

Indonesia: **EVALUATING COMMUNITY MANAGEMENT**

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PROWESS/UNDP

Involving Women in Water and Sanitation:

LESSONS - STRATEGIES - TOOLS

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PROWESS/UNDP CASE STUDIES

The experience of involving women in community water supply and sanitation is still quite limited. This is why PROWESS was created: to demonstrate how women's participation can be achieved and what benefits this brings -- what works, how and why.

Therefore, at this point we find case studies central to our purpose and try to emphasize two elements:

The richness of varied experiences

The participatory process by its nature cannot be planned in a blueprint fashion. From the beginning, the intention in PROWESS was to work with as wide a variety of programmes as possible, and to leave the process very open. Therefore, the cases studied also vary greatly. They track programmes over a substantial period, trying to show dynamics over time, rather than simple input/output relationships. We focus on the process of change in perceptions and behaviours at community and other levels, growth of institutions, developing cooperation between communities and external agencies, how challenges were encountered and met, as well as the development of self-help groups and their actions even beyond the water/sanitation field.

An analysis of this variety of information is, however, revealing common traits which can be used in information of future programmes.

Effective and sustainable use

We find it necessary to define what we call "success". Our best wording at this point is "effective and sustainable use" of replicable water/sanitation services. We try to define indicators, and include under "sustainable" such indicators as problem solving abilities of individuals and communities, affordability, cost and replicability, and under "effective" such indicators as hygienic, economically and socially beneficial, consistent, not wasteful, environmentally sound use.

We seek to include opinions of the various actors. This is difficult and somewhat risky, but we find opinions in themselves to be important indicators. On the other hand, we also try to develop quantitative indicators for such elusive concepts as status of women, level of participation, quality of life.

The case studies are developing over time and we would be grateful for comments and feedback. Each has a different theme and approach. This one, about Indonesia, focuses on data and data use in community managed projects.

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in 6350

INDONESIA: Evaluating Community Management

A case study

by

Deepa Narayan-Parker

PROWESS/UNDP Technical Series:
Involving Women in Water and Sanitation:
LESSONS, STRATEGIES, TOOLS

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Comments made by Dr. Nafsiah Mboi, currently at Leiden University, the Netherlands, and Ms. Karen Smith, formerly a PKK consultant, are gratefully acknowledged. The "pocket chart voting exercise" used for participatory evaluation in West Timor is based on a SARAR technique developed by Lyra Srinivasan, PROWWESS.

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Cover photograph: A woman "votes" using a cloth pocket chart, as part of a survey of decision-making by water users' groups in Indonesian villages. See page 14 for details. (Photo by Deepa Narayan-Parker)

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THE PROVINCE OF NUSA TENGGARA TIMUR

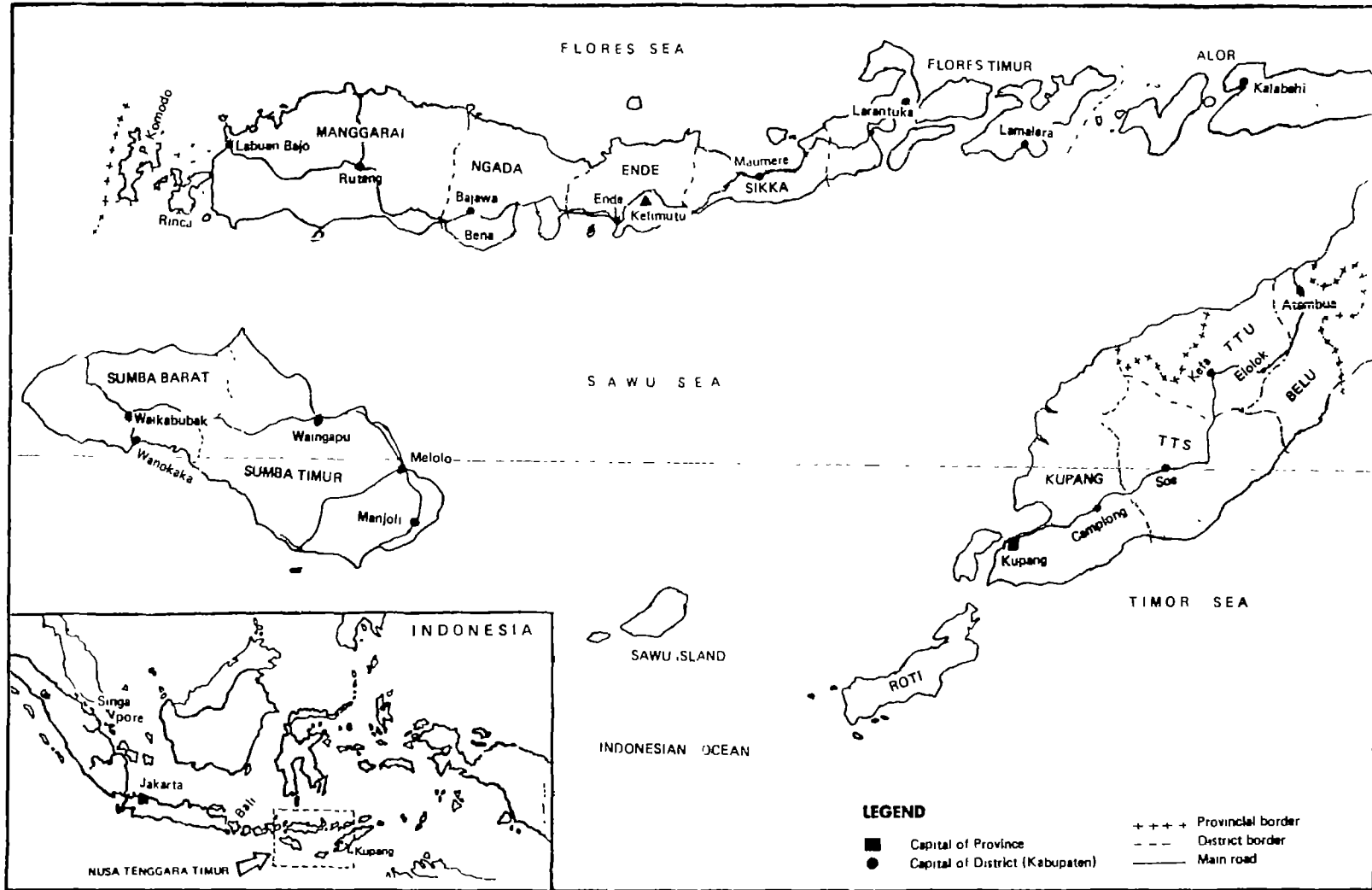




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EXECUTIVE SUMMARY

Monitoring and evaluation are important in all community water projects but become crucial elements of projects that adopt the community management approach. Within this approach, project managers encourage and support community decision-making and thus introduce larger elements of unpredictability than in straight forward construction projects. However, managers of such projects retain control and play an active supportive role in creating community ownership of facilities through increased two-way information flow.

Acceptance of the community management approach thus raises important questions related to the "Who, what, when and how" of information gathering and data flow. It also highlights the importance of achieving consistency in concepts and indicators used for planning, monitoring and evaluation.

In a community-managed water supply project in four villages in the West Timor province in Indonesia, a coherent set of indicators was adopted for all project stages, from conception through evaluation. Three main factors were built into project design, pursued throughout project operations, and traced during the evaluation of the three-year project. These were:

- . effective use of new facilities;
- . sustainability of the operations and organizations concerned; and
- . replicability of methods used in pilot-demonstration work in larger scale programmes.

In the evaluation phase in the third year, progress in achieving these goals was assessed in the villages. This report presents data on the findings, as well as information on ways of using the three indicators to measure what was accomplished.

In the evaluation, simple, participatory methods were devised to measure some difficult-to-quantify concepts. For example, ways were developed to assess: (a) types and levels of community participation in such actions as selecting leaders, financing installations and repairing facilities; and (b) changes in the confidence and competence of village women and men, which affect the sustainability of the programme.

The PKK experience also illustrates that the effects of women's involvement in water projects not only results in positive changes in the water situation but brings about important qualitative changes in the lives of women and their families. It also demonstrates that community-managed water projects bring about important changes in the social, economic, health and environmental situation, some of which may overshadow the importance of water per se.

Table 1.
GOALS AND INDICATORS

E F F E C T I V E U S E

Optimal use
 .Number and characteristics of users
 .Quantity of water used, all purposes
 .Time taken to use facilities
 .Water resource management

Hygienic use
 .Water quality from source to mouth
 .Sources of en route contamination
 .Practices to improve water quality
 .Site and home hygiene
 .Personal hygiene

Consistent use
 .Pattern of daily use
 .Pattern of seasonal use

S U S T A I N A B I L I T Y

Installed and functioning systems
 .Community decisions in installation
 .Water quality/quantity at source
 .Operation and maintenance
 .Cost recovery

Confident/competent individuals (community/agency)
 .Decision, execution and management abilities
 .Knowledge and skills
 .Confidence/self-concept

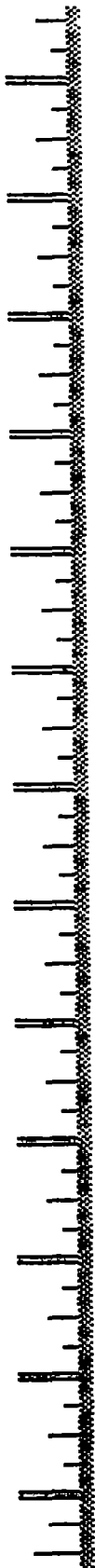
Strong organization
 .Autonomy
 .Supportive leadership
 .Systems for learning and problem-solving

Environmental conservation of water sources and watersheds

Interorganizational collaboration in planning and activities

R E P L I C A B I L I T Y

<u>Proportion and role of specialized personnel</u>	<u>Stages:</u>
.High input of specialized personnel	Pilot
.Mostly regular staff, decline in specialists	Demonstration
.Existing staff, further decline in specialists	Replication
<u>Established institutional framework</u>	
.Semi-autonomous organization	Pilot
.Less bypassing/more sharing with other agencies	Demonstration
.No by-passing/close inter-agency collaboration	Replication
<u>Budget size and sheltering</u>	
.Generous and sheltered	Pilot
.Medium size and partially sheltered	Demonstration
.Average size and regular budget item	Replication
<u>Documented planning and implementation procedures</u>	
.General guidelines and strategies	Pilot
.Standardized procedures emerging	Demonstration
.Documented simplified procedures	Replication



I. INTRODUCTION

Data make a difference. Without the right kind, projects cannot evolve and grow. Too much data can drown a project, while the wrong kind are worse than useless. The issue is which data to obtain and how to use them in evaluations of low-cost, community-based water projects.

The principles of the International Drinking Water Supply and Sanitation Decade (IDWSSD) imply profound changes in the strategies for achieving the goal of "health for all" through the provision of water supply and sanitation services. One of the major lessons that has emerged out of the Decade experience is the importance of community management of water and sanitation facilities, with central roles for women.

This paper addresses issues of evaluation and indicators of success for programmes following a community management approach. It is based on data from an action study program undertaken in west Timor in Indonesia by the national family welfare movement (PKK, for Pembinaan Kesejahteraan Keluarga). The document focuses on the following questions:

- What is the role of evaluation in community-based projects?
- What indicators should evaluations include?
- When in a project cycle do evaluation indicators become important?
- How and when should evaluations be conducted?
- Who should be involved in evaluations?

A. An Evaluation Framework

Three types of criteria can be formulated for judging the effectiveness of low-cost water supply and sanitation projects. One type, the most frequently used, evaluates installation and initial operation - did the project achieve its technical, construction objectives? A second type includes the use and maintenance of new facilities and the potential for additional communities to develop similar services. A third type traces the impact of new installations and their use on community health, organization and production.

A framework for evaluations of the second type has been developed in the UNDP-assisted project for Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWESS). It is reproduced in full on the facing left-hand page.

In this framework, the overriding goal against which to measure progress is identified as:

achieving sustainable and effective utilization of systems through methods that are replicable.

As stated, this goal thus offers three broad indicators to be used in weighing achievements:

- . effective utilization
- . sustainability
- . replicability

The overall framework and clusters of sub-indicators for such assessments are presented and discussed in detail in Chapter II.

B. The Context

Nusa Tenggara Timur (NTT) is one of the more remote, poorer provinces of Indonesia. The climate is warm and rainfall is low, with a prolonged dry period (May - November). Despite limited arable land and poor soil conditions, a majority of the people engage in subsistence agriculture.

Hygiene conditions in the district are poor with limited access to safe water and low use of latrines. The infant mortality rate was 104 per thousand live births in 1985. The four major causes of death in infants are perinatal causes, neonatal tetanus, malaria and diarrhoea.

Table 2. DEMOGRAPHICS

Nusa Tenggara Timur

Total population - 3 million
Capital - Kupang
12 districts, 98 subdistricts
1,723 villages
Subsistence agriculture - 85% population
Per capita income US\$ 200
National per capita income US\$ 500
Infant mortality rate 104/1000 live
births (1985)

Because of the remoteness and the scattered population pattern of the province, historically it has been difficult to reach people with services. However, government programmes now have contact with even the most remote communities.

It was in this context that the PKK started a new programme in 1985 in two districts, Belu and Kupang on the western part of the island of Timor. The

programme was known as WAS -- Wanita Air dan Sanitasi, which means women, water and sanitation in Bahasa Indonesia.

As the national family welfare movement of Indonesia, PKK is officially designated as an NGO but has close working relationships with the Government of Indonesia (GOI), both technical departments and administrators at all levels.

The leaders of PKK are the wives of the administrative heads at each level from provincial to village. At the village level, PKK is the main vehicle for management of development efforts by women, although men also participate. In NTT, PKK started active organizational efforts in 1979, focusing primarily on health, education and micro-enterprise activities.

C. The WAS Programme

Preliminary discussions for a WAS programme began in 1983. The programme became operational in mid-1985 under the leadership of Dr. Nafsiah Mboi, the wife of the then Governor of NTT and provincial chairperson of PKK. The WAS activities were implemented by PKK in close working collaboration with the Departments of Health, Community Development and Planning and with Administrative heads at different levels.

WAS was funded by the Provincial Government of NTT, Government of Indonesia (GOI), the PROWESS programme of UNDP, and a variety of volunteer and local resources. The case studies were funded by PROWESS/UNDP and Ford Foundation, and executed by the WHO/South East Asia Regional Office (SEARO).

The purpose of the overall program was to demonstrate the viability of a community-based strategy focusing on women to create sustainable and replicable water and sanitation programmes, while simultaneously improving the lives of women. This implied: use of participatory methods; activating PKK volunteers at all levels to serve as managers, trainers and facilitators; working through existing channels and institutions, including the village, and establishing close working relationships with the technical ministries (health, planning and community development). At each level an inter-agency WAS team was created with primary responsibility for management and supervision of the next lower level.

Two male field facilitators were placed in each of the districts. They were seconded to PKK from the Department of Community Development of the Ministry of Home Affairs and the Provincial Planning Board. Their main role was informational, liaison between villages and PKK at the provincial level.

Compared to conventional detailed project proposals, the PKK/WAS project proposal was practically a 'clean slate' on which PKK wrote slowly as it learned about village realities from applied research, from team building with the sector and from its experiences in the villages. Thus, the first major project activity was a case study in mid-1985 which gathered data to help design the action plans and established a baseline to evaluate the effectiveness of the project.

Formation and training of WAS/PKK teams took place in early 1986 and the first village contacts by these teams were initiated in mid-1986. Based on the development philosophy of PKK and case study findings, at the village level PKK workers encouraged the involvement of women, formation of water users' groups and provided training in leadership, bookkeeping and repairs of broken down systems. Technical input, including most of the hardware, was provided by the Ministry of Health, when WAS field facilitators signaled 'community readiness'.

The project activities were conducted in four villages, some of which were scattered over an area of 300 square kilometres. The total population of the four villages was approximately 6,000. All the villages obtained drinking water from a variety of traditional sources including springs, shallow wells, rivers and to a lesser extent, from pipe systems in which sources were not protected.

By mid-1987, dramatic changes were reported by WAS/PKK workers at all levels. Were these changes real, big or important? These questions were answered by monitoring activities and by the second major round of data collection conducted in mid-1987, just a year after activities had been initiated at the village level.

D. Data Collection Methods

In addition to constant monitoring by staff, altogether 16 different data collection techniques were used in the two PKK case studies (see Table 3 on the next page). These included qualitative, quantitative, observational and participatory techniques. Data were collected by university students and faculty, and by village men, women and school girls from the villages.

Detailed case study methodology and findings are reported in the final 1987 case study published by WHO/SEARO. The findings are based on the same sample (people, households, water sources) studied across two years. This report focuses on some key findings related to effective utilization, sustainability and replicability. It includes material that was gathered during a return visit in mid-1988 to conduct a process review of the PKK/WAS experience.

Except for village observers for water collection activities, the university team worked as volunteers. All case study team members received a subsistence allowance for village work. Each year field work was conducted over a period of 3 to 5 weeks at the peak of the dry season with between 2 and 10 days spent in each village.

Data were sometimes analyzed on the spot during group meetings and later through hand tabulation and computer analyses. Data were used in a variety of ways by village water groups and by PKK management at different levels. Much information based on interviews and village maps was communicated to PKK managers soon after field work. The case study team also participated in project planning meetings and in training activities as needed.

Table 3. DATA BASE FOR 1985 AND 1987

	1985	1987
1. Household interviews: Female: (open-ended) Male:	252 123	118 122
2. Observation of household hygiene	112	112
3. Observation of water collection	609 household days 1,516 trips	612 household days 2,695 trips
4. Water Use Measurement	117 households	119 households
5. Key informant interviews on village history, local institutions and leadership, WAS and PKK	200	20
6. Group meetings:		
a. with villagers	3	1
b. with PKK/WAS personnel	3	8
7. Site visits to water sources	100+	50+
8. Participatory mapping	12	-
9. Health game	119	-
10. Children's questionnaire	169	-
11. Faecal coliform tests	300	240
12. Technical assessment	Majority of sources and potential springs	
13. Assessment of decision-making in users groups	-	18 groups
14. Women's self-confidence	-	18 groups
15. Self-rating of group functioning	-	18 groups
16. Written records	Kept in villages, districts and the capital	

II. MEASURING PROJECT ACHIEVEMENTS

Despite the fact that not everything that was planned was carried out as desired, discernible changes were measured after only 14 months of village activities. Although the results from WAS activities have many implications, this document focuses on findings using the clusters of sub-indicators summarized in the chart on page iv. Thus, the focus is on evaluating effective utilization, sustainability and replicability and the changes brought about by the WAS activities.

A. Effective Utilization

If functioning systems are not effectively utilized, there can be no positive health impact and little economic, social or environmental impact.

Effective utilization is: optimal, hygienic and consistent use of facilities to maximize benefits and minimizes negative consequences over an extended period of time.

It consists of three categories of indicators: optimal use, hygienic use and consistent use. The elements included in each indicator are shown in the box below, and their application in the Indonesian project is discussed in the following three sections, and summarized in Table 4.

INDICATORS OF EFFECTIVE USE

Optimal Use

- . number and characteristics of users
- . Quantity of water used, all purposes
- . Time taken to use facilities
- . Water resource management

Hygienic use

- . Water quality from source to mouth
- . Sources of en route contamination
- . Practices to improve water quality
- . Site and home hygiene
- . Personal hygiene

Consistent use

- . Pattern of daily use
- . Pattern of seasonal use

Table 4. CHANGES IN WATER USE, 1985-1987

Indicators	1985	1987
<u>Optimal Use</u>		
What percent of population uses improved sources?	None	65%
What is the daily per capita water consumption?		
Belu district	4.8 litres	10.2 litres
Kupang district	10.0 litres	10.0 litres
What is average time taken per water collection trip?	39.5 minutes	22.4 minutes
What measures are taken to manage natural resources?	Some planting trees	Rules set to protect ground-water quality and quantity
<u>Hygienic Use</u>		
What is the quality of water from source to mouth? GM (Geometric Mean, faecal coliform, colonies/100 ml.	Source - 17.7 Carrying Containers 140.6 Storage - 128.1 Unboiled drinking water 85.0 Boiled drinking water 24.0	Testing conducted in rainy season; reliability of results uncertain, trend similar
What were water hygiene conditions in home?		
- water within children's reach	78%	93%
- visual cleanliness of water	37% (clean)	27% (clean)
- cleanliness of water containers	33% (clean)	22% (clean)
- cleanliness of water dippers	32% (clean)	19% (clean)
- cleanliness of place where dipper is kept	2% (clean)	29% (clean)
<u>Consistent Use</u>		
Use of secondary source	36%	21%
Use of different source during rains	24%	11%

1. Optimal Use.

Optimal use refers to use of facilities to maximize economic benefits without detrimental short or long-term effects on the environment.

In the Indonesian project, despite uneven coverage, overall 65 per cent of the population were using improved sources. Observation revealed that many women walked past traditional sources to bring water from 'safer' sources for drinking and cooking. All users were members of water users' groups.

Consumption of water per person almost doubled in Belu where the new water sources were dramatically closer to homes than in Kupang with its very scattered settlement patterns. More water was being used in homes to wash food, for watering vegetable gardens, for personal washing and for washing clothes. Some households used plastic pipes to bring water directly to their homes while a few built stone tanks in their yards to store water.

In addition, water use at source had also increased, primarily for watering vegetables and washing. Many groups have dug fish ponds near the water sources and have channelled water overflow to these ponds.

Close proximity to water sources also resulted in decreased time per water journey.

The need to conserve water and protect water sources is well recognized by village people. Thus, groups with deep set handpumps have developed rules and regulations to prevent washing and bathing at source so as to protect ground water quality. Some of these groups have even carried out measurements because of their concern with maintaining quantity of groundwater.

2. Hygienic Use.

For water systems, hygienic use refers to the maintenance or improvement of drinking water quality after it has been withdrawn from source.

In the Indonesian project, PKK undertook no special hygiene education campaigns in connection with WAS. However, PKK volunteers continued their routine activities including emphasis on environmental cleanliness, building of pit latrines and bathing cubicles. Data on hygienic use were collected through water quality testing and observation of hygiene in homes.

Three findings highlight the importance of integrating hygiene education within water supply and sanitation programmes:

First, water quality testing from source to mouth in 1985 clearly established contamination of water in its journey to the mouth. Even boiled

water samples were found to be faecally contaminated. The trend of results was similar in 1988, although the results may not be very reliable.

Second, fewer drinking water containers were found to be visually clean in 1987 than in 1985, despite an improvement in overall environmental cleanliness.

Third, a significant relationship was found between a water hygiene index and presence of very young children in the house. As the number of very young children (below 5 years of age) increased, the water hygiene declined. Despite this finding, in 1987, more households, 97 per cent, were found to have kept their drinking water within reach of young children than in 1985 (75 per cent).

Thus, it is clear that without clearly focused hygiene education related to water handling and storage, it will be difficult to achieve hygienic use of water. !!!

3. Consistent Use

Consistent use refers to use of facilities throughout the life of a facility, even when less than optimally convenient. /

Examples include use throughout daily and seasonal cycles; deliberately walking to bring water from a protected source throughout the day, rather than only when passing by the source; using protected sources even when closer unprotected sources open up during the rains.

In the Indonesian project, no direct questions were asked so as to avoid getting answers that were seen as socially desirable even if misleading. Instead, use of secondary sources was noted and analyzed over the years. This revealed a decline in use of secondary sources across years. More people consistently used a single primary protected source for all purposes in 1987 than in 1985.

Seasonality in use was judged by asking people about use of sources in the rainy season. In 1987, there was less moving to "other sources", (24 per cent in 1985, 11 per cent in 1987) although there was a reported increase in use of rainwater for household purposes including watering of animals.

Thus, it can be concluded that people were using increased water optimally and consistently for a variety of purposes including personal washing and watering of vegetables. However, water handling practices continued to pollute the water after it had been withdrawn from the source. /

B. Sustainability

Sustainability refers to:

the ability to maintain efforts and derived benefits both at the community and agency level without detrimental effects on the environment, even after 'special assistance' (managerial, financial and technical) has been phased out.

No project/programme remains static, especially those heavily dependent on interactions with communities and other agencies. No project can foresee the peculiarities of each specific community context and simultaneously plan for adaptation to all future changes, minor and major. Hence, sustainability can only be achieved by building problem-solving capacities in communities and partnership agencies so that problems can be solved as they arise.

INDICATORS OF SUSTAINABILITY

Installed and functioning systems (community and agency)

- . Community decisions in installation
- . Water quality, quantity at source
- . Operation and maintenance
- . Cost recovery

Confident/competent individuals (community and agency)

- . Management abilities, decision-making and execution
- . Knowledge and skills
- . Confidence/self-concept

Strong organization (community and agency)

- . Autonomy
- . Supportive leadership
- . Systems for learning and problem-solving

Environmental conservation

- . Protection of water sources
- . Watershed conservation

Interorganizational collaboration

- . Planning level
- . Activities

Since sustainability is not a static but a dynamic concept, it includes measures of the status of sustainability at a particular point in time and the potential to continue maintaining sustainability into the changing future. Some indicators need to be measured at the community and agency levels.

The elements included in each indicator of sustainability are shown in the box on the previous page, and their application in the Indonesian project is discussed in the following section.

1. Will functioning of systems be sustained?

By 1987, 42 water points were built, improved or repaired. These included boreholes, spring captures, shallow hand-dug wells and gravity-fed pipe systems. All the changes in the water sources were brought about by water user groups in partnership with WAS/PKK teams.

The community took the lead in deciding which sources to improve or where to build (except for the location of new boreholes which requires hydrological studies). The MOH provided needed hardware and technicians for the first couple of spring captures and for the pipe systems. The technicians provided some designs and supervised the construction undertaken by local people. All later systems, spring captures, standposts, and water reservoirs were designed by local people in collaboration with WAS teams.

All the facilities were functioning in 1988. Water users' groups had undertaken multiple repairs, bought spare parts from local markets and evolved varying rules and regulations to safeguard the functioning of facilities and to mobilize community contributions towards a maintenance and construction fund (see Table 5).

2. Are women and men confident and competent?

There is no development without human development. If individuals are not competent to undertake the tasks expected of them and/or if they lack the self-confidence to carry out the tasks, sustainability will not be achieved. Confidence and competence increase when people gain experience in management and decision-making, acquire new knowledge, have the capacity to generate knowledge and acquire new skills. The challenge is documenting and quantifying such changes.

It is clear that in most cultural contexts, women have a greater role and interest in the management of domestic water supply. Therefore, one of the goals of WAS was to ensure central roles for women also in the planning. Participation of men and women in decision-making was measured through questions during household interviews and through participatory games used in meetings with water groups.

Table 5: CHANGES IN FUNCTIONING OF INSTALLED SYSTEMS, 1985-1987

Measures of Functioning	1985	1987
What was the community role in installation?	Occasional labour contribution, all decisions by government	25 water users groups formed as decision making bodies
How many water points improved/built by communities?	5 gravity-fed pipe systems, 5 shallow wells	42 water points built or improved
Were water points producing sufficient water?	Low flow in dry season in pipe systems and springs; Mark II pump broken down	All protected springs have good flow, including pipe systems; Mark II pump functioning
Was water at source of acceptable quality? (faecal coliform tests F.C. counts/100 ml. of water)	F.C. Geometric Means springs 9.5, open well 147.9. Some complaints about taste, turbidity and safety	Results not reliable. No complaints about taste and water safety
Who is operating and maintaining facilities?	Officially government; pipe systems and shallow wells by the community	Water users groups make multiple repairs to pumps and pipe systems
Have rules developed about operation and maintenance?	No	Yes, especially in pipe systems and deep boreholes with Mark II pumps
Are communities contributing towards maintenance costs?	No	Yes, capital/O+M costs, labour, local materials, cement, pipe parts, food for technicians
How are funds managed?	Centralized, Department of Sanitation, MOH	Water users groups control funds, gradually put surpluses in bank
What is government role in spare parts distribution?	Spare parts available with MOH in provincial capital	Users obtain minor parts from shops; MOH stores major replacement and imported parts e.g. pump cylinder stored in capital.

People could take part in decision making affecting water systems only if they belonged to water users' groups. It was found that more women (76 per cent) than men belonged to groups (62 per cent). In addition, more people reported women (47 per cent) rather than men (26 per cent) to be active in the water users' groups.

In 1985, the participation of women and men in major decisions within PKK and the village councils was very low. Most decisions were made by the village heads. In addition, most people knew little about how PKK or the village council functioned. Participation was so low in 1985 that it was impossible to use a scale which had been devised to measure it. Obviously, levels of confidence and competence were also very low.

Given this context any divergence of decision makers away from village heads should be viewed as a positive development and indicative of increased community participation. To elicit more specific information about who made decisions within groups, a participatory game using a pocket chart was developed that was played during meetings with water users' groups.

Overall, in 1987, 55 per cent of all decisions in water users groups were reported to be made by ordinary women, ordinary men, female leaders and the water users' group Only 21 per cent of all decisions were perceived to be made by the village chiefs while 24 per cent were perceived to be made by WAS field workers.

Not surprisingly, village people, especially women, were found to be remarkably more knowledgeable about PKK and the water environment in 1987 than in 1985. When PKK women leaders were asked questions about PKK in 1985, their knowledge levels were so low that invariably interviews had to be conducted with their husbands. In 1987, there was a consistent reversal. When interviews were held with men, they invariably called the women to answer questions!

Clearly women played active and meaningful roles within the water users' groups. However, this was not achieved at the cost of exclusion or alienation of men.

The inclusion of both genders resulted in the pooling of slightly different knowledge and skills, making it possible for the groups to function effectively.

Overall, men were more concerned with responsibility for preventive maintenance and repairs, growing of vegetables and future plans. Women focused more on construction of sources, cleanliness of sources and, to a lesser extent than men, on vegetable production.

MEASURING OF PARTICIPATION

A group meeting with each water users' group was organized, one purpose of which was to discover by "pocket voting" who participated in what decisions. At most meetings, women outnumbered men by three to one.

A cloth pocket chart was hung on a fence or a wall. It consisted of six columns and seven rows of cloth pockets.

Columns. A picture was attached above each column of pockets. These six pictures, as explained to the group, depicted different decision-makers -- an "ordinary" woman, an "ordinary man", a female leader, a male leader, the water users' group and a photograph of the WAS field worker.

Rows:

The seven rows represented seven issues of decision-making within water users' groups:

1. Who makes the decisions within the water group.
2. Who selected the group leaders.
3. Who decides what activities the group should undertake.
4. Who decided the size of monthly contributions.
5. Who decided whether the group needed sanctions.
6. Who decided where the taps, tanks or pumps should be located.
7. Who makes the decision about undertaking repairs.

Voting. Each person in the group was given seven small paper discs to vote, i.e., choose the person who made the decisions for seven different issues. The issues were read out one at a time. While group members voted one-by-one, all others turned their backs to the pocket chart so that they could not see how others voted. Everyone participated enthusiastically, even older women who, at the beginning wanted to leave because they were illiterate and could not speak Bahasa.

Table 6. DECISION MAKING SCORES THROUGH VOTING



Who Decides What?	An Ordinary Woman	An Ordinary Man	Female Leader	Male Leader	Water Group	WAS Field Worker
1. Decisions within groups	7%	5%	19%	12%	28%	29%
2. Group Leaders	3%	11%	30%	20%	10%	26%
3. Group Activities	9%	13%	16%	23%	27%	12%
4. Size of Monthly Contributions	8%	13%	32%	10%	17%	20%
5. Need for Sanctions	5%	6%	22%	39%	13%	15%
6. Location of Pumps, Taps, Tanks, etc.	1%	13%	16%	16%	14%	40%
7. Repairs	4%	5%	9%	18%	21%	43%
OVERALL SCORES	6%	9%	21%	21%	19%	24%

A sense of confidence and self-concept is a psychological construct, but it can be simply measured through their behavioural manifestations and through self-ratings of abilities. The behavioural indicators of confidence vary across cultures and hence need to be culture-specific.

In the Indonesian programme, a three-point participatory scale of women's self-confidence was developed and administered during meetings with water groups. Overall, both women and men rated women more confident in 1987 than previously (p. 17). Men tended to be more lavish in their ratings of changes in women's self-confidence than women themselves!

In addition, specific elements that contribute to women's self-confidence and men's confidence in women were measured. These were gauged through changes in ratings of abilities such as intelligence, leadership and problem solving as perceived by village people themselves. Such attitudes are difficult to change and hence any discernable change in a short time should be considered a major achievement.

Overall, women's low self-esteem in 1985 was evident from the fact that women (even more than men) tended to rate themselves lower on all abilities compared to men. For example, when asked to judge intelligence in 1985, 65 per cent of the women rated men as more intelligent than themselves, only 10 per cent rated women as more intelligent while 23 per cent said that both sexes were equally intelligent. In 1987 when the same question was asked of the same sample, the number of women who rated themselves as more intelligent than men had doubled to 20 per cent.

Are community leaders emerging?

People who lack self-confidence rarely emerge as leaders. The dramatic emergence of women as leaders was clear from the response to the question "Are there any women in the village that you would consider a leader?"

In 1985, only 29 per cent of the men and 49 per cent of the women perceived at least one female leader. By 1987, almost all the women, 92 per cent and men, 80 per cent, perceived at least one female leader in their villages.

A follow-up question was asked about who were the leaders. The fact that in 1985 there were only 72 responses, while there were 287 responses about female leaders in 1987 itself is an indicator of change.

MEASURING WOMEN'S SELF-CONFIDENCE

Monthly reports of PKK/WAS field workers repeatedly reported women's increased self-confidence. Were women really more self-confident, did they perceive themselves as such, or were field workers over-reporting?

Three pictures were drawn showing different degrees of women's participation and self-confidence. Women and men voted using a pocket chart. Voting was done twice -- first, to rate women's confidence two years ago, before WAS, and second, to assess women's confidence at present. The concepts of before and after were depicted by two large photographs showing an unimproved water source and an improved source.



The scale can be made more elaborate by adding finer categories.

Significantly more men and women, 56 per cent, mentioned the Ibu Desa (wife of village head) as a leader in 1987 than in 1985. Earlier, the Ibu Desa was mentioned by only 7 per cent of the men and 15 per cent of the women in the total sample. There was also an impressive increase in the number of people who mentioned wives of lower level village officials as leaders.

The results indicate that WAS has served as a mechanism to activate PKK's female village-level leaders and further decentralize leadership to the lower administrative levels.

The goal of every participatory project which targets self-reliance and sustainable development is to facilitate but not lead. This is difficult to achieve and even more difficult to measure. One indirect measure is studying people's perceptions of who or what brought about change. If people perceive themselves as being responsible for success, it is the ultimate indicator of a sense of efficacy.

People were asked why the groups had been successful. Overall, 67 per cent of respondents said that success had been achieved because people in the villages had cooperated and worked together. Another 10 per cent said that success had been achieved because ordinary village people had worked together with village officials. Only two people mentioned WAS field workers.

When the two WAS field workers were first assigned to work with women and PKK, they could often be seen hanging around outside PKK offices, wondering what they should be doing and embarrassed about having to work with women, especially at the village level. Both had previous training in 'village water technologies' but no exposure to participatory methodologies.

Changes in attitudes and work methodologies among PKK workers from the provincial to the village level can be best conveyed through their own words:

"Many of us are just housewives. We never counselled people before. When we had meetings previously, I was too shy to go house to house. So we had general meetings and repeated the same thing each time. Now I am confident to go house to house, and I change what I say depending on the situation."

Housewife, PKK Volunteer, Sub-District, Wedomo

"I had heard about people's participation but I had never done it and actually did not believe that people had the ability to solve their own problems. Now I know they can do it."

WAS Technician, Field Worker

"Earlier, my biggest goal was to complete work as quickly as possible. Whether anyone else was present or not, I would go to the village and complete the repairs. Now I wait and only assist when village people are ready to take the initiative themselves."

Sanitarian, Puskesmas (Health Clinic)

3. Are the groups and agencies strong?

Change in communal facilities can be initiated by individuals, but sustained only by an organized group, ranging from a group of people to a large government bureaucracy. In order to sustain efforts and results of participatory programmes, strong organizations are needed not only at the community level but also at the agency level (government, NGO or external). It is important, therefore, to examine the strength of water users' groups and PKK after implementation of activities in the villages.

Autonomy

Unless institutions have the power to function relatively autonomously and retain control over major decisions that affect their functioning, they are unlikely ever to gain in strength. Studies have also shown (Korten, 1980) that without strong leadership, especially at the top, institutions cannot develop.

The rationale underlying the formation of water users' groups was to create autonomous groups of people with common interests that would function effectively without outside interference. The fact that groups are functioning relatively autonomously is evidenced in the decision-making scale reported under 2 above ("Measuring of Participation"). Another key indicator is control over resources, especially financial. The money raised by the groups is being managed by the groups without external interference. Three groups have so far opened bank accounts.

If all the groups followed exactly the same procedures, one can assume that decisions have been imposed from the outside. Although the basic structure of the water groups is the same, groups have gradually developed very distinct identities. Thus, groups have not only changed frequency, procedures and size of contributions, but have also collectively changed ineffective leaders.

The "progress" of each group is self-determined, as is their basic reason for coming into existence. Thus, one village created its group, called "Mutis", in 1986 when the village first heard of WAS (see box on page 23). Another group took over a year to organize itself and build a spring capture. Yet another finally undertook the construction of rainwater tanks in 1987. Three groups have all but dissolved in one village, while three other new groups have since formed in another part of the same village.

At the institutional level, PKK functions autonomously at all levels up to the sub-district. It controls its own budget, does its own fund-raising, sets its own personnel policies, goals and objectives. As a matter of policy, however, it actively seeks to work in collaboration with government technical ministries and other NGOs.

Supportive Leadership

Without the leadership of Dr. Nafsiah Mboi, the provincial chairperson of PKK, WAS would not even have had the opportunity to prove the benefits of focus on women and use of participatory approaches to a rural water project. Her leadership style, persuasive collaborative spirit and strong belief in human capacity development not only inspired similar leadership and collaboration from technical ministries and senior administrators, but also led to emergence of leadership at various levels within PKK.

She provided vision, and guidance to WAS, but at the same time judiciously kept a low profile in day-to-day management of activities to allow PKK personnel to learn and to grow. She overcame the problem of busy schedules through "Maria", a brown notebook accessible to any WAS personnel to write in to facilitate two-way communication.

Dr. Mboi's leadership, combined with the partnership established with technical ministries, gradually changed "skepticism" to commitment and understanding of the participatory approach in rural water projects. This is evidenced by continuing support from Ministries of Health and Planning and from District Administrators.

Learning and Problem Solving

Dr. Nafsiah Mboi viewed 'WAS' as an opportunity for PKK to learn. There was an established framework of ends (improved lives for women; sustainable and utilized water systems) and means (replicable participatory processes ensuring the involvement of women under the overall umbrella of PKK). But all tasks were approached without assuming that the best 'how to' procedures were already known.

Consequently, throughout the process, there was strong emphasis on generation and use of information. There was acceptance and open discussion of mistakes, emphasis on not telling people what to do and cultivating humility. The overall means and ends were consistently reflected in all activities, though the detailed implementation strategies were developed with experience.

WORKING WITH COMMUNITIES

Dr. Nafsiah Mboi, chairperson of PKK in NTT conveyed the essence of learning to work with community people in the following way:



Open your eyes



Open your ears



Open your heart



Close your mouth


"putar otak"

- and then think and put your brain to work

For example, PKK's monitoring and evaluation criteria reflected their concern with the process of achieving sustainability, rather than being solely preoccupied with outputs, number of systems installed and their functioning. This included acceptance of uneven rates of progress. Monthly reports of WAS workers thus focused on the degree of participation by women, changes in women's knowledge and skills and the ability of water groups to self-organize and function autonomously.

Within PKK, a collaborative team spirit was harnessed through the principle of open management. Rather than imposing decisions, decisions evolved through group discussion and consensus, in most cases. This, of course, does not mean that everything went smoothly and well. There were resignations, and a few PKK volunteers lost interest, while others proved too busy. However, despite these problems and differences, WAS workers were proud of the fact that the team spirit survived.

Additionally PKK was able to generate resources through its collaborative partnership with technical ministries. This included loan of personnel, vehicles and commitment of hardware. PKK was so successful in generating local resources that it was able to return 40 per cent of external funds made available to the project.

 Table 7. MONITORING CRITERIA

PKK developed three sets of criteria over a period of time which were reflected in internal monitoring and evaluation activities and consistent with overriding goals.

A. Women

1. Improvement in knowledge about water, sanitation, personal hygiene, health, use of water, PKK
2. Improvement in skills: in self-organization within water groups; working together in divisions of labour; decision-making; maintaining water facilities; solving problems.
3. Improvement in mental attitudes and beliefs: more women brave enough to attend meetings, talk and make decisions; seek new information, bring new ideas feel proud of achievements; suggest own evaluation criteria.

B. Water Users Groups

1. Organizational strength
2. Number and diversification of activities
3. Technical abilities in repair and maintenance of water systems

C. PKK

1. Increase in activity, type and number of activities at all levels
2. Leadership, quality of members, management, PKK better known in villages
3. Influence on government at higher levels, attracts more assistance funds

Water Users' Groups

Although there are some water systems built in Timor through community/church/NGO initiatives, for the most part building and maintaining water systems are viewed as government responsibilities. Hence, the idea of people working in partnership with PKK and government technicians to build water systems was initially viewed with extreme suspicion. Gradually, as people

realized that WAS workers were not imposing decisions and assuming control over resources, especially financial, people began actively participating in and supporting their water groups. The growth, evolution and problem-solving of groups can be illustrated by the example of the group, Mutis (see box below).

THE STORY OF "MUTIS"

When people in the Cabang area of the village Silla (pseudonym) heard of WAS in 1986, 17 households quickly formed a water users' group. They hoped that finally the little yellow marker placed on the road several years before would become a drilled borehole. Pak Minggu, the WAS field worker, told them several times that they would not receive a borehole, but they kept hoping.

The group named itself "Mutis", after the highest mountain in Timor. Every family contributed Rp 250 a month and promised to increase it to Rp 500 once the water came. No water came.

The Mutis group negotiated water rights with the group in Kakaana, who agreed to share water from their borehole in return for some share of responsibility for maintenance and repairs. By mid-1987, the Mutis group had collected stones, sand and Rp 35,000. They contributed cement and pipes to the water group.

During the second round of the case study the group finally accepted the fact that the drillers were not coming. Then they seriously started exploring alternatives. By mid-1988, the group had built three rain water tanks. In 1985, they had laughed at the idea of drinking rainwater. They had also commissioned a well digger and promised to pay Rp. 450,000. The well was already 10 metres deep.

Meetings were held on the 5th of every month. The group had started an emergency food fund, and was building one household toilet per month. Eggplant and chili were flourishing in people's yards.

There are three important criteria to judge whether a group has learned, can solve problems and will survive in the long run. They are perceived purpose of existence, future orientation and ability to self-diagnose/self evaluate.


When asked about the purpose of forming water users' groups, respondents most frequently cited the need for long-term maintenance and repairs. Despite the fact that physical construction activities had mostly been completed, 70 per cent said that their group had specific plans for the future. Additionally, 97 per cent said unhesitatingly that the groups would continue to be needed in the future. Once again preventive maintenance received the most mention.

People rated water groups individually during household interviews and in group meetings. In household interviews, overall 74 per cent rated groups as working very well, 15 per cent average and 11 per cent poor. When people were asked to justify ratings, the most frequently mentioned criteria was not physical construction but whether people were cooperating and working together.

Group self-evaluations were conducted through a participatory game with water users' groups which brought out many sensitive issues such as sanctions and fear of authority. Additionally, this activity led to follow-up action by group leaders and WAS field workers.

People were very critical of themselves during these meetings. At the end of each group session, which lasted between 1 1/2 to 4 hours, the members of each group gave themselves an overall rating. Overall, 40 per cent of the groups rated themselves as functioning very well, 40 per cent as average, while 20 per cent rated themselves poor. In all but two cases, these self-ratings were identical to ratings given by the case study chief investigator and by WAS field workers.

SELF-EVALUATION THROUGH PICTURES



1. Village leader
2. Fee collection
3. Future plans
4. Group cooperation
5. Sanctions
6. Angry discussion
7. WAS field worker

Seven pictures were assembled, each representing a group, function, activity or person involved with groups. The pictures were shown to and discussed by a group.

Each group was also given three stars varying in size representing excellent, average, poor. The group was asked to discuss each picture and rate the functioning of the activity or person in their group by placing the picture under a star.

Once the pictures had been rated and some consensus reached, the groups had to explain their ratings. This led to further discussions and revealed issues not talked about during interviews. At the end, the group had to give themselves an overall rating. Some were modest in their ratings while the stronger groups cried with great gusto "we are the best!"

4. Are environmental conservation measures in place?

Water is a finite resource that must be managed wisely in the long-term. However, unless environmental conservation measures make sense to village people, they will not be practiced voluntarily or on a sustained basis. Such measures are needed nearby, at the water points, and also farther off in the surrounding watershed.

At water points

A good example of such action is in Silla. There, groups with deepset handpumps have carried out measurements and established rules and regulations for water use to preserve the quantity and quality of groundwater.

"The group in Kakaana is afraid their water will finish. So we did some measurements. In 1982 the water stood at 27 metres, today it is still the same. We take out 40 drums of water every day, no more. Nobody is allowed to bathe and wash at the pump, but they carry water home to their bathrooms. Only tied-up animals can be brought to the source. We don't allow people to wash at the pump to protect the pump and to protect health and the water. The groundwater is not 'flowing water', it is 'standing water' - so if dirty water seeps in, it will make all the groundwater dirty."

Pak Kake, Water Group Nefoniko

In the watershed

Government-initiated forestry and greening projects have been implemented in all four villages. PKK has actively promoted reforestation efforts. Within the study villages, the need to conserve water and protect water sources was well recognized. Thus, in Belu district all water groups have planted trees and shrubs near springs and also terraced some hillsides. Although one year is a short period in which to achieve results, most visitors now comment on how green parts of the village look.

5. Is interorganizational collaboration adequate?

Like PKK workers themselves, interministerial collaboration with PKK started based on a spirit of tolerance and goodwill; rather than commitment. Gradually this changed as PKK's seriousness and competence became obvious.

Interorganizational collaboration continues and is expanding because of changed convictions that PKK/WAS strategies work. The research activities associated with WAS planning and evaluation, as well as PKK's openness to sharing its achievements and problems, played important roles in winning support and collaboration.

"WAS is a good approach. It worked because it was well planned based on case study results. It is a good system because it is simple and teaches self-reliance and so, unlike many of our other projects, it does not fall apart once the project is completed. I have even used case study findings about quality of water in the villages to convince people to use water properly."

Bupati (Chief Administrator), Belu

"The method of WAS was very different from other projects. First, it did research to find out how to do the project. Second, it trained its own cadres (volunteers). Third, it changes what is not working well and, fourth, it always follows up and takes care of problems. We have even used the systems of WAS here to extend pipes up to the health clinic from the spring 'Wedomo'."

Camat, Tassifeto Timur,
Sub-district Chief Administrator

"Now I'm convinced that spending time talking and preparing the community is not a waste of time and requires special skills and training. In the long run it makes our job of constructing and maintaining water systems easier."

Head, Provincial Department of Sanitation, MOH

At the sub-district level, the Chief Administrator, inspired by the PKK/WAS project, spread the word in other villages with the result that four other villages have undertaken water construction activities, formed water groups, and dug fish ponds entirely on their own. At the village level, village chiefs have singled out WAS activities at inter-village meetings.

The head of the Department of Sanitation, MOH, has sought PKK's partnership in water projects in two other districts. Curriculum revision to incorporate 'WAS' principles in the training of sanitarians for the province is also envisioned. Since involvement in WAS, the Ministry of Planning has created a 'buffer stock' of hardware to be used for community initiated projects.

C. Replicability (R)

Replicability is:

the ability to duplicate the process and benefits of a set of development activities in new locations after their effectiveness has been demonstrated in limited geographic areas.

Whether small scale activities are replicable is a key test of their value and utility in wider development efforts.

Replicability of projects can be assumed when projects are based on processes that make optimal use of local resources. Thus, projects should be based upon use of local people, local skills, and indigenous knowledge systems. They should build upon existing procedures, organizations and institutions.

Such projects are easier to replicate than projects heavily dependent on special conditions, including external resources and personnel. Replicability of small pilot efforts cannot be assumed until proven in larger demonstration projects. Special inputs are always needed to develop effective strategies in

the early stages, but as projects move from pilot to demonstration to national phases, these special inputs should decline.

Since the types of inputs vary with the growth of a programme, it is first critical to identify its stage of growth. There are three broad stages: pilot, demonstration and replication. The major characteristics of each have been well defined by D. A. Rondinelli, 1983 as reflected in the following table.

Table 8. PILOT, DEMONSTRATION AND REPLICATION STAGES

Category	Pilot	Demonstration	Replication
<u>Purpose</u>	To test acceptability and feasibility of existing knowledge in specific contexts	To demonstrate that new technologies, methods and programmes are better than presently used ones	To expand productivity and administrative capacity to disseminate and deliver
<u>Major uncertainties about:</u>	<ul style="list-style-type: none"> - methods of analysis or implementation - appropriate technology - adaptability - transferability - acceptability - dissemination or delivery systems 	<ul style="list-style-type: none"> - replicability - acceptability - dissemination or delivery systems on a large scale 	<ul style="list-style-type: none"> - dissemination or delivery systems on a large scale

* Adapted from D.A. Rondinelli, 1983, Table 26

According to these criteria, the Indonesian WAS project was a demonstration activity with major uncertainties about replicability in the context of Timor, its acceptability and delivery systems. However, WAS also had some characteristics of a pilot activity in that detailed of methods of analysis and implementation were worked out in incremental steps through action.

This categorization of WAS as a demonstration activity, more evolved than a pilot activity and less evolved than a replication activity, needs to be kept in mind while considering other indicators of replicability.

As a demonstration activity, how far did the WAS programme achieve replicability, as measured by the following key indicators?

1. Personnel

WAS activities were undertaken by existing PKK staff, two temporary field workers and incorporation of existing technical staff, primarily sanitarians from the Ministry of Health.

However, two consultants played important supportive roles, both in data collection and as advisors to PKK management. In every activity, consultants spend much time training local people in specialized skills, such as data collection, training methods, and participatory methods to development activities.

2. Institutional framework

The institutional setup for WAS was closer to a replication activity rather than a demonstration activity. Thus, WAS activities were managed and implemented within the institutional framework of PKK in collaboration with technical ministries; the Ministries of Health, Home Affairs, and Planning, local universities; districts, sub-district and village administrative agencies.

Although the institutional framework utilized by PKK is replicable, its utilization of sanitarians from MOH and expertise of the WHO/UNDP project were special conditions. For example, one sanitarian from MOH gave priority to PKK work over his other routine engagements.

3. Budget

The project hardware -- pipes, concrete, pumps etc. -- was provided primarily by the Ministry of Health (MOH) and to a lesser extent by communities and the Ministry of Planning. The hardware provided by MOH came from its regular budget with some diversion of funds, especially for boreholes and pipe systems, to the advantage of the study villages.

All personnel costs were absorbed through regular channels except for the salary of one field worker, which was paid by PKK through funds made available by PROWESS/UNDP. PROWESS funds were channeled through UNDP/Jakarta and sent directly to PKK in Kupang. These funds were primarily used for training and to a limited extent for supervision. Almost 40 per cent of the original PROWESS funds (total US \$75,000) were unexpended at the end of 1988 due to generation of local resources.

4. Project procedures

At the beginning, WAS procedures were closer to a pilot project rather than a demonstration project. This was more true for some project components than for others. However, the active learning process adopted and constant use of

INDICATORS OF REPLICABILITY

<u>Proportion and role of specialized personnel</u>	Stages:
<ul style="list-style-type: none">. High input of specialized personnel. Mostly regular staff, decline in specialists. Existing staff, further decline in specialists	Pilot Demonstration Replication
<u>Establishing institutional framework</u>	
<ul style="list-style-type: none">. Semi-autonomous organization. Less bypassing/more sharing with other agencies. No bypassing/close inter-agency collaboration	Pilot Demonstration Replication
<u>Budget size and sheltering</u>	
<ul style="list-style-type: none">. Generous and sheltered. Medium and partially sheltered. Average and regular budget item	Pilot Demonstration Replication
<u>Documented planning and implementation procedures</u>	
<ul style="list-style-type: none">. General guidelines and strategies. Standardized procedures emerging. Documented simplified procedures	Pilot Demonstration Replication
<u>Other special/unique conditions</u>	

data from the field, resulted in early emergence of effective planning, monitoring, implementation and evaluation strategies that were further refined through experience. By mid-1988, the laborious task of documenting processes and establishing guidelines to assist in the replication process had begun.

As is obvious, WAS was implemented with a minimum of special conditions. All projects and programmes at all stages require committed leadership to succeed. This leadership was provided by Dr. Nafsiah Mboi. However, what was unique in the Indonesian context was her style of leadership and open management systems which have not yet become institutionalized within PKK. It remains to be seen whether other managers prominent in the public eye are willing openly to acknowledge problems and weaknesses and to treat "errors" as opportunities to learn.

III. EVALUATING IMPACT OF THE "WAS" PROJECT

Any development project, but especially those that utilize participatory principles, bring about change beyond the narrow objectives conceived by project planners. The impact of water projects goes beyond water and health to bring about social, economic and environmental changes that have positive or negative influences on individuals, groups and communities. Measuring impact is methodologically complex and expensive. However, changes in the social, economic, health and environment fields can be measured, including the effects on women. The factors to be analyzed are listed in Table 9 on the next page.

A. Social Change

One of the important effects of involvement of village women and men in decision-making without external interference was the gradual increase in autonomy, confidence, creativity, leadership, respect and status and a gradual decrease in conflict over water.

As has already been mentioned, not only did women feel more confident and capable, but also men took pride in the women's achievements. Husbands and wives began turning to each other to solve problems rather than turn elsewhere. As groups gained strength, their confidence in undertaking other new activities increased. This included construction of water tanks with which people had no previous experience, planning the building of a church, bathing cubicles, digging fishponds, planting of vegetables, purchase of new pipes for extension of systems and dreams of purchasing diesel engines to pump water closer to homes.

All water sources in Timor have traditional, ancestral owners. When water becomes scarce, descendants of these owners restrict access to water sources. With the formation of water users' groups and formal approval of traditional owners of water sources, conflicts related to 'who can use water' and 'how much' have gradually declined.

One of the most crucial changes has been an increase in institutional strengthening of PKK at all levels. PKK volunteers involved in WAS are becoming valuable resources in other PKK activities in Primary Health Care. At the village level, both men and women are not only more knowledgeable about PKK, they also view PKK as a more useful organization, 97 per cent in 1987 compared to 74 per cent in 1985. PKK leaders in the villages are starting to function as leaders. Even more important, perhaps, is the fact that membership in many other village organizations has increased and their functioning has been reactivated.

B. Economic Change

Besides the methodology of empowering people, the single most important reason why WAS succeeded was that people perceived water as a means to financial gains. No matter what the question asked, men even more so than women focused on vegetable production, rather than closer water, cleaner water, health or construction. These production activities of women even featured in activities of women 'valued' by men.

These findings are important not only in themselves, but also in explaining why such community enthusiasm was generated in improving the water situation, when only 10 per cent to 20 per cent of people perceived water to be a serious problem in 1985. The findings also point to the importance of using open-ended questions and participatory techniques. Most important, they show the need for people's involvement in planning, goal setting and in identifying indicators of success.

Table 9. SITUATIONAL ANALYSES
(with inclusion of women and marginal groups)

-
1. Social changes at the individual/household/group/agency level
 - autonomy
 - self-concept, self-confidence
 - creativity
 - leadership
 - respect, status, social networks
 - group strength, identity, resources, activities
 - leisure
 - conflict
 - roles, responsibilities, activities
 - control and access to resources and benefits

 2. Economic change at the individual/household/group/agency level
 - time allocation (time savings)
 - cash production and substitution
 - improved quality of assets (vegetables, animals, crops, other production)
 - increased quantity of assets
 - distribution and expenditure of assets
 - increased participation in other non-production activities (human capital formation); rest and leisure, education, literacy, preventive health

 3. Changes in health situation
 - decrease in attendance at clinics
 - increased involvement in preventive health care facilities
 - decrease in diarrhoea, skin diseases, guinea worm, etc.
 - improved nutrition

 4. Changes in environment
 - improvement in environmental sanitation
 - improved management of natural resources; depletion, conservation, generation
-

PEOPLE'S GOALS ARE OFTEN DIFFERENT FROM PLANNERS' GOALS

Although people understood the overall purposes of the water users' groups, to them water was just a means to an economic end. Some examples:

1. When asked about activities of water groups, growing of vegetables was mentioned more frequently, 35% (men 44%, women 26%) than construction of water sources, 31% (men 18%, women 44%).
2. In talking about achievements of water groups, 51% of all responses focused on vegetable production (men 56%, women 48%). An additional 4% of responses referred to growing of fruits.
3. In future plans, vegetables featured in 32% of all responses while construction activities featured in 34% of the responses.
4. When asked whether WAS had affected their lives in any way, the single most frequently mentioned response by women was vegetable availability, 21% (men 14%).
5. When asked which activities that women do are most 'valued' by men, in 1987, 19% of men (0% of women) mentioned vegetable growing. By contrast, it was mentioned by only 2% of men in 1985.

Effects on women

The time it took for women to collect one load of water was nearly halved between 1985 and 1987 as a result of new water supply facilities installed nearer to their homes. This decreased time per water journey logically should have resulted in time savings for women, the primary carriers of water.

However, very little time was actually saved, because in 1987 women made over 80 per cent more trips per day, collecting appreciably more water than in 1985. The total time they spent on water collection was reduced only slightly.

Detailed figures are in the Table 10.

Table 10. WATER COLLECTION TIME SPENT BY WOMEN

	<u>1985</u>	<u>1987</u>
Time per trip to collect water	41.2 minutes	21.1 minutes
Number of trips per day	1.38 trips	2.5 trips
Total time spent per day	56.9 minutes	52.8 minutes

It is obvious that women were choosing to spend more time on increased water collection activities. As revealed in village interviews, they were using the additional water to grow tomatoes, onions, eggplant and green leafy vegetables, an attractive activity because it earned income.

In 1985, only 18 per cent of women considered it extremely important to produce items for sale and income-earning. By 1987, such production -- primarily of vegetables and fruit -- provided extremely important sources of cash for 67 per cent of the women. Women spend this cash on food, household expenses, kerosene and school expenses

Measured another way, by numbers of women involved, 62 per cent of women were active in such production in 1985. By 1987, this figure had increased to 85 per cent of the women. In Belu district, the involvement went as high as 94 to 100 per cent of women.

C. Changes in Health and Environment

The evaluation gathered no health statistics. However, women and field workers reported decreased incidence of diarrhoea and skin diseases in young children. Women expressed great pride in being cleaner because of proximity of water. Health statistics from a health clinic in Belu indicate a decline in the number of outpatients reporting to the clinic with diarrhoea and skin diseases.

Nutritionally, despite a drought year women spontaneously reported use of home-grown vegetables in their homes, something that was rarely mentioned in 1985. This was also true for fish, though to a lesser extent.

As far as environmental changes go, all visitors remark on the greater greenery in the villages, especially near the vicinity of the water sources. However, the time elapsed was too short for marked environmental changes.

IV. LESSONS LEARNED

There are many persistent myths about evaluation and the role of women in low-cost, community-based water and sanitation projects. The PKK experience dispels many of these myths.

Myth 1 Planning, implementation and evaluation are distinct, separate activities and require different sets of personnel.

Fact There is no 'great divide' between planners, implementors and evaluators in participatory projects.

In the WAS/PKK experience, the planners and consultant evaluators worked very closely together. For the most part, however, the same people were the planners, implementors and evaluators, i.e., the PKK/ WAS teams and local people in water users' groups. It is because of the tight link between planning, implementation and evaluation that it is impossible to focus closely on evaluation.

Myth 2 Projects consist of a single linear sequence progressing from planning to implementation to evaluation.

Fact Participatory projects consist of simultaneous, innumerable smaller cycles of planning-implementation-evaluation (also called monitoring), resulting in constant self-adjustment and evolution of project structures and activities.

These smaller cycles of planning/implementation/evaluation were evident within WAS from the beginning. Each supervision visit, training activity, field visit and workshop was followed by self-diagnosis and alteration of components of activities. This was prominent within WAS because PKK personnel approached WAS as 'learners' rather than as 'experts' who had all the answers.

Myth 3 'Evaluation' is more important than monitoring.

Fact Simple but consistent monitoring throughout the life of a project is more useful than isolated, terminal evaluations.

When evaluations become very frequent, they in fact become monitoring activities. These monitoring or mini-evaluations are crucial in keeping participatory projects on track. Unfortunately, in most projects external evaluations are given more importance than self-monitoring activities. This is also evidenced by the fact that 'monitoring experts' are almost non-existent, whereas 'evaluation experts' abound in the WSS sector. Within WAS, one of the main tasks of the field workers was defined in terms of monitoring and conveying

information to PKK at the provincial level. Their monthly, and later, quarterly reports were invaluable in refining project strategies.

Myth 4 A project document detailing project plans and time-bound, location-specific sequences of activity is needed prior to implementation.

Fact Blueprint project documents stifle the growth and evolution of participatory projects.

The PKK project document was practically a blank slate on which PKK wrote slowly as it learned from its data collection efforts and experience from the field. This meant that PKK was not locked into inappropriate activities having to justify each change made. Despite the lack of structure, the PKK document was very clear about overall goals (improving the lives of women and creating sustainable and utilized water systems) and the processes of achieving the goals (replicable, participatory processes using the existing PKK institutional framework). Based on the WAS experience, new replication project documents can have more detail with emphasis on specific strategies such as formation of water users' groups and detailed monitoring and evaluation criteria.

Myth 5 Since people make the decisions in community-managed projects, the unpredictability and flexibility results in loss of management control.

Fact Project managers retain control, yet make it possible for communities to make decisions by giving high priority to information flows that keep them in close contact with community preferences, plans, competence and progress.

In WAS, despite decentralized decision-making to the community level, PKK managers never once felt that they had lost control over the WAS activities. They felt in control because they constantly knew what was happening at different levels through frequent personal contact with field workers and reporting to and from.

Myth 6 Information collection is a peripheral luxury to be indulged in by donors, academics, evaluators and statisticians.

Fact Two-way information generation and use is a basic survival strategy for managers of community based water projects.

WAS did not come into being with a blueprint. Its plans and strategies evolved and changed based on information from the field and implementation experience. Since WAS did not follow a blueprint, without heavy use of information throughout its life cycle, WAS activities would have floundered and problems would have been left unresolved.

Myth 7 Evaluation indicators become important at the end of a project.

Fact Evaluation indicators are of primary importance in guiding planning and implementation activities.

WHO's Minimum Evaluation Procedures (MEP) indicators, functioning and utilization, were first published in early 1983 and have since gained world-wide acceptance as evaluation indicators. Unfortunately, however, they are rarely reflected in project planning documents or project management information systems. This is one reflection of the great divide between planners and evaluators and the common perception of evaluations as concluding activities. Considering evaluation indicators at the end of a project is too late.

Within WAS, the evaluation indicators played prominent roles from the beginning, in the development of plans and in choice of implementation strategies. For example, PKK emphasized the role of women in sustaining changes in the water situation in the villages. Monitoring activities and evaluation indicators focused on changes in women's confidence, knowledge, skill, presence and participation at meetings. These concerns led to choice of the strategy of creation of water users' groups with women in prominent roles, training of women, and structuring of meetings so that women would be encouraged to attend, and constant monitoring of the impact of implementation strategies on women.

Myth 8 Evaluation criteria or criteria of success are different for different project personnel, different components, and different processes of a project.

Fact All project personnel, components, and processes must share some overriding concerns or criteria of success.

Within WAS, the overriding goal and indicator of success was achieving self-reliance in management of domestic water systems through involvement of women in decision-making. This concern for self-reliance and women was the central focus of all components and all personnel, technical and social, managerial and field level workers. Without this unified vision and shared indicator of success, it would have been difficult to achieve a 'fit' between the varied project components.

Myth 9 The most important indicators of success are number of systems constructed, population covered, training sessions completed, number of systems functioning and budgets disbursed.

Fact The most important indicators of success are effective utilization, sustainability and replicability.

If use of participatory strategies and their impact are not reflected in success or evaluation criteria, there is ultimately very little incentive for project staff to undertake the relatively unpredictable and uncontrollable task of stimulating participation. The WAS experience demonstrates that the concepts of effective utilization, sustainability, and replicability can be broken down into measurable subcomponents that go beyond an exclusive focus on water production. It also implies acceptance of uneven rates of progress. Measurements

can be as simplified as yes/no ratings on each sub-indicator. What is important is that focus on the indicators throughout the life of the project increases the probability of their achievement.

Myth 10 People in villages and planners of community-based water projects have the same goals and indicators of success.

Fact There is often a gap between the most important goals and evaluation indicators of people and planners, even in "successful" projects.

When projects fail, it is obvious that the interests and goals of project managers/planners and local people did not match. This can also be true in projects that achieve success but in which the differing goals of both groups happened to be fulfilled. In WAS, people's most important goal and evaluation indicator turned out to be increased vegetable and fruit production through the means of increased proximity of water. This single goal took precedence over use of water for other domestic purposes, improved health, cleanliness or greater involvement of women in development or increased self-reliance.

On the other hand, it is also important that the same set of indicators are acceptable to planners, yet meaningful to local people. This can be achieved by defining overriding indicators which encompass wide ranging sub-indicators in a logical framework. Different sub-indicators will be most important in different cultural and environmental contexts. Within WAS, if "effective and sustainable utilization" is considered the overriding indicator, then the economic spinoffs of the sub-indicator "optimal utilization" of water were the most important to people.

Myth 11 Participation is a nebulous concept, difficult to define, measure and evaluate.

Fact The concept of participation can be operationalized and simply measured. Hence, it can be made central programmatically.

Most planners or programme managers will not consider participation centrally unless participation can be measured and its benefits quantified and attested to some extent. However, the emphasis has to be on simple measures that can be widely used without years of training. Within WAS, two strategies were found helpful in measuring participation. The first was involvement of local people in defining and measuring participation. Examples include the participatory games of decision-making. The second method made use of open-ended, sometimes indirect questions.

Myth 12 The goal of human development as a means of achieving sustainability is ideologically correct but impractical. Additionally, changes in people are difficult to monitor, evaluate and quantify.

Fact Harnessing human motivation and creativity is the only means of achieving sustainability in an environment of limited resources. Changes in people, even self-confidence can be measured and quantified in a short period of time.

It is often assumed that the results of "software" are so soft that they are immeasurable, fuzzy and best left as such, floating in mists of vagueness. This is a fallacy.

The WAS experience shows that changes in people, even changes in values, behaviour, leadership, self-confidence and its impact can be discerned, measured and quantified within a short period of time.

Quantification of measures is by no means the ultimate gauge of the value of an indicator. However, if quantification of participation and impact of human development strategies is needed to convince planners, then the case study demonstrates that it can be done.

Myth 13 Participatory methods are difficult to replicate because they require the presence of special, gifted people.

Fact Participatory approaches are replicable. Skill in participatory methods is learned and does not reside in the genes.

Like other technical skills, participatory approaches to planning, implementation and evaluation are acquired through training. Unfortunately, thus far, it has often been assumed that participatory skills just happen and can be applied without any specialized training. This is reflected in absence of budgets and personnel for training in participatory methods even in most training projects.

The WAS experience shows the importance of joint training in participatory approaches for technical and social personnel. PROWESS provided expertise in the participatory training approaches which was crucial in the changed orientation of technicians and PKK workers involved in WAS.

Myth 14 Evaluations should be scientific and objective. Hence, they should not involve participants but be conducted by external experts.

Fact Evaluations should be utilized and serve to bring about change. Hence, they should involve participants centrally and external experts in facilitative or partnership roles as needed.

It is always difficult to achieve the ideal. Within development programmes, it is more important to ensure that evaluations are utilized and result in capacity-building rather than to produce scientific treatises that sit on shelves. Within WAS, evaluation activities involved village people, PKK staff and only rarely external consultants. The evaluation process led to development of new plans, alterations in implementation if needed, and further training activities.

There were two important side-effects of the process of evaluation. Convinced about the utility of evaluative research, PKK started undertaking evaluation research in its other programmes utilizing women trained during WAS case studies. Second, the PKK case study, emphasizing open-ended and participatory research techniques and sharing of findings, resulted in commitment by and change within the technical ministries.

Myth 15 Evaluation methodologies are complex and local people do not have the ability to evaluate their progress themselves.

Fact Evaluation methodologies can be simple or complex. Local people have access to 'inside knowledge' and hence can evaluate themselves more meaningfully, quickly and accurately than outsiders.

WAS case studies utilized both participatory and more "objective", open-ended questions asked during individual interviews by outsiders. The results indicate that in all cases, the participatory techniques had four advantages.

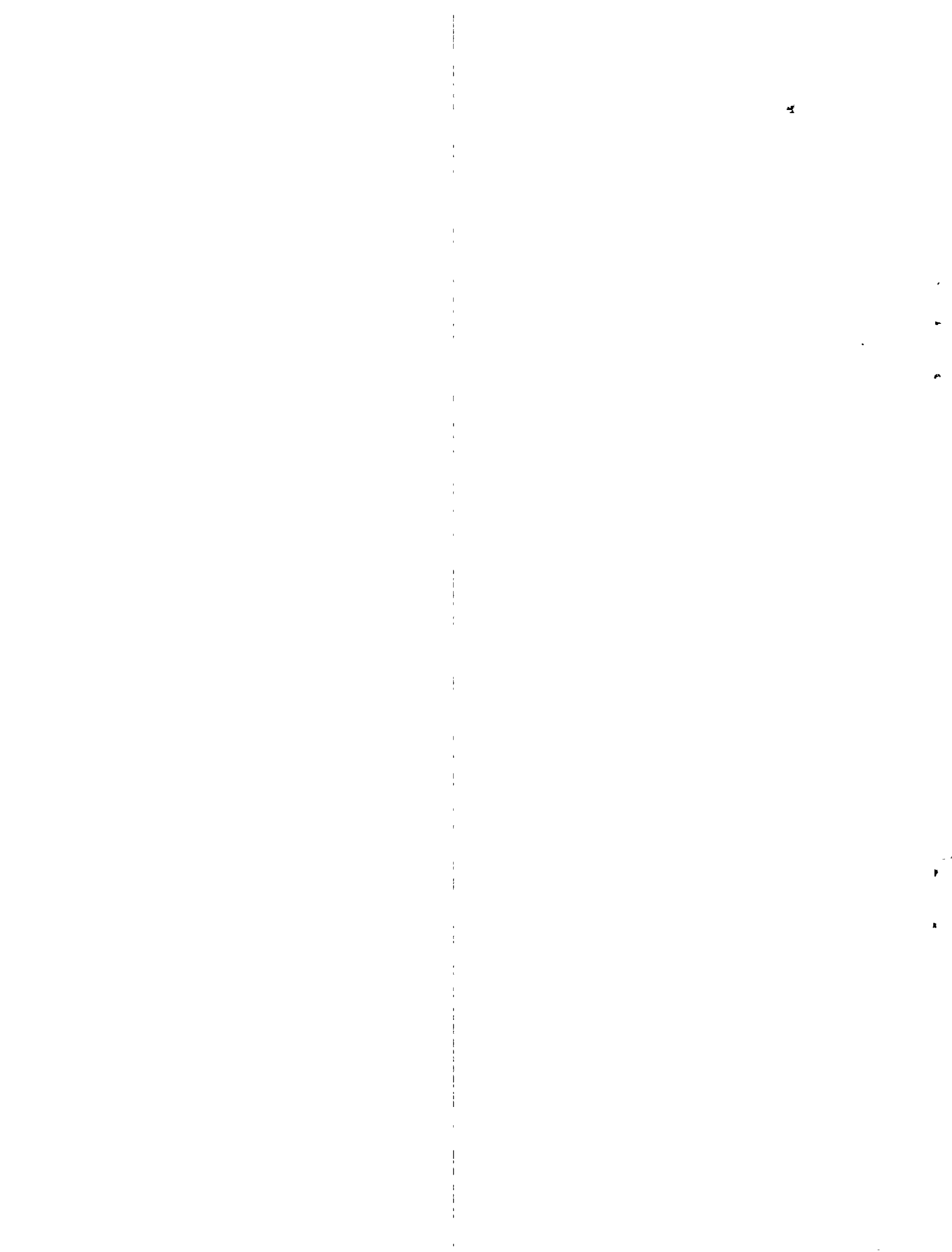
First, they were more 'fun'. They generated great enthusiasm, got people emotionally involved and brought people together, the old, the young, men and women, the somewhat educated and the non-literate. Second, as a result of everyone's involvement and emotional engagement, the activities brought forth perspectives, findings and issues not revealed by the more direct, individual, private interviews. Third, in most cases, self-evaluation ratings coincided with those given by external 'experts'. Fourth, it increased people's confidence in themselves. Their awareness of unresolved problems led to their taking immediate initiative for follow-up action. At the agency level, the same effects could be seen within PKK at all levels. Evaluation tools are more effective when put back in the hands of local people.

Myth 16 Project managers have more important concerns than women's involvement, concerns which are more central to achieving 'success'.

Fact Without user involvement and commitment which in all cultural contexts includes women, achieving sustainability, effective utilization and replicability will be impossible to achieve.

When WAS first started, the idea of women's involvement in managing small, rural water systems usually brought forth smiles and disbelief. The WAS experience and its documentation converted "skeptics", men and women, from senior administrators to women and men in villages.

PKK's WAS activities encouraged women's participation by providing opportunities, support and training in culturally appropriate environments for women to practice participation, gain confidence and learn new skills. The report has documented the leadership, commitment and positive impact of women on water and water on women.

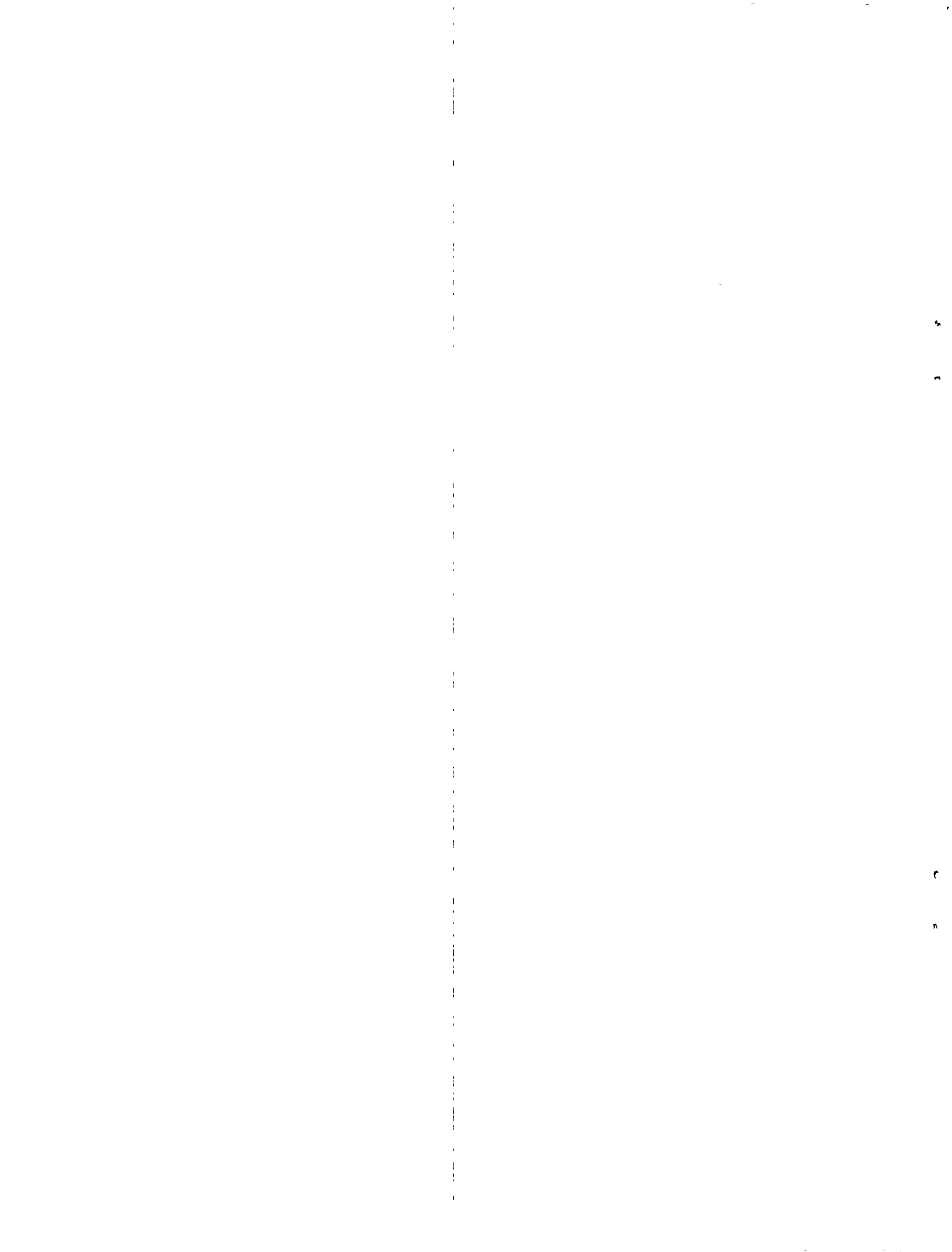




A traditional village home in West Timor. This type of building is fast disappearing and being replaced by semi-permanent houses with tin roofs.



Water collection at a newly installed handpump.



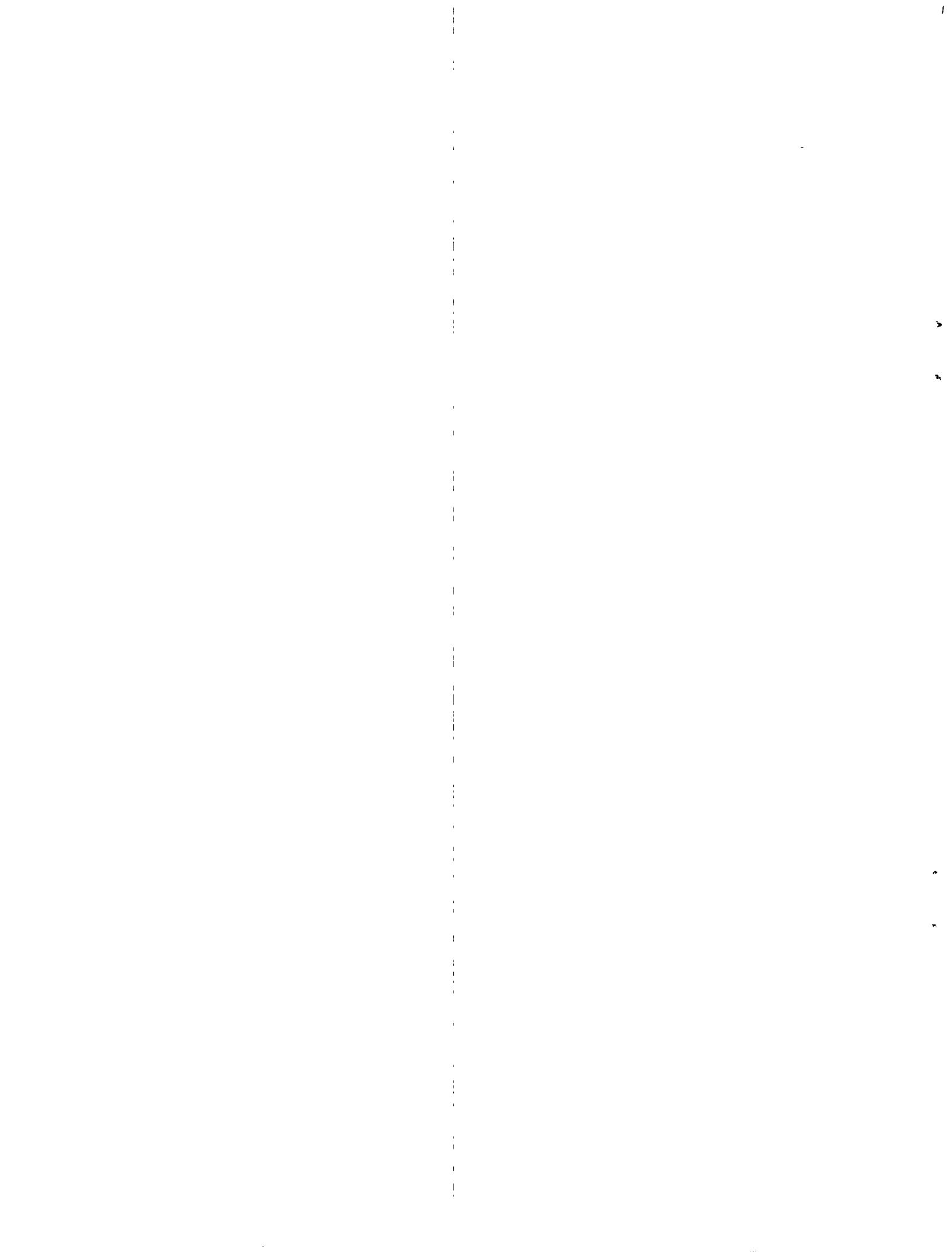


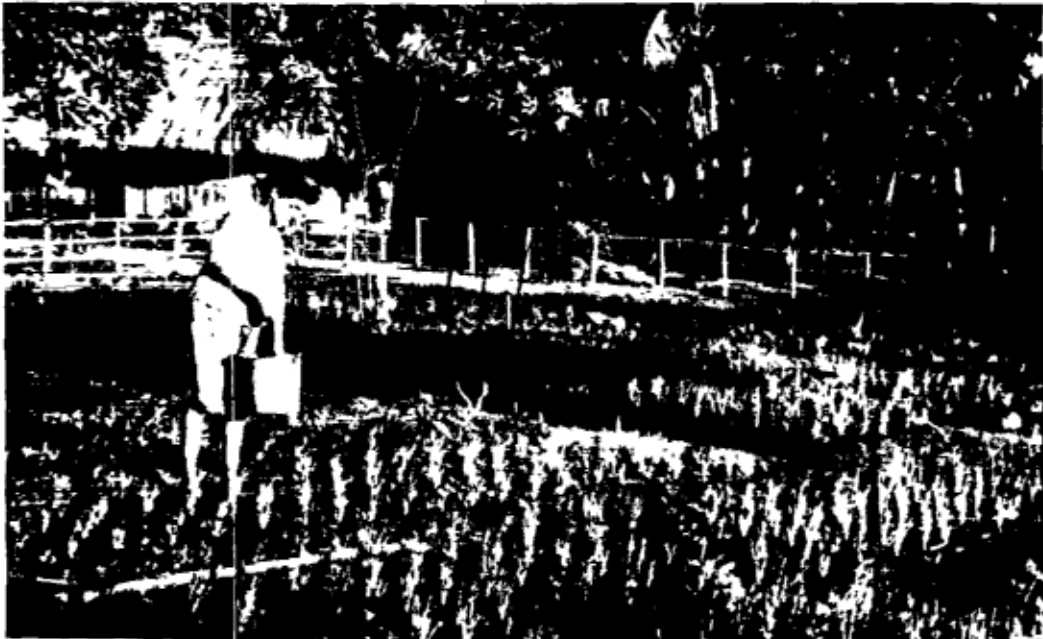
Participatory techniques were used to get women and men belonging to water groups involved in self evaluation.

Above, a woman casts her vote.

Below, men rate the activities of their water group.





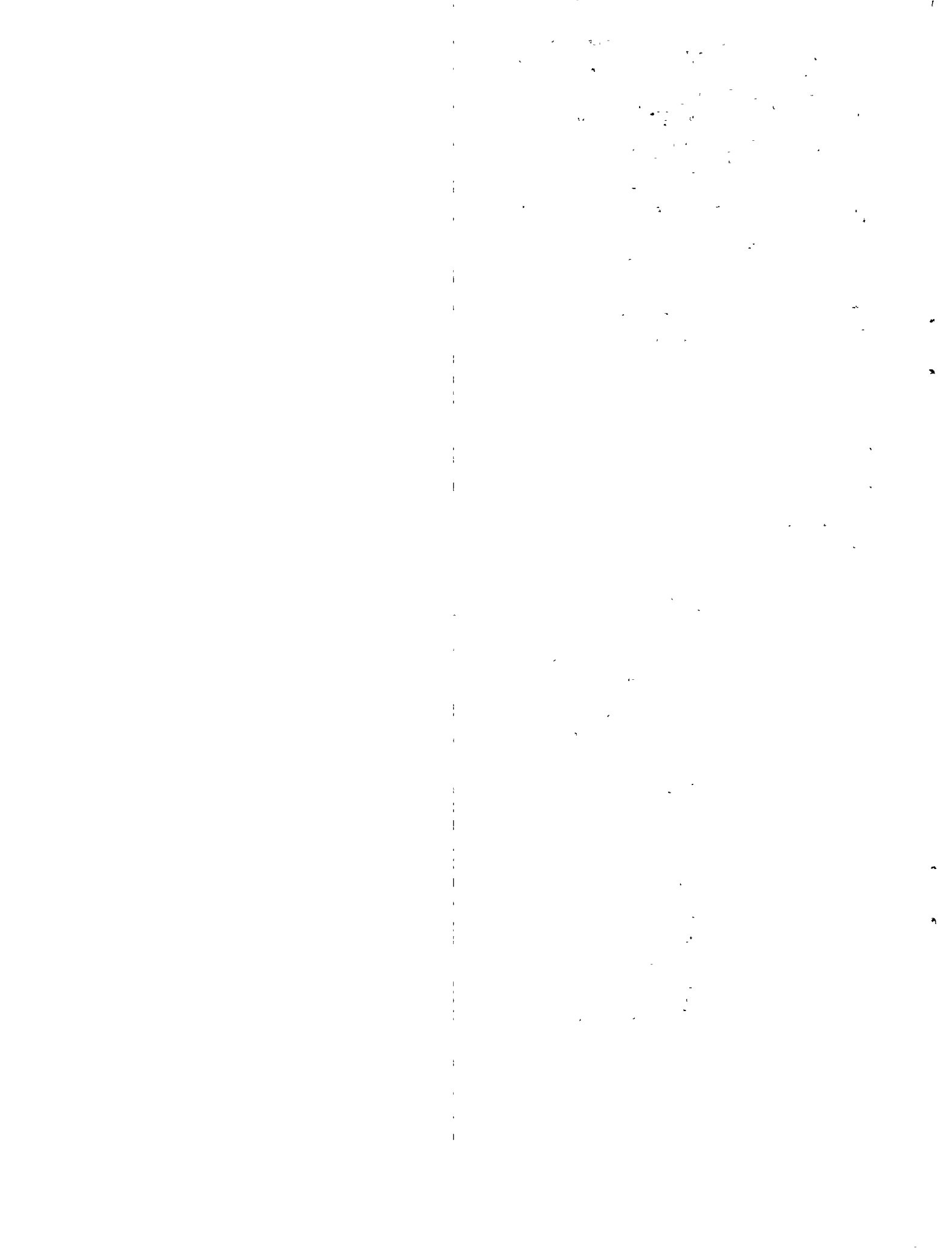


Effective use of water is difficult to achieve. Handling practices often pollute drinking water.

Above left, a boy uses a broken beer bottle as a funnel.

Above right, leaves are put in a bucket to prevent water from spilling in the long trek home.

However, water was effectively used in increased vegetable production (below).



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LESSONS, STRATEGIES, TOOLS
PROWESS/UNDP Publication Series

General

1. International Reference Centre in collaboration with PROWESS/UNDP: Participation in Water Supply and Sanitation - Roles and Realities - by Christine van Wijk-Sijbesma, 1985, (English/French) pp.191. A literature review and annotated bibliography.
2. PROWESS/UNDP: Women, Water and Sanitation - or Counting Tomatoes Instead of Pumps, by Siri Melchior, March 1989, (English/French). Update on overall issues and lessons learned to date. (Also available in a reference collection on compact disk, Library-To-Go, by Decade Media with support from INSTRAW).

Case Studies, Country Reports, Field Research

3. PROWESS/UNDP: Report of the Process Evaluation Mission of a CARE-assisted project of water systems in Rwanda, by Jean Beaudoin of Coopération d'Animation et de Collaboration, et al., 1987, (English/French) pp.27. An example of techniques to evaluate the process of participation.
4. PROWESS/UNDP: India - Twenty Lessons Learned from Social Feasibility Studies, by Lucy Goodhart, 1988, (English) pp.20. Based on four social feasibility studies of rural sanitation in India.
5. PROWESS/UNDP and the World Bank: Kenya - People, Pumps and Agencies, by Deepa Narayan-Parker and Mary McNeill, 1989, (English) pp.36. A case study of the South Coast Hand-Pump project with particular emphasis on Kenya Water for Health Organization (KWAHO), describing partnership between a Government, an NGO and donors.
6. PROWESS/UNDP: Dhaka - Volunteers Against Diarrhoea, by Elsie Shallon, 1988, (English) pp.25. A description of a programme working with women volunteers in an urban slum area to improve health education and action.
7. PROWESS/UNDP: Indonesia - Evaluating Community Management, by Deepa Narayan-Parker, August 1989, (English). A case study of PKK/Ministry of Health Activities in West Timor. Particularly rich in data on such aspects as change in women's lives, water use, economic effects, etc. Slide show on Indonesia experience will be available at cost.
8. World Bank and PROWESS/UNDP: From Pilot to National Programme - Rural Sanitation in Lesotho, by P. Evans, D. Narayan-Parker, R. Pollard, M. McNeill, and R. Boydell, planned for mid 1989.
9. World Health Organization/South East Asia Region and PROWESS/UNDP: Final Review of Case Studies of Women's Participation in Community Water Supply and Sanitation. Report of a Workshop held in Kupang, Indonesia, May 1988 (English) pp. 40. Recounts lessons learnt from experience in four case studies conducted in Nepal, Thailand, Indonesia and Sri Lanka in terms of research methodology and implementation approaches.

Field tools, Training Aids

10. PROWESS/UNDP: Field Training Manual, Lesotho, by Willie Sampson, 1987, (English) pp.70. An example of field training manual for a sanitation project in Lesotho using participatory techniques.

11. PROWWESS/UNDP: Video on Regional Training Workshop in Tanzania, 1988, (English); March 1989 (French). Describes the process of a workshop for personnel from national institutions in anglophone African countries, methods used, results.
12. PROWWESS/UNDP: Goals and Indicators for Integrated Water Supply and Sanitation Projects, by Deepa Narayan-Parker, 1989, (English/French) pp.16. Emphasis on design of indicators for planning and evaluation.
13. PROWWESS/UNDP: Knowledge Generation and Use in Partnership with People, by Deepa Narayan-Parker, planned for Fall, 1989. A tool for planners in field projects. Emphasis on use of participatory data collection techniques for planning and evaluation of community managed projects.
14. PROWWESS/UNDP: Community Participation - A Challenge for Trainers - by Lyra Srinivasan, planned for Fall 1989, (English/French). A tool for trainers in field projects. Particular emphasis on SARAR methodologies, experiences in application in PROWWESS/UNDP activities.
15. PROWWESS/Africa: Report of a Regional Participatory Training-of-Trainers Workshop held in Tanzania, September 1988, published Spring 1989 (English). Description of training workshop, methodologies and analysis of results.
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17. World Bank and PROWWESS/UNDP: Involving Women in Sanitation Projects, by Heli Perrett, 1985 (English). A guide for project planning and design.
18. PROWWESS/UNDP and WASH: Design and Management of Sustainable Water Supply and Sanitation Projects, by Paula Donnelly-Roark, 1987, (English/French/Spanish/Arabic). A guide for project workshops for project design, assessment and review.
19. PROWWESS/UNDP: PEGESUS, by Deepa Narayan-Parker, 1989, (English). Analytical framework for designing and assessing projects and programmes, concentrating on goals and management tasks.
20. PROWWESS/UNDP and INSTRAW: Interagency Task Force on Women - Proposals for 1989-90, 1988, (English). Reviews progress with respect to women's participation aspects in UN organizations active in the water/sanitation decade, assesses major challenges for the future, proposes a work plan for agencies concerned
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Select reports on country-specific activities are also available for limited distribution. Extra charges are made for these reports to cover the costs of copying.

PROWESS/UNDP

PROWESS stands for "Promotion of the Role of Women in Water and Environmental Sanitation Services". It focuses on women, in the context of their communities, because they are the main collectors/users of water and guardians of household hygiene and family health. In the past, even field projects with community participation focus have often neglected to involve women in decision-making, for lack of knowledge about their role or difficulties in reaching them.

The PROWESS programme is demonstrating ways of involving women in wider community planning, operation, maintenance and evaluation of drinking water and waste disposal schemes. Its experience so far in well over 1,000 communities in Africa, the Arab States, Asia and Latin America shows that:

early and wide participation by women and their communities pays off in better maintenance, higher cost recoveries, improved hygienic practices and other socio-economic gains for the community.

Based in the United Nations Development Programme (UNDP), Division for Global and Interregional Projects (DGIP), PROWESS works interregionally in support of the International Drinking Water Supply and Sanitation Decade (1981-1990). Starting with funding by Norway in 1983, it has since received financing from Canada, Finland and the U.S., as well as from UNDP. It collaborates with many national and international organizations, both governmental and non-governmental.

PROWESS/UNDP Technical Series

PROWESS/UNDP is developing, documenting and disseminating information on the participatory methods it promotes and on the outcome of their use. This can help to enrich policies and programmes, both nationally and internationally.

Part of this effort is the PROWESS/UNDP technical series called "Involving Women in Water and Sanitation: LESSONS - STRATEGIES - TOOLS". It includes:

- case studies, project reports and country profiles giving lessons from specific experience;
- guidelines, for project analysis, development and evaluation, and other strategies of action; and
- data collection and research instruments, training methodologies, materials production and other tools for field work.

(see overleaf for listing)