on average, 30 women and 30 men of these communities and

their water management organizations. The average lifetime of the water services was 5.5 years, with a range of between three and 25 years. Within the sample, the degree of service upkeep and use and the conditions for continuity were indeed positively and significantly associated with the scope, and the degree of equity, of the participatory processes implemented by the project agencies and the communities themselves. The study also gave more insight into specific characteristics of the agencies that were associated with better results in the field. The most prominent results at both levels are given in Table 32.

Table 32 The main associations found in the global study

	r[1]	N[2]
Communities that had experienced projects that were more *demand responsive* (i.e., involved women and men *from households* in planning decisions) had also better sustained water services	.50	88
Communities with more *rights* and with *capacity building* for local management had better sustained services. (Having only participation *responsibilities* was not significantly correlated)	.40	88
Household contributions to construction, in cash and/or kind, were only significantly associated with sustained services if coupled with more *rights* and *capacity building* for local management	.32	88
Having a local water management organization with *women and men members* correlated with *greater access* for all, especially when there are more *poor people* among committee members	.24 .43	83 54
Poor women more often perceived to have *influence* on the water service when the *representation* of women and people from poor families in the water management was higher	.41 .56	77 53
The more *directly democratic and gender sensitive* the planning of the technology/service levels and maintenance system (i.e., with women and men representatives from households), the better the service has covered its cost over the last three years	.40 .37	79 79
Cost recovery was also better with more community *control* and *accountability*, i.e., when local water management organizations had had some control over design and construction, applied local rules on water use/management, accounted to users for management and had a legal position	.55 .53 .51 .44	79 79 78 79
Where *water sources were inadequate*, the chance was significantly lower that the water service met all primary domestic needs and households used only the service at least for drinking	.46 .35	87 87
Agencies with a more *demand responsive policy* were also more demand responsive in practice as scored by the community groups and had higher scores of user satisfaction	.33 .32	88 88
A *team approach* of social and technical agency staff was correlated strongest with more community rights and with capacity building for local water management	.42	88

[1] Correlation coefficient [2] Number of services for which this data was available

The opposite assumption (i.e., whether non-participatory services have worse results, or failed services have been less demand responsive and gender and poverty sensitive) was not investigated. This would be interesting complementary research if coupled with opportunities for making improvements. In the global study, such opportunities were not included which was the reason why non-participatory and failed services were excluded from the comparison.

Although quality of participation and management and their degree of gender and poverty sensitiveness are essential, no five or six 'magic bullets' have emerged. Relationships are numerous and complex. Nevertheless, some factors stand out although they cannot totally explain the considerable variation in technical and managerial performance.

Broad, democratic planning with women and men

Most important for a better sustained service were the democratic nature of local planning decisions and the number and type of decisions that were thus made. The more men *and* women community members (rather than just agencies, local

leaders, or men community members) had participated in planning decisions and the greater the number of decisions thus taken, the higher the scores for the subsequent performance of the services. This is an interesting addition to the conclusion of Sara and Katz (n.d.), who had already found that sustainability was higher in communities where household members - without disaggregation by sex - had participated in choices on project initiation, type of technology, and service level. To these conclusions can now be added that such choices are best made by men *and* women together and that they should also include decisions on the location of facilities and local arrangements for service management, maintenance, and financing. A full range of user choice did not yet exist in the services that were included in the study. In none of them had women and men household members taken part in all six types of decisions and no service obtained a maximum score on all aspects of sustainability.

Quality of management

The second most importance aspect is the quality of management. Quality of management here involved the presence functional management committees that had a recognized authority, applied locally adopted rules, monitored quality of construction and household contributions, and accounted for (financial) management to the users/tariff payers. The projects had further provided at least a minimum of training. In no service, however, had training covered all aspects of service management and use and had training on all aspects (including to user households on such aspects as health and hygiene) been extended to women and men. No program had provided training to train new and refresh old functionaries. This is clearly an area where much progress can be made with a direct impact on quality of services. It is also clear that human resources development does not stop with training. It includes giving communities their own authority and means of control to influence the quality of installation, and making local management accountable to the households that support the service.

Demand not a direct factor

Contrary to what the World Bank, in particular, has claimed a community demand for the project, as indicated by household contributions to investments in cash and/or kind, was not significantly associated with better sustained services. However, it was associated with a better quality of local management. In services and communities where this quality scored higher, users had more often contributed. Conversely, where users had paid in cash and/or kind, local management tended to be of a better quality. This is another reason to pay much more attention to building the capabilities for community management and take time during planning and construction to build local management skills and create from the first a tradition of transparency and accountability. One may even conclude that community water projects are institutional rather than engineering projects and should be managed by institutional development specialists belonging to development enterprises and not by civil or sanitary engineers.

Access and use neglected

It was no surprise to find that better sustained services were better used and vice versa. The strength of association was, however, very weak (a coefficient of .07) and many better sustained services had a low score for access and use. This indicates that projects and community management have focused primarily on sustainability and that general access and use, which are both so important from a social and health perspective, have not been given the emphasis that they deserve. An exception is participation of women in the location of facilities which had occurred in most of the services in the study and which both in the literature and in the current research was linked with significantly better access and use.

Women's participation or gender equity?

It has been encouraging to find that, in the more sustained services, women were fairly equally represented and that this was significantly associated with perceived influence by the women themselves, indicating that representation is not tokenism. Greater gender equity pays off for everyone. This is indicated by correlations between sustained services, on the one hand, and greater gender equity during planning and operations and higher satisfaction of the different user groups, on the other hand. Nevertheless, there is overemphasis on the physical participation of women without looking at how this affects their workload and degree of influence in the services as compared to those of men. More attention is needed to gender equity and not just women's participation. For example, shared contributions to construction by women and men should not be more common than their sharing of management control, as was currently the case. More menial work that is time consuming and unpaid is also still reserved for women. Not *whether* women participate, but how women and men *compare* in work, influence, and benefits, is the criterion of a gender-sensitive project. Agencies should further change their interpretation of women-in-development or gender policies so that the presence of such policies will not only link significantly with contributions from men and women community members to construction, but also with equal participation in planning decisions and service management and control.

Poverty aspects not structurally considered

Projects have not yet structurally considered poverty aspects. Key concerns are the composition of water management committees, using domestic water productively within households, and adjustment of tariffs to differential use, benefits, and capacity to pay. In almost all participating communities, including in those where everyone is said to be poor, the own welfare classification by local women and men showed a local social and economic hierarchy. There were nevertheless no representatives from the lowest group in almost half of the water management organizations in which this aspect of composition was determined. Representation of the lowest group is essential as it had a significant relationship with better access to and use of the water service.

Taking into account the productive use of domestic water in households is another neglected area. In the study, such use benefited especially the better off. Current tariffs did not systematically reflect the extra water used for productive purposes and the better living conditions of the better off. Tariffs also did not reflect other differences in benefits for households in which women and children must walk longer and carry water farther or for connections that deliver water for a much shorter period, at odd times, and with a lower reliability. Differences in capacity to contribute for different groups of households and for women and men within households tend to be honored more often. But equity in contributions depends on local decision-making. It is unclear to what degree project staff help community women and men to systematically consider these aspects and work out fair and realistic payment systems. The tools to do so have to some extent become available.

Capacity building needs to be strengthened

The findings confirmed that, for better water services, capable management organizations that are representative of women and poor people are important. Better results were not only associated with local women and men choosing the managers and a balanced sex composition within water management organizations, but also with the organizational capabilities mentioned under "quality of management". Training, an important aspect of capacity building, is still underdeveloped and incomplete. It does not yet cover all aspects and is not planned to be recurrent. A break with gender stereotypes exists in projects that give technical training to both sexes and training and education on health and hygiene

aspects to women and men. However, training along traditional gender lines was still common as if men do not need health knowledge for their roles as husbands and fathers and to change their own hygiene practices, and women who visit pumps daily do not need to note and diagnose problems and be able to ensure that repairs are of good quality.

A start made on institutional factors

Although incomplete for the number and type of gender aspects considered, this study has at least tested such associations in the field. It is encouraging to find that agency policies on user choice and women's participation have begun to be reflected in actual implementation. Nevertheless, as mentioned above, participation policies have focused too much on voluntary contributions from women rather than from women and men, and have neglected equity aspects. It was also revealing that the presence of social staff made little difference if they and technical staff did not cooperate. However, it is surprising that the presence of a team approach among social and technical staff was not significantly related with more supportive management and quality of staff training since these were other main factors linked with more participatory planning and more equitable and stronger service management in the field. The collection of socio-economically specific and, to a lesser degree, sex-disaggregated data which already existed in a fair number of projects, makes little sense, however, this data is not used. The latter was, according to the implementing staff, the case in the majority of projects. Linking the presence of such data with the generally expressed desire to have more training on gender opens perspectives to use the available information as a basis to plan specific and measurable improvements.

Additions to insights from previous studies

Compared with the previous global studies discussed in Section 2.6, the current study added several insights on financing. The conclusion on demand was the same as that of Narayan (1995) and contradicted those of Finsterbusch and Van Wicklin (1989) and Sara and Katz (n.d.): labor and cash contributions alone have not made sustainability more likely. The current study has added more details: recurrent costs were better covered when costs were budgeted and maintenance was planned with more user participation and performed relatively well (short breakdowns). Accountability to users and training for keeping the services going also made a significant difference.

This study also confirmed and expanded Narayan's and Sara and Katz's earlier conclusions on the importance of people's and the conclusions of Narayan on women's participation in planning. Mixed decision-making for six types of decisions explained a part (although not all) of the variation for a range of different performance aspects. As mentioned above, the six decisions are: initiation of the project, choice of technology and/or service level, selection of the location for the facilities, and making choices concerning the local management organization and the local maintenance and financing arrangements. This was the strongest factor in explaining variations in the degree to which communities had sustained their water service. In addition, the more the current management was gender balanced, the more the service was predictable and financially better managed.

To the insights on institutional characteristics and participatory approaches in the field, which only Narayan investigated earlier, this study added three more relationships: with demand-responsive policies, with women or gender sensitive policies, and with a team approach of social and technical staff. Sara and Katz's conclusions were confirmed on the importance of demand-responsive approaches, choices by household members rather than only leaders, the presence of rules, a designated community organization and provision of training. Additions to this study are: participation in planning and operations should be gender balanced for better sustained services, that is, involve both women and men

within households, a larger range of participatory planing decisions is important than technology, service levels and location of facilities, and the conclusions on institutional characteristics.

8.3 The MPA and the changing planning paradigm

Although the MPA has been developed for a one-time global study and has since been used mainly for evaluations, it was argued in Section 7.4 that its use is more interesting for planning and monitoring. In a program for improved domestic water services, agencies and communities often still act as though planning is done on a clean slate. Yet, water services are not created in a vacuum. Every human settlement has its system to provide and manage domestic water. Evaluating this system through participatory learning makes it possible to determine which elements and processes can be retained or built upon and which should be improved.

Starting with a participatory evaluation of what exists also fits better into the new planning paradigm. Within this paradigm, outsiders no longer plan the services. To the contrary, different social and economic groups in the communities get the opportunity to jointly create the particular mix of technologies, management, maintenance, and financing arrangements that best meets their respective capabilities, needs, and demands. The dissimilarity with earlier 'people's projects' is the presence of procedures and technical assistance for making planning and implementation more effective and equitable. This support may come from groups in civic society and the private sector, whose sole task is to provide support and whose payment, and next contract, depends on their output, the quality of their social and technical work, and the satisfaction of the contracting agency and (at least in principle) the different community groups. Section 2.4 also showed the limitations: initiation, time, and locations that have been fixed by the program and the external groups to the disadvantage of communities with more difficult circumstances, the presence of a parallel program management organization, the internal selection of qualifying community plans, and no arrangements for equitable financing.

How then, can the current methodology be used to reduce some of the problems present in the new planning approach? Institutionally, such planning need not be done by a water program operating in parallel. It is also quite possible to establish a special unit for self-planned and implemented rural water services (and sanitation and hygiene improvements) within a national program. It is crucial that its members are chosen for their interest, attitudes, and skills, and that provisions for training, backstopping and supportive peer review are available.

Methodologically, a program that supports small communities in establishing community-managed water services may use the MPA for better targeting the support service. In Section 2.4, it was argued that environmentally, socially, and institutionally communities differ in complexity and capabilities. A water services support program that uses marketing principles to investigate and respond to differential demands within and across communities should also recognize the need to vary on other factors, such as time and type of support in degree of information, type and level of social, gender and technical skills, etc. By segmenting communities in the program area as is practiced in marketing (including in social marketing which uses concepts and methods from general marketing to bring about socially desirable changes in behavior), the amount and type of support can be adjusted to local variations. This makes it possible to further professionalize support and make it more equitable, efficient, and effective.

Pre-planning

Segmentation of communities typically takes place during the pre-planning phase. A quick pre-planning round with all communities using a few selected indicators and processes from the present methodology would serve to establish the quality of the existing water service and its management in each community. Typical indicators would be: service delivery to various groups, speediness of repairs, cost coverage, demand, and equity towards women, men, and poor people in management, financing, access and use, and accountability. A pre-planning round gives an idea of the service conditions, problems, and expectations in the entire region. It also allows the segmentation and classification of communities according to local conditions and the degree to which they will need external support into, for example, Type A, B, and C. Type A communities will not need much support. They have a reasonable service base, are united, and handle social differences effectively and fairly. Women and the poor have achieved some level of equity, and the services and their management need limited improvements, most of which could be handled by the communities themselves. These communities might get the opportunity to submit plans for improvements which they have either prepared themselves or through the help of their own, independently acquired external support. Type B communities, on the other hand, will have serious technical, environmental, administrative, and/or social problems. They have poor water and sanitation conditions and will need a longer period and more, and more specific, support. Support teams which assist type B communities should have extra time and be allowed more staffing to help overcome the special problems. Teams supporting type C communities, which are those with 'average' conditions, would get the regular contract that is now used for any type of program community. Such use of the MPA as an instrument for a social marketing would make it possible to limit financial support for communities in a more favorable position to the cost of the design and construction of the water system only to be spent in a way agreed on and within a given place and time. More funds would then be available for process support over a longer period for communities in a less favorable position. This would enhance effectiveness and social justice of project support and contribute to the more professional provision of support services.

Planning

For local planning, the support groups would first help the communities complete the assessment of their existing service. Based on this assessment, the community groups would then decide if and how they will improve their planning process and, if necessary, the composition and work procedures of the local organization managing the process. In the planning of the improvements themselves, it is possible to follow largely the various content-related indicators of the MPA, for example, regarding the source ("Must a new, more reliable source with better water quality be found? How can continuing source reliability and protection of the water quality be planned?"), water distribution ("Can access be expanded to all people? And how will it be kept up?"), maintenance of the facilities ("Who can best maintain the facilities? How can the work be equitably divided? Should it be paid?") and financing ("How to pay the community share in capital costs? What tariff is needed to cover the recurrent costs? What payment system will reflect differential benefits and capacities? Who should be in charge of handling payments, and when and where should payments be made if the system is to be realistic and the work divided equitably? What should be done with those who do not pay?"). In local planning, the same analytical frameworks for gender and poverty and the same participatory tools apply as in evaluation. In addition, there are other already existing planning tools available such as those related to the formation of management committees. However, many of these tools are gender blind and do not consider socio-economic inequalities so that systematic adjustments will be needed.

In an adjusted planning paradigm, it is recognized that communities need varying amounts of external support to arrive at plans that are acceptable and feasible for all. This implies that every community will submit its initial plans for feasibility assessment, and final plans, including technical designs and the intended maintenance, management, financing and environmental arrangements, at its own speed. In a participatory program, screening and selection for co-financing would not be done internally, but would take place in periodically scheduled open meetings in the presence of all female and male group representatives of the communities concerned. The same system that the MPA uses for making community scores visible and comparable may here serve to show to what degree each plan meets the criteria of sustainability, equality, and need.

Financing

To ensure that program funds are more equitably distributed, communities which choose technologies that are more expensive should be required to contribute a proportionally higher percentage to the investment costs. Internally, welfare classification and social mapping of the service levels and distribution will make it possible to work out a tariff system that better reflects the differences to which local households benefit from the service and are able to contribute to its investment and running costs.

Technology

From the global study it emerged that, in technical designs, the small-scale productive use of water by different household members and the potential to expand the service for upkeep of access need more attention. Whether the service should meet the demand for small-scale productive uses of water has implications for costs, financing, and management, and requires decisions made with men and women of all user groups. A demand for productive use may especially be present in situations where traditional or agricultural water supplies cannot cater to such uses.

When choosing a technology and planning the distribution of the service over the community, more attention is also needed to the feasibility (technical, financial and spatial) for the communities to expand the system so that level of access and use may be preserved over time. Another design point that showed up in the global study was the demand for particular provisions at the waterpoints to meet the specific gender needs of women and men, such as for washing and bathing and watering cattle, without creating problems of contamination and conflicting use.

Service management

In planning the arrangements for operation, maintenance, financing, and management, the same factors and scenarios that were assessed in evaluations are now considered as planning decisions. This includes aspects such as monitoring and control of construction and contributions to construction, the division of tasks, training, and payments (including equity between women and men) for maintenance and management, setting up a system of budgeting and account keeping, and accounting for services and financial management.

Capacity building

So far there has been a lack of a thorough analysis of all training needs for community-managed water services while linking this to a *long-term* training strategies and program. The global study showed that most agency projects and programs gave only partial training, provided training themselves, and offered no new training although local functionaries change. To fill the gap, programs either need to provide periodic training opportunities themselves or make

arrangements with local institutions specialized in training community functionaries. To avoid that training is gender blind or reconfirms existing gender biases, it should have a policy and strategy of gender equity. Programs should give women and men equal chances to be trained for all skills and, through training, offer poor women and men new employment opportunities near their homes, for example as water kiosk operators and plumbers. In many cultures, it is more acceptable that, once stereotypes on what constitutes typical male and female work have been overcome, those who visit homes for fee collection or do construction or repair work in compounds and homes are women, rather than men, especially when during the day the male household members are away from home. Above all, training should above all be become more realistic and prepare for, and stimulate creative problem solving of the most common problems, such as what to do when repairs cannot be made within two days, water sources are seasonally insufficient, and external support for rehabilitation or expansion is not forthcoming.

Expansion to the management of water resources

The global study showed that the inadequacy of water sources is a common problem which was significantly associated with the finding in the global study that part of the water that women and men need for primary uses in households could not be met. In decentralized water supply, planning of services can therefore not remain limited to the direct community environment. When several communities in the same watershed area develop domestic water services, there is an increased risk of overdrawing from the water available in the catchment area. The risk magnifies when the same water sources are also affected by other developments. Amounts and quality of the available water often decline because the same water sources are used for agriculture, recreation, and urban water supply. Changes in agriculture (such as from wet rice farming to dry crops, an increased use of chemicals, and faster water run-off from better drainage and the expansion of built-up areas) reduce infiltration and recharge of underground water sources. These and other development threaten the sustainability of decentralized community water services. They cannot be addressed by individual communities alone and require concerted action at the watershed level. Reviews, consultations, and agreements at the watershed level have to involve all parties and have an impartial leader with sufficient means to ensure that the achieved agreements are implemented. A gender and poverty approach with the direct representation of women and poor people and sufficient power for the representatives is crucial, since otherwise their water-related interests as producers and domestic users will be overlooked or sidelined. In its present form, the MPA pays only limited attention to this issue. For use as an inter-community assessment tool on water resources covering all factors, it needs to be developed and validated as a separate tool.

Use at higher institutional levels

Although developed for a global study and used for program evaluations, the greatest potential of the MPA at the higher institutional levels lies in its use as a tool for comparative monitoring, impact assessment, and benchmarking. It is, for example, possible to use the scales on the representation and influence of women and men with regard to local service management to assess the baseline or benchmark situation and establish goals for progress (coupled with, if needed, inputs to achieve these goals) with all, or a representative sample of, program communities. Reusing the same scale after the agreed period, it then becomes possible to measure progress over time and space. The same strategy can be used for any selected indicator, such as upkeep of access, recovery of recurrent cost, or accountability for proper management.

Use of the MPA for better targeting of support programs and accounting for results through reliable data obtained with participatory methods helps national and bi- and multilateral agencies to meet their institutional objectives: demonstrably

good water conditions for all through approaches that strengthen local development capabilities and reduce gender inequities and inequities for poor people.

The demonstration of good approaches and results should be seen in the light of the rapidly increasing global water shortage and the spread in competition for drinking water. Use of freshwater increases in all water-related development sectors and many water sources are drying up due to overexploitation and global warming. These developments require a vigorous global policy to safeguard water as the most fundamental natural resource for human life and use it more efficiently and effectively based on decentralized information and action. A methodology that helps rural communities to improve their domestic water service and support programs to better plan and account for their support services into such a policy and can help generate more funds and positive attention for the domestic water sector.

8.4 Continuing down the road and cutting new paths: further development of the MPA

The Methodology for Participatory Assessment has added a new dimension to the application of participatory methods: a valid, decentralized and globally applicable approach for participatory monitoring and evaluation of community-managed water services of which the data can be aggregated at higher levels. This enables the organizations operating at these levels to implement and support programs and make policies to get information about the effectiveness of approaches and to target new programs better and so use funds more effectively.

Moreover, the methodology combines the participatory monitoring of program effectiveness with the assessment of issues of gender equity and equity for poor people that commonly play a role in decentralized water projects and their resulting services. This has been done through the operationalization of existing gender analysis frameworks for decentralized community water supplies and by developing a framework for analyzing the poverty dimensions. Gender and poverty consciousness are also included in the processes through which the methodology is implemented since the MPA has a systematic procedure for women and poor people to take part in the assessment activities and ensure that their experiences are included in the outcomes. Based on the first experiences with the methodology in a global study, this procedure has been further improved and linked with the review of outcomes and discussion and planning of local improvements at group and community levels.

Both above-mentioned elements (the combination of participatory data collection with higher level aggregation and the integration of gender and poverty perspectives) did not exist in the methodologies that have so far been used for the monitoring and evaluation of community-managed water services[55]. A third new element is that data collection and analysis (including group and community scores) on the project approach and services in the communities are linked to the analysis and scoring of institutional characteristics of the implementing agencies. This is also done with participatory methods and involves representatives of the field staff of the agencies and the communities concerned. The addition (which can be strengthened further) makes it possible to link field-level results with agency level characteristics, such as the presence and nature of agency policies, including on equity for women and poor people, staff and management approaches and human resources development.

[55] The Minimum Evaluation Procedures developed in 1983 for the WHO and the toolset for participatory monitoring and evaluation developed by Narayan (1993) for the World Bank.

The MPA is suitable for use with all water supply technologies and service levels and in all countries and cultures. This makes it possible to also use the methodology to compare different programs or agency projects within countries or geographic regions on their approaches and the effectiveness of their results with respect to variables and indicators of sustainability, access, and use, and participation, demand responsiveness, and gender and poverty sensitiveness. Its global applicability for comparative participatory studies makes it a useful tool for managers and funders at country and global levels.

Quality preservation

The MPA has proved to be sufficiently practical and rapid in application to be reused to evaluate and predict sustainability in individual programs. However, its integrity has been under some threat from those who want quicker results and whose prime interest is to collect information for management and funders.

Further reuse increases the risks that, both under the label of 'MPA' and under other labels, participatory processes are scaled down, indicators and scales changed without testing whether or not they are based on significant associations, and gender and poverty aspects are left out of the processes of implementation, analysis, and action. One of the reasons to write this book was to safeguard the MPA from such misuse by thoroughly document the design, model, processes, and uses of the methodology and report errors and weaknesses to enhance future use and development.

As organizations that developed the MPA, the WSP and the IRC also have a responsibility for guarding and enhancing the quality of the methodology during its dissemination and expanded use and critically following its wider application. Several measures were proposed to do so: an international and independent peer review team, accredited trainers attached to national organizations that already provide training and/or other support services for better institutionalization, development of a good trainer selection tool and peer reviews in international and national training. Discussions on implementation are going on.

Further development of the methodology

Three roads emerge for further development. The first, which is already taking shape, is to train groups of sector support organizations in the South to use the methodology for assessments of large programs. The original partner institutes are already doing so and the WSP and IRC are beginning to train new partners in other countries. There is a considerable demand from projects and programs for such services. They allow Southern sector support institutes to strengthen their economic viability and expand their knowledge. At the same time, only high quality research can protect and build reputations. Hurried, quasi-scientific assessments that occur because principals want shortcuts and go for low fees, rather than experience and expertise, constitute a considerable risk for the ongoing application and development of the methodology. On the other hand, longer-term cooperation with open communication combined with peer reviews with constructive criticism, to which this book aims to contribute, will benefit the further development of this new methodology.

More challenging than replication is the adjustment of the MPA as a planning and management tool in the new type of sector programs. Working directly with programs that wish to strengthen monitoring and problem solving action provides more opportunities to stress the developmental character of the methodology for local communities and programs. So far, these aspects of the MPA have been under-utilized as the focus was on obtaining and analyzing quantitative scores for

policy making and program assessment. Two recent developments are conducive to a new methodology that introduces a quantifiable and comparable form of PRA. The first is the sector-wide approaches in which donors support country programs rather than establishing separate projects outside, or with a specific position in, national programs. The second is the new approach beginning to emerge in these programs, with funds, technical assistance, and a framework for a rolling series of self-planned and implemented community projects. Real exploitation of the MPA will happen when communities and staff start to use it as part of such ongoing programs. As with PRA, this type of use will be harder to achieve than the occasional application for an externally driven study or evaluation. This is made evident by the fact that the PRA literature rarely reports long-term and large-scale self-reliant use by communities and programs.

Lastly, there is the possibility to develop the methodology for use in other water sub-sectors and in other, comparable development sectors. Important development areas in the water sector are the sustainable and gender and poverty sensitive development and management of water catchment areas and of community-managed sanitation and hygiene programs. Water catchment area programs are often community based. However, a methodology that assesses the fairness and ecological soundness of abstraction and discharge practices in a water catchment area and its underlying planning and management arrangements will have to deal with more interest groups, more conflicting interests, and greater differences in power in comparison with a domestic water service. At the same time, the greater complexity of the situation and the more diverging interests increases the usefulness and applicability of a participatory methodology that is suitable for all groups and that provides a visible and comparable basis for analysis, planning, and monitoring.

A sanitation and hygiene-specific MPA would be particularly useful as a basis for planning and monitoring of community managed improvements. So far, such programs are less common than the programs or projects that, with their promotion of externally defined facilities and practices, directly target households and individuals. Both types of programs for sanitation and hygiene (community managed and promotion) are less well supported than water programs. However, the interest in them is growing as poor sanitation increasingly contaminates water sources and drives up the cost of clean drinking water. Urbanization is further reducing the opportunities of men and boys, but especially women and girls, for open-air disposal. Social problems and public health hazards from the lack of a hygienic environment are increasing. Moreover, there is evidence showing that, without improved sanitation and hygiene, water programs do not have the expected health impacts. Developing a participatory assessment methodology as a basis for planning and monitoring self-action that is gender and poverty sensitive and testing its explanatory and predictive values would be very useful for the sector.

Finally, there are the programs in other sectors that work with local groups and communities and use participatory planning, management, monitoring, and evaluation. Local services such as education, family planning, and health, in which users increasingly participate but which are usually not fully community or group managed, may find the linkage of PRA tools to scales the most useful. This may apply to, for example, rating the quality of services for women and men or boys and girls, by the different user groups and comparing the patterns of access, use, and payments for different groups in the community. For group or community managed services such as irrigation, and for cooperatives and micro-enterprises, a very similar model as for a community managed water service may be developed and tested.

Documenting and analyzing the MPA and its use in the global study provided a means to examine the objectives, the development process, and the achievements of this new methodology. It has also been a means to highlight shortcomings and concerns in connection with the replication of its use and its further development. May, in this process, the current book be of assistance for the many colleagues who dedicate themselves to community water services, participatory approaches, and equality for women, men, and poor people.

Appendix 1 Correlations

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Appendix 2 Communities that participated in the global study

Bolivia
- Las Gamas
- San Carlos
- San Miguel
- Villa Serrano

Colombia
- Aguas Claras
- Convenio
- Paispamba
- Triana

Ecuador
- Cotapamba
- Lentag
- Tomebamba
- Zhagal

Peru
- Polloc
- San Marcos
- San Miguel
- San Pablo

Kenya
- Mnyenzeni
- Mwembeni
- Mwangoni
- Mwenengo

Malawi
- Bvumbwe
- Kaledzera
- Mphuka
- Mwambuli
- Mwantawali
- Mwenengolongo
- Phodogolo
- Sandama
- Yuwa

South Africa
- Laatste Hoop
- Tisane

Zambia
- Chiba
- Luandui
- Mungwi
- Nasilia

Cameroon
- Bolifamba
- Bonadikombo
- Limai
- Mbazoa
- Mbeso Nsai
- Njinibi
- Nkenglikok
- Song Abeam

Ghana
- Etordome
- Hotzo-Ve
- Kalijisa
- Mbeso-Nsai
- Santrokofi Bume
- Sapimo
- Wiiro
- Yupaala no. II

Indonesia
- Lamu
- Lewoloba
- Longano
- Lonuo
- Mokantarak
- Tanedeng
- Talumelito
- Wailolong

The Philippines
- Langtad
- Poblacion Argao
- Poblacion Sibonga
- Sabang
- Tulic

India (Kerala)
- Kizhuvilam
- Mathilakam
- Puthenchira
- Thrikkunnappusha

Nepal
- Bargada
- Dahachaur
- Kerabari
- Kolbung
- Lamahi
- Maintada
- Panchakanya
- Pantura
- Shreepur
- Shirsh

Sri Lanka
- Akurana
- Borala
- Egodagama
- Holipitiya
- Hulankanda
- Kendagolla
- Mugunumulla
- Samagipura
- Sapuroda
- Vepataera West

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