International
Drinking Water Supply
and Sanitation Decade

PUBLIC STANDPOST WATER SUPPLIES (PSWS) PROJECT

(supported by the International Reference Centre for Community Water Supply and Sanitation (IRC) 1983-1987)

COMPARATIVE REVIEW OF PROJECT EXPERIENCES IN INDONESIA, MALAWI, SRI LANKA AND ZAMBIA

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jointly prepared by:

A. Parwoto and **F. Kwaule**
Project Officer — Project Officer
PSWS Indonesia — PSWS Malawi

based on contributions by Project Teams in all four participating countries

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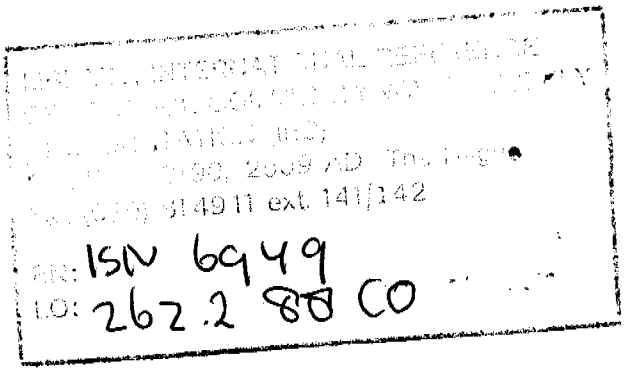

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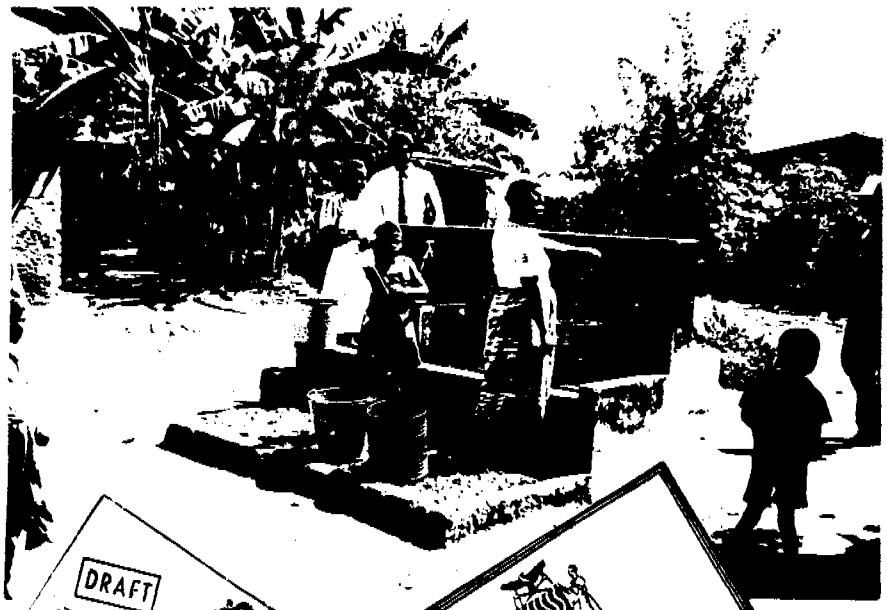
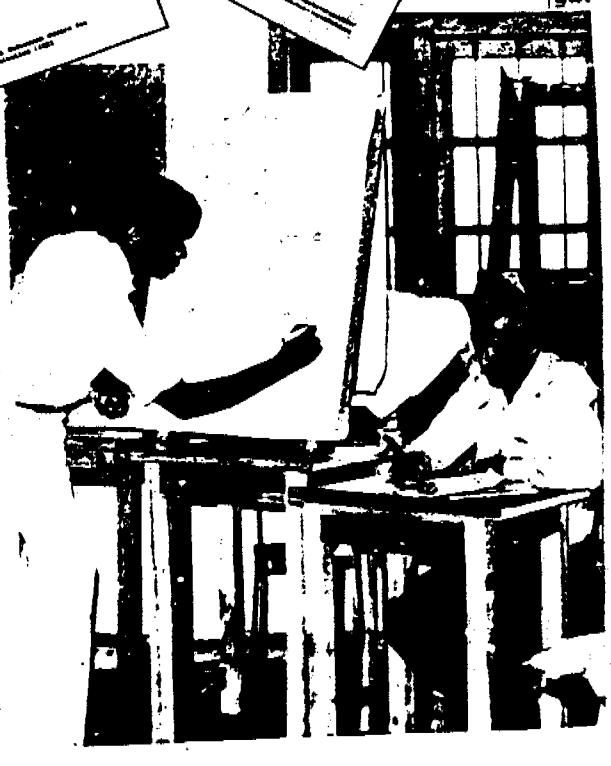


DRAFT

Public Standpost Water Supplies

An appropriate level of service for many communities in developing countries

IRC



PREFACE

The value of the multi country PSWS project approach could perhaps not have been effectively assessed without comparing approaches followed by the individual participating countries.

In a bid to compare and contrast selective aspects of the PSWS project in Indonesia, Malawi, Sri Lanka and Zambia, the International Reference Centre for Community Water Supply and Sanitation (IRC) commissioned a joint exercise under which the Indonesian Project Officer Mr. A. Parwoto together with the Malawian Project Officer Mr. F. Kwaule, developed a review of the experiences of all four participating countries.

During the project, both Project Officers had the opportunity to visit the project in some of the other participating countries. This review is based on their experiences and on formal and informal contributions from project staff in all four countries.

Apart from production of this paper, the value of this exercise could best be looked at in terms of the fulfilment of one of the primary objectives of the multi country PSWS project itself - that of promoting international information exchange in the spirit of technical cooperation among developing countries.

But above all the joint exercise demonstrates some of the advantages of a project in which a number of countries work within a common framework.

The Authors,
in Lilongwe and Bandung,
March 1988

ACKNOWLEDGEMENT

This Comparative Review was prepared within the framework of the IRC-supported Public Standpost Water Supplies (PSWS) Project, utilizing funds provided by the Directorate General for International Co-operation (DGIS) of the Netherlands Government, whose support is gratefully acknowledged.

PSWS Project:
a contribution to the

International
Drinking Water Supply
and Sanitation Decade

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LIST OF ABBREVIATIONS

CER	Sri Lankan Rupee (1 US$ = approx. CER 28 (June 1987))
CWE	City Water Enterprise
DJCK	Directorat Jenderal Cipta Karya (Directorate General of Human Settlements (Indonesia)
DWA	Department of Water Affairs (Zambia)
IHS	Institute of Human Settlements (Indonesia)
IRC	International Reference Centre for Community Water Supply and Sanitation
MK	Malawian Kwacha (1 US$ = approx. MK 2.3 (June 1987))
NAC	National Action Committee
NGO	Non-Governmental Organization
NWSDB	National Water Supply and Drainage Board (Sri Lanka)
PCI	Project Co-ordinating Institution
PMC	Project Management Committee
PPI	Project Participating Institution
PSWS	Public Standpost Water Supplies (project)
PVC	Polyvinyl chloride
Rp	Indonesian Rupiah (1 US$ approx. = Rp 1,650 (June 1987))
UNCDF	UN Capital Development Fund
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VIP	Ventilated Improved Pit Latrine
WHO	World Health Organization
ZK	Zambian Kwacha (1 US$ = approx. ZK 8 (June 1987))

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1. INTRODUCTION

Public standpost water supply is an important level of service within developing country water supply systems, but one which continues to meet problems world wide. The multi-country Public Standpost Water Supplies Project, funded by the Netherlands Government through the International Reference Centre for Community Water Supply and Sanitation (IRC), provided a framework in which participating countries Zambia, Sri Lanka, Malawi and Indonesia were encouraged to develop improved approaches to public standpost water supplies. The project promoted the development of approaches that involved the communities at every stage and which took into account the social, financial and operational issues as well as the essential technology.

The multi-country approach proved advantageous in that new information and ideas were simultaneously developed on a broad front and in a variety of circumstances. It also provided opportunities for cross-stimulation of ideas and experiences through the regular exchange of progress reports and other project papers and exchange visits amongst project staff from all four participating countries.

This paper, jointly developed by Malawian and Indonesian project staff, is just one example of the advantages of the multi-country project approach. The paper has tried to compare selective aspects of the PSWS project experiences in Indonesia, Malawi, Sri Lanka and Zambia, isolating different aspects of project activities and identifying factors which account for the differences.

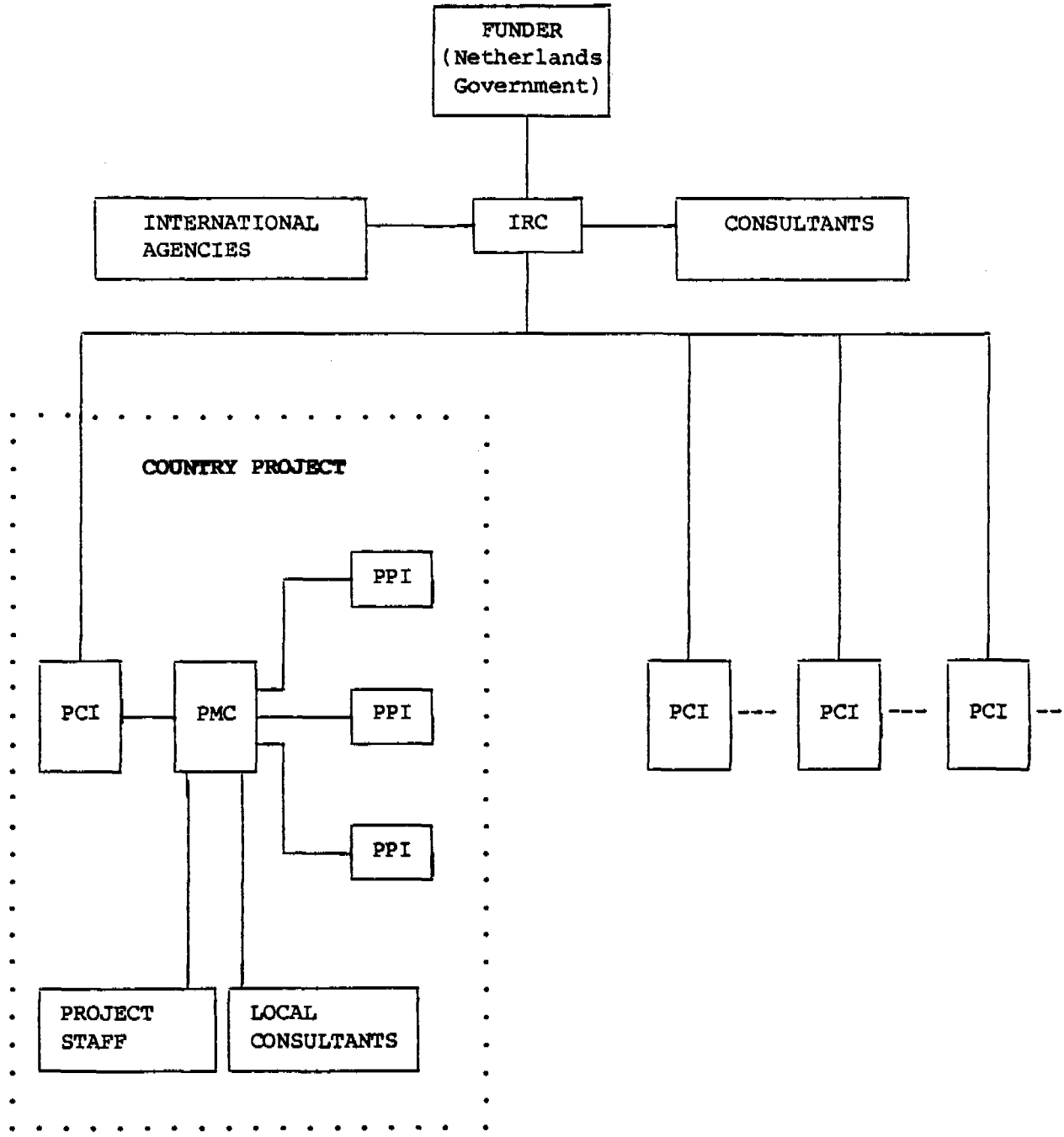
2. PROJECT MANAGEMENT

Organization for the management of the PSWS project developed differently from country to country. The differences ranged from having many institutions participating in the project in some countries to having only a few key national and international institutions taking part.

In Sri Lanka for example, the organization for project management was centred in the National Water Supply and Drainage Board (NWSDB), as Project Co-ordinating Institution. The Chairman of the NWSDB was chairman of the Project Management Committee. For actual implementation a project team consisting of a Project Manager, (a staff member of NWSDB), and a representative from the Ministry of Health worked hand in hand. Other staff from the Ministry of Health and NWSDB and students contributed at the field level and in supporting roles.

In Zambia the Department of water Affairs (DWA) was the Project Co-ordinating Institution. The Director of the DWA was also the chairman of the Project Management Committee (PMC). A significant development in Zambia was that representatives of a number of national and international institutions were co-opted to become members of the PMC. They included the Ministry of Labour and Social Services, the Ministry of Health, the National Action Committee for the Water Decade, the University of Zambia, Chainama College of Health Sciences, and the World Bank. The initial selection of institutions to take part in project activities was made by the National Action Committee for the Water Decade, as part of their role regarding water supply development. A wide representation such as was the case in Zambia encourages integrated planning, and particularly for the PSWS project, dissemination of experiences.

The project Manager in Zambia did not come from the Project Co-ordinating Institution but from one of the Project Participating Institutions, the Ministry of Health. He was assisted by a Project Engineer from the Department of Water Affairs and a Project Support Officer from the Department of Social Development. This set up had the advantage of pooling together inputs to the project from three different institutions at implementation level.



PCI : Project Co-ordinating Institution
PMC : Project Management Committee
PPI : Project Participating Institution

PSWS PROJECT:
OVERALL ORGANIZATIONAL STRUCTURE

In Malawi, the Water Department of the Ministry of Works and Supplies was the Project Co-ordinating Institution. The Water Engineer-in-Chief of the Water Department acted as the Chairman of the Project Working Group. A Project Officer, who was a staff member of the Water Department, co-ordinated implementation of the project. He was assisted by Project Support Officers from the Ministry of Health and Ministry of Community Services.

The structure was somewhat different in Indonesia. The actual project holder was Cipta Karya, the Directorate General of Human Settlements (DJCK) under the Ministry of Public Works. The Director General of Human Settlements was the Chairman of the Project Management Committee. Members of this committee basically came from three Ministries: Public Works, the Ministry of Interior and the Ministry of Health. The Institute of Human Settlements (IHS) was appointed as Project Co-ordinating Institution. In the execution of project activities the Project Manager, who was the Director of the IHS, was assisted by a Project Officer and a team consisting of representatives from the Ministry of Public Works, (Directorate of Water Supply and the Institute of Human Settlements) Ministry of Health, (Directorates of Water Hygiene and Public Health Education), and representatives from the Division of Public Works and of Hygiene and Health Education of the Provincial Government of West Java.

In total the core project team was 12 persons. The idea in having a big team engaged in the actual work for the project was to provide opportunities for the representatives of various institutions to have direct experiences from the project. This would help to apply project findings in each participant's own institution, and facilitate convincing the various policy makers from the different institutions on the merits of the approaches developed.

The approaches used by the four countries in establishing the framework for project execution show some remarkable differences, reflecting the management strategy of each country. In Malawi for example, the execution of the project was largely in the hands of one institution, the Water Department of the Ministry of Works and Supplies, with inputs from the Ministries of Health and Community Services. The executing team in Sri Lanka consisted of two persons, one from the National Water Supply and Drainage Board and one from the Ministry of Health.

Small teams and a division of responsibilities among a limited number of institutions can eliminate co-ordination problems but at the same time may reduce the potential for sharing the experiences with other institutions. The potential for spreading experiences among different participating institutions were noteworthy in Zambia and Indonesia. However Zambia, with the highest number of institutions participating, was the most outstanding in this respect.

3. GENERATING NEW INFORMATION

3.1 Selection of location of demonstration schemes

In all four countries the final selection of locations for the demonstration schemes was made by the Project Management Committee, responding to need and interest from the candidate communities. Important criteria for final selection adopted in all countries were in the first place availabilty of funding for the necessary hardware. Secondly, not too great a distance between the Project Co-ordinating Institution and the locations was considered crucial for monitoring and supervision purposes.

In Sri Lanka, the selection of locations was based on four additional criteria: geography, technical and managerial aspects of existing water supply systems, socio-economic and cultural factors and population. Sensitive issues such as ethnic, religious and income distribution were also taken into account.

In Zambia, the selection of locations for demonstration schemes was mainly based on technical and managerial aspects of the existing water supply, density of the population, and willingness of the community to participate in a government-sponsored project, based on previous records of community participation in building a health centre or a village school.

In Malawi, where the PSWS project was applied in existing counterpart project areas, (Urban Communal Water Point Schemes), the additional criteria were the availability of supporting local institutions and age of the existing counterpart schemes.

In Indonesia different geographic conditions (coastal flat and hilly areas), social diversity, sources of water and mode of water supply system, were the main criteria for selecting locations for PSWS demonstration schemes. The general selection of areas was done by the PMC but the actual location of the demonstration schemes was done by the local governments in consultation with the project team, and in response to community interest.

The criteria for site selection for PSWS demonstration schemes thus varied from one country to the other, reflecting the needs of each country. It is evident that the more these needs were incorporated in the criteria the more valid the results of the project are for wider application in each country.

3.2 Role sharing

At the demonstration scheme level in all four countries several institution were involved in contributing to the success of the project. Generally speaking these institutions can be classified as follows:

- Government or Public Sector;
- Non Governmental Organizations;
- Private sector;
- International Agencies.

The institutions in most cases worked directly or indirectly through the project teams with the communities concerned. In Indonesia and Malawi the relationship between the communities and the institutions was mostly on a partnership basis, whereas in Zambia and Sri Lanka the role of the institutions was basically supportive.

In Sri Lanka, three key institutions were active on the project. An international agency mainly contributed materials and technical assistance. The government and public sector, which were represented by the project team, worked directly with the communities.

Zambia was the most successful country in mobilizing national resources in support of the project as demonstrated by the involvement of many institutions in the project: the government or public sector, the private sector and NGO's. It is likely that non-availability of funds for hardware prompted the project team to seek assistance from as many institutions as possible. The project team, with assistance of other government and public sector representatives, worked directly with the communities.

In Malawi the counterpart project, the Urban Communal Water Point project was funded by UNDP and UNCDF. The government, represented by the project team, worked here as partners together with the community.

In Indonesia, as in Malawi, the government and the community worked together in a formal partnership. However, the number of participants grouped within the government in Indonesia was the largest, since the strategy of the project was to strengthen and facilitate local authorities and many other government officials in having direct experiences within a fully participatory project.

3.3 Community participation

In all four countries existing self-help practices have been recognized and adopted within the government development strategy. Community participation, with the objective of mobilizing community resources to complement government efforts, is intended to generate a community sense of ownership that will increase responsibility in operation and maintenance.

During the implementation of the PSWS project it was realised, particularly by the project staff, that community participation was not merely community involvement in government-sponsored projects but rather continuous learning to bring people into development processess leading to appropriate social and economic improvements.

In Sri Lanka it was decided to carry out preliminary research on the socio-economic background and the sanitary habits and health knowledge of the communities concerned. The research served also as an introduction of the project to the people. At the same time the project team approached the village leaders and the existing local voluntary institution (Gramodaya Mandalaya) directly, to start planning and implementing the establishment of public standposts. The communities contributed through the establishment of an Action Committee, and by providing labour in construction. A caretaker, nominated by the Action Committee, is responsible for operation and management of each tap point. The general operation and maintenance of the total system is to be undertaken by the District Development Councils.

Indonesia: PSWS staff meeting with village leaders

Sri Lanka: meeting of an Action Committee of one of the schemes in the local school building

Zambia: villagers from one of the demonstration areas on an exchange visit to another PSWS scheme

Malawi: the Secretary and the Treasurer of a tap committee

Although the approach in Zambia was in some ways similar to that of Sri Lanka, particularly with regard to the understanding of community participation, the implementation was different. After having introduced the project to the District authorities, the project team directly approached village headmen and prominent people in the areas convincing them about the advantages of community participation within the PSWS project approach. The village headmen then mobilized the communities to take part in the PSWS project.

The team also encouraged the establishment of village water committees with help of the local district development worker. With the exception of the water tariff, which in some places was determined by the District Council, the communities took-up their own responsibilities and decided on locations for standposts, management of taps and setting up funding for construction and maintenance. Particularly women, who are traditionally responsible for water supply for their families, were encouraged to take part in decision making. The communities contributed with labour, material and money toward construction of the schemes. Construction took place under the guidance of the project team, with the help of District government technicians.

Malawi shares some experiences with Zambia and Sri Lanka, but since actual construction work was done under an earlier counterpart project, the Urban Communal Water Point project, the PSWS Project concentrated on promoting community participation in operation and maintenance. The project team directly approached the existing community institutions, namely the Centre Water Councils and Tap Committees, convincing them about the importance of community participation in the operation and maintenance stage and of community benefits.

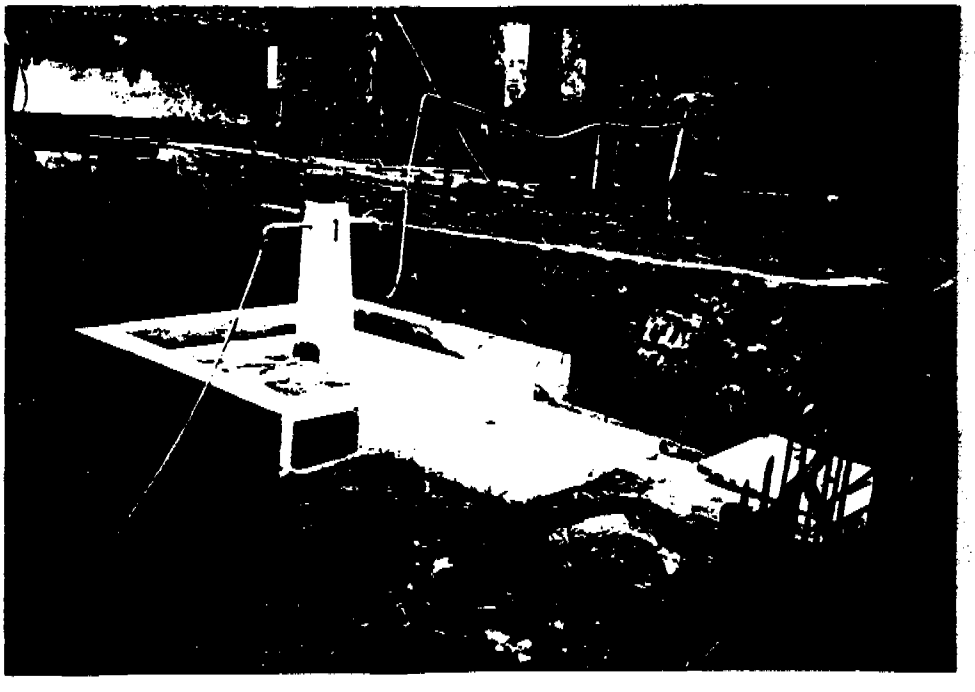
Under the PSWS Project, Centre Water Councils were reactivated in order to effectively carry out their role of supporting the Tap Committees. The councils, which are chaired by District Commissioners (administrative head of the District) and whose membership includes local authorities, politicians and local sectoral agency heads, are important demonstration centre level institutions which are responsible for promoting community participation and sectoral agency collaboration.

The Tap Committees were also reorganized to improve operation and maintenance activities including financial management. The Tap Committees are elected by the communities themselves. Usually more than half of the members of a Tap Committee are women. One of the major responsibilities of a Tap Committee is to collect money from consumers of the water supply, which is then remitted to the Government Cashier to settle monthly water bills. Consumers are sometimes requested to make extra money contributions to pay for maintenance of the standposts.

Although Indonesia shared a common understanding of community participation and practices with the other three countries, the approach under the PSWS project was rather different. Instead of directly approaching the communities, the Indonesian team worked through the local authorities responsible for community participation at the Provincial level. The local authorities at Municipal/Regency and District level then identified sectoral officers responsible for water supply development, to be trained by the Project Team as trainers to carry further the participatory approach as proposed in the PSWS project. This group of trainers, in collaboration with the District Headman, organized training for village development caders which were formed at each demonstration scheme. The village development caders then conducted a community self survey to get new insights into the village and community (problems, strengths and potential). The result of the survey was discussed with the community and the local leaders in a village gathering and used as basic information to conduct participatory planning, (meaning planning for solving the identified problem, conducted by the community, led by the caders and with inputs from the government).

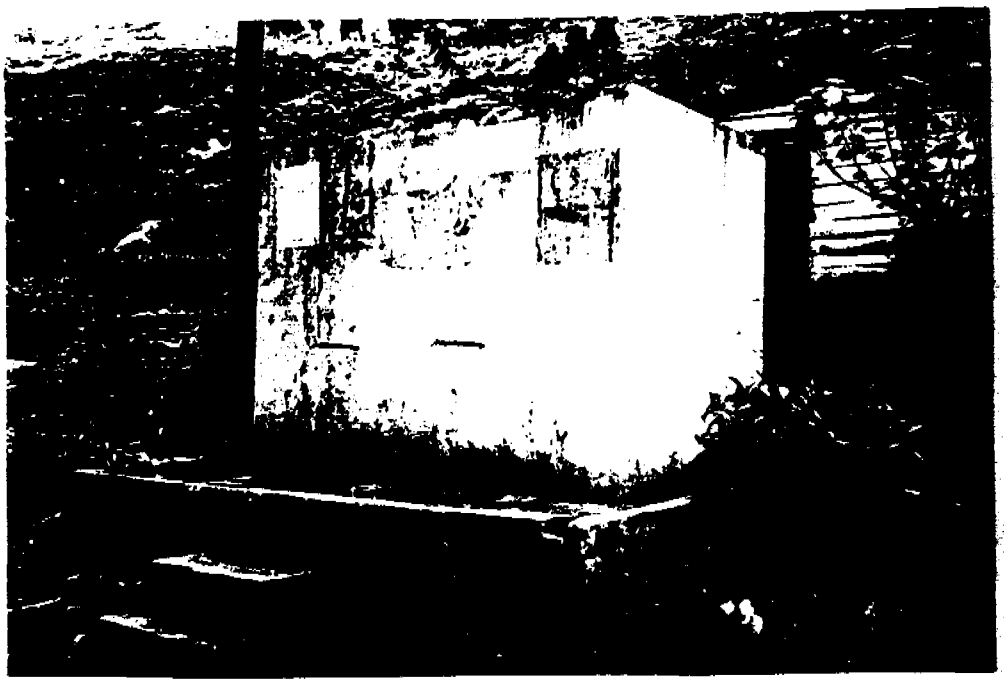
Community participation was promoted through direct involvement of project teams in Sri Lanka, Zambia and Malawi to ensure positive results. On the other hand, the Indonesian project introduced participatory methods to the local authorities, who may use them in subsequent projects. This approach perhaps demands more time, but it can enhance the opportunity for replication.

A PSWS-assisted standpost in Malawi, with some members of the Tap Committee



A standpost in Indonesia, built through the PSWS project. The villagers themselves added the removable connections to private bathing facilities

A PSWS standpost in Zambia, incorporating a bucket rest



A public standpost in Sri Lanka, incorporating a storage chamber

3.4 Technical aspects

Information on the technical aspects of each country's demonstration schemes is summarized in table 5 in the Appendix. The main differences, as the table shows, are in the type of taps used and the sources of water.

Sri Lanka, Zambia and Malawi used a domestic tap which is designed for private use with a screw handle, whereas Indonesia used a valve (not a tap) with a swing handle (90 degrees), for easy operation and durability. In Malawi where the women who get the water carry it on their head, the taps are furnished with a raised loading pillar. In two of the demonstration areas in Indonesia some of the taps have been built-in to a washing and bathing facility. In Zambia one of the standposts, which is located near a school, is built low for use by smaller school children.

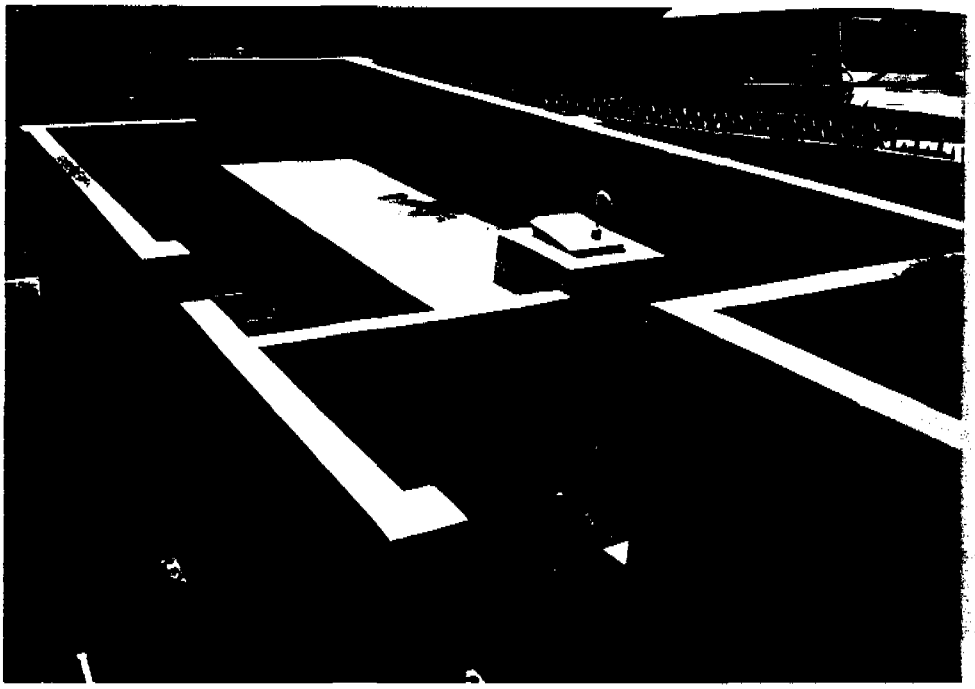
In Sri Lanka and Indonesia springs are the main sources of water for the demonstration schemes. The water is then distributed by gravity. In Zambia and Malawi the sources of water for the schemes are mostly boreholes from which water is pumped by either using diesel engines or electricity. This explains why water in the schemes in Sri Lanka and Indonesia is cheaper compared to Zambia and Malawi.

3.5 Health education

Of all four countries, Sri Lanka has put most efforts into the integration of health and hygiene education with other project activities. In accordance with the findings from the preliminary research on health knowledge and sanitation practices, a community health and hygiene education programme has been set up in each of the four demonstration villages. After an introduction given by the Project Team to the village school teachers, older school children were selected to form a group of voluntary hygiene instructors. They received a short training and then would visit all households to give information on proper use of water and sanitation. To stimulate the further spread of information, the project has provided the schools with health education material to be used in educating all schoolchildren.

Sri Lanka: health education volunteers, trained through the PSWS project, holding a group discussion in their village

Zambia: a latrine constructed with local materials. The model has been developed within the PSWS project



Indonesia: bathing facilities built through the PSWS project. It functions as a model for villagers building their own bath.

Sri Lanka: villagers have been trained, through the PSWS project, to manufacture water seal pans for themselves, enabling them to build their own latrines

In Zambia no special community health and hygiene education programme has been set up through the project. Health and hygiene aspects of water supply and sanitation were however discussed in the villages by the Project Manager, who was a District Health Inspector. He could also rely on the existing rural health education programme of the government, which provides for District Health Workers. They regularly visit village schools and households to inform and advise the people on health and hygiene issues. Also in Indonesia and Malawi no new programmes were established. The main focus of activities has been on relating the project to existing health programmes in the districts. In Indonesia the District Health Centres have been involved in the project for the training of development cadres.

3.6 Sanitation

The approach used in implementing the sanitation component in the project to some extent was similar in Sri Lanka and Zambia, in that demonstration of an appropriate model of latrine for human waste disposal took place in connection with some hygiene education.

They differred however, in the introduction of the models to the communities. In Sri Lanka an appropriate model was demonstrated and the community was convinced to adopt the model, whereas in Zambia both an appropriate and a less-appropriate model were demonstrated to let the community see the advantages of having the better model. Sri Lanka introduced a water-sealed flush toilet whereas Zambia introduced pit latrines to match respective local circumstances. The PSWS project in Sri Lanka with some support from WHO, also provided training for local masons on the construction of water-seal units and squatting plates, and instruction for villagers on how to build superstructures with cheap, locally available material.

The rate of adoption of the demonstrated models has been high in Sri Lanka, mainly because the technology was acceptable and adoptable by the community. In Zambia the rate of adoption of the demonstrated models has not been very high simply because the communities were not able to afford completely new latrines. All the same they made improvements on their traditional latrines according to the demonstrated model.

No sanitation demonstrations were carried out in Malawi and Indonesia, mainly because of problems in synchronizing related activities (water supply, health and sanitation). This is perhaps one of the main difficulties of the multi sectoral approach.

3.7 Operation, maintenance and repair

Community organization for operation, maintenance and repair of standposts means the establishment of a water or tap committee, or a user's co-operative, representing all users. Such committees are ideally chosen by the community, as in Zambia and Malawi, but they may also be proposed by the authorities, as in Indonesia.

In Sri Lanka, Action Committees for water supply have been established, who work with the existing community institution, the Gramodaya Mandalaya. This organization in fact organizes the overall development concerning the community in that area. The users have as yet little specific responsibility regarding the standposts. There are no set operating hours. Overall responsibility for the schemes is expected to be taken over by the local institutions (the District Development Council), which will manage the whole system, assisted by community revenue and caretaking inputs.

In Sri Lanka, as in Indonesia and Zambia, caretakers have been nominated. Usually this is a person who lives near the standpost, or, as is the case in Indonesia, somebody on whose land the standpost was erected. All caretakers have received training, set up through the project, in maintenance and simple repairs. In Malawi there are no designated caretakers. The whole Tap Committee is responsible for operation of the standpost, and maintenance is carried out by Water Department operators.

In Zambia, the water committee representing the users made arrangements for payment for water and for operation of the scheme with the agency who controls the source. In some cases this is the District Council, in others another institution. Where the water is supplied by the District Council, the consumers pay ZK 2 per family per month. The water committee, together with the tap caretakers, set the rules for using the

water and for maintenance. Some places do have specific operating hours, but at most no specific hours are laid down. Maintenance is always the responsibility of the communities. Breakdowns which are beyond the ability of the communities will be reported to the District Council who will help repair them, charging the costs to the communities. The communities have established funds to help cover these costs.

In Malawi the Tap Committees, under the guidance of the Centre Water Councils, are responsible for the operation and management of the standposts. The Tap Committees have usually a majority of women memebrs. They are also responsible for collecting water rates from the consumers to pay for water consumed. As far as maintenance of the standposts is concerned the consumer groups meet all the costs of spareparts while actual maintenance work is done by the water authority. The responsibility of the communities is therefore to contribute money for spare parts and report breakdowns to the water authority.

In Indonesia, the Community Resiliency, the consumers, the co-operatives and tap caretakers may all be involved in operation and maintenance. There are two types of arrangement:

- Where the source of the water is from the City Water Enterprise (CWE) which basically operates on a commercial basis, the co-operative or consumers' association has to deal directly with the CWE. Officially the responsibility of the CWE stops at the water meter. Installations after the meter up to the taps are the responsibility of the community co-operative. Maintainance and repair are done by the co-operative with technical assistance from CWE. Consumers have to pay both for water use and for maintenance costs.
- Where the source of the water is within the community's control, the community has full responsibility for the whole system including determining the amount of contribution for operation and maintenance.

A co-operative or consumers' association has been formed to oversee operation and maintenance activities. The co-operative was established for two reasons:

a. as part of government policy to encourage communal efforts for business activities;
b. the co-operative provides opportunities for the community to collect funds which are used in case of breakdowns. It also strengthens a sense of ownership in the consumers, because the water supply system is seen as a communal asset.

3.8 Financial management at demonstration scheme level

Simple financial management at demonstration scheme level has been developed in most countries:

In Zambia, where there is a tradition of establishing community funds for self-help projects, the water committee treasurer is responsible for collecting money from communities. Part of the money collected goes to the District Council for payment of the water consumed and part is kept by the treasurer for funding maintenance and repair. To record the circulation of the money the treasurer maintains a simple accounting system.

In Malawi, where a more formal system for collecting money is practised, the Tap Committees are responsible for collecting money contributed from all consumers, fixed according to their approximate monthly water comsumption. The money is kept by a treasurer who maintains a simple accounts record book. When all the money is collected, it is remitted to the government cashier and appropriate receipts obtained. In addition, communities also contribute money for maintenance of the water supply. The money is again kept by the Tap Committee treasurer and is used as need arises.

In Indonesia, since charging for water, particularly in rural areas, is not common, the establishment of a water co-operative was encouraged in two schemes to maintain a communal fund which is used in case of breakdown of the water supply. The existence of communal funds in the

co-operative encouraged the community to embark on a small scale banking system. In a third scheme the water users make payment through the caretaker to the Commercial Water Enterprise, including reinbursement of the caretaker for his maintenance responsibilities. In a fourth scheme no satisfactory payment system has yet been developed.

Sri Lanka is the exception, where community responsibility in maintenance has not been fully defined as yet. Water provided through the project is free so far, and the project has not yet been handed over to the District Development Council.

Experience shows two structures of financial management applicable within the project:

- Where water is supplied on a semi-commercial basis, such as in Malawi and in some schemes in Zambia and Indonesia, communities have to pay for water consumed monthly in addition to maintenance costs. A system of collecting the money and a somewhat complicated financial record keeping system have to be employed to take into account all the money collected from the users and also ensure that the right amount is paid monthly to the water distributing agency and another amount kept for repairs.

- In places where water is largely free, as in some demonstration schemes in Zambia and Indonesia, communities make contributions for maintenance only. A simpler system of collecting money from consumers and financial record keeping is applicable in these places, keeping a fund for maintenance and repairs only.

4. SHARING AND PROMOTING APPLICATION

One of the main objectives of the multi-country PSWS project was to generate new information on firstly, the methodology of community participation in planning, implementation and operation and management of public standposts, and secondly on sharing and promoting the application of such information both at the country and international levels. At the country level, information was shared within the project itself with participating government institutions and other national agencies. At the demonstration scheme level, sharing and promotion took place among sectoral agencies, local authorities and of course communities. Lastly the generated information had to be shared and promoted at the international level between participating countries, involving also other interested countries and international agencies.

A number of methods were used by all four countries to share and promote the application of generated information. These included training, communication, reporting, and evaluation, publication and visual aids, and international activities.

4.1 Training

Training was one of the tools extensively used by all four countries to disseminate project information to a wider audience.

Concerning the type of training and target groups, the project in Sri Lanka, Zambia and Malawi focussed on training at demonstration scheme level: technical instruction for caretakers; simple book keeping courses for village treasurers; various instructions for teachers, villagers and schoolchildren. In addition, workshops were held for District government employees to introduce the project and promote the use of participatory methodology.

In Malawi the four Field Assistants working in the demonstration areas received special training through the project. Also, in Indonesia, a special training programme was set up to cover wide groups of local government employees, including village leaders. These steps were taken

in line with the policy that the development of the environment is basically the task of local government, the role of central government being to assist and strengthen the local government.

4.2 Communication, Reporting and Evaluation

Another means used by all four countries to disseminate project information was through communication, reporting and evaluation. Communication was achieved through personal contacts at the country level between project staff, local authorities and communities. At the international level exchange visits between project staff also helped to promote communication. National media has also been used in all four countries to communicate project ideas to wider audiences. These included press, radio and television.

Reporting on project progress was also used extensively to share and promote application of project findings. All four countries produced regular progress reports which were circulated locally amongst participating institutions, internationally to the other participating countries and channelled to other interested parties through IRC.

Evaluation can also be used as a means for disseminating project information. In an evaluation of the PSWS project during 1985, an innovative approach was used whereby the project was cross-evaluated by national project staff from the other participating countries. This approach proved helpful in promoting important information transfer and learning spin-offs.

4.3 Publications, Visual Aids

Publications and visual aids were also viewed as essential tools in promoting the application of PSWS approaches in all four countries. Project papers detailing all aspects of the projects as applied in different circumstances were produced regularly, distributed to various institutions and presented in national and international workshops. For direct, practical use in the field, guidelines and manuals have been drafted. Indonesia has produced eight abbreviated guidelines (dealing

with procedures for promoting community participation, design and technology, administration, community self survey and evaluation of small scale water supply systems) as well as two handbooks for trainers and development caders. Sri Lanka has a Community Participation Manual, Operation and Maintenance Guidelines and a Caretakers' Manual in hand and various publications are being prepared in Malawi and in Zambia, including a Water Operators' Manual.

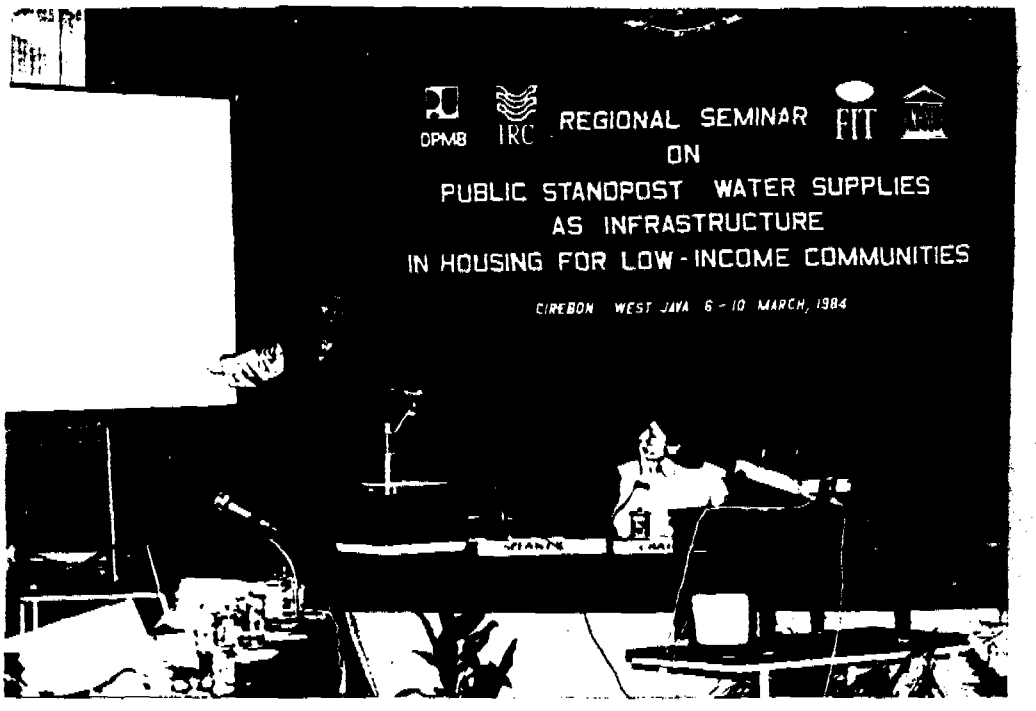
The timing of the publications reflect again the varying management strategies of the country projects. In the case of Indonesia, where the Project Co-ordinating Institution was a research institute, the first step was to set up framework guidelines to be tested in the demonstration schemes which were then gradually adjusted and improved. The Project Co-ordinating Institutions in the other countries, Sri Lanka, Zambia and Malawi, put emphasis on the try-out itself, so the draft guidelines and manuals were produced after the project experiences rather than before.

4.4 International Activities

Ways of sharing and promoting the PSWS demonstration project through international activities can be divided into two groups: firstly, IRC sponsored activities and secondly, activities sponsored by others but taking place in project participating countries.

Activities sponsored by IRC included an international PSWS workshop in Thailand in 1984, in which the four countries participated. Another workshop attended by all the four countries was organised by Sri Lanka in 1985. Indonesia also had an opportunity to host two workshops with international participation.

The most outstanding feature about these workshops was that each proved a good forum where notes on the progress of the PSWS project in all the four countries were compared through discussions and through papers which were presented by participants and through working groups and discussions. In this way, project staff from all four countries were kept informed about the direction, progress and approaches developed in the other participating countries.



Indonesia: the Project Officer explains the PSWS project methodology at an International Workshop in Cirebon

Malawi: the Project Teams from Zambia and Malawi assembled for an information-related workshop and joint working sessions together in Malawi, November 1986.

Major international activities organized by other organizations included the WHO/DANIDA Seminar in 1986 in Malawi which was attended by Malawian and Zambian PSWS project staff under the sponsorship of IRC. The Asian Water Technology conference held in Kuala Lumpur was attended by Indonesia.

Another notable international activity was the Interim Evaluation of the PSWS project in 1985, which afforded opportunities for regional project staff to visit projects in the neighbouring country. Indonesian project officers participated in evaluation of the Sri Lankan project and vice versa. A Malawian project officer also participated in evaluating the Zambian project. Unfortunately Zambian project staff did not then visit Malawi, since the PSWS project there had only just commenced.

4.5 Important Spin-offs

The secondary activities which have been triggered off by the PSWS demonstration projects can be grouped into four major sections: economic; social; health; and national resource management.

It is difficult however to assess the impact of the demonstration schemes on various economic activities. Certainly the availability of water in larger quantities and nearness to the demonstration villages will have stimulated use for various purposes, e.g. gardening, animal keeping, etc. In Indonesia for example the project has facilitated the emergence of small scale economic activities such as establishment of fish ponds, growing of cash crops, establishment of small scale money-lending co-operatives and retail trades.

However, common evidence of project influence shared by all four countries can be found in the fields of social, health and national resource management (see table in the Appendix). Whereas the health and hygiene activities which have been stimulated in Sri Lanka and Zambia have been planned in advance as part of the integrated aproach, the other activities were triggered off through the project process itself which stimulated further initiatives.

5. FOLLOW-UP

The pace at which the PSWS project developed in the four countries has also determined the type of follow-up action now being proposed for each individual country.

Indonesia has been able to draw on national resources to extend the PSWS demonstration project into nine other demonstration areas (covering different geographical and socio-economic set ups), and to apply the PSWS approach and methodology in national projects in various regions of Indonesia, covering a larger range of services. Nonetheless, IRC support is still being anticipated, mainly to support the development of software elements of the project. At the same time, Sri Lanka plans to apply the PSWS project approach in larger water and sanitation projects, possibly in a large rehabilitation project funded by the Asian Development Bank. The extent of necessary external financial support for the two countries in this follow-up is therefore partial.

On the other hand, Zambia and Malawi are to develop intensive demonstration projects with a widened scope to include other types of piped supplies for small communities, which take into account communal taps, yard connections and house connections. The extent of financial support to these new activities is larger, although national and local contributions remain important. In addition the lessons from the PSWS project in Malawi are already finding application in improvements in the management of and support to some 600 existing communal water points in all three regions of the country, whilst in Zambia project achievements are endorsed by National Action Committee members for potential wider use in future projects.

Information exchange activities for all four countries, including national and international workshops/seminars, will also continue to call for IRC support.

6. CONCLUSIONS

Although similar goals were formulated for the implementation of the multi-country PSWS project in all four countries, the approaches used by individual countries to meet the goals showed significant differences, mainly because of political, geographical, socio-cultural, historical, economic and technological differences. These factors were reflected in the way each country organized individual project activities. For example, administrative and management practices of each country determined the organization for project management, whilst selection of location of demonstation schemes was determined by geographical, technical/managerial and social factors which differed from country to country.

The multi-country PSWS project has therefore served to illustrate that there are no standard solutions for the development of community based and participatory approaches to standpost supplies. Although there are common themes, projects have to be developed to meet national, regional and local circumstances.

The project has clearly demonstrated that flexibility is the key to a community based, participatory approach. No single right approach exists and there is no "ideal recipe" which will work in all circumstances.

For any project, and particularly one in which communities are participating, the methodology must always be adapted to the national and local situation, national and local government policy, the country's tradition, large or small, rich or poor communities and their sources of income.

APPENDIX A

COMPARATIVE TABLES

LIST OF TABLES IN APPENDIX A

TABLE 1: PROJECT MANAGEMENT

			SRI LANKA	ZAMBIA	MALAWI	INDONESIA
National Project Team			Project Manager from NWSDB Project Supporting Officer from the Ministry of Health	-Project Manager from Ministry of Health -Project Engineer from Dept. of Water Affairs -Project Supporting Officer from Dept. of Social Development	- Project Manager from the Water Dept. - Project Officer from the Ministry Ministry of Health - Project Officer from the Ministry of Community Services	- Project Manager from IHS (Institute of Human Settlements) - Project team of 12 members from DJCK, IHS, the Ministry of Health and the Ministry of Interior
Project Management Committee (PMC)	National	PROJECT HOLDER	NWSDB (National Water Supply and Drainage Board) Chairman of NWSDB is Chairman of Project Management Committee	Dept. of Water Affairs of Ministry of Agriculture and Water Development Director of Dept. of Water Affairs is Chairman of Project Management Committee	Water Dept. of the Ministry of Works and Supplies Water-Engineer-in-Chief of the Water Dept. acts as Chairman of the Project Working Group	- DJCK (Dir. Gen. Cipta Karya) within the Ministry of Public Works - responsibility as project co-ordinating institution allocated to IHS
		PRINCIPAL PARTICIPANTS	Representative of Ministry of Health	1. Representatives of Ministry of Labour and Social Services 2. Representatives of Ministry of Health 3. IDWSSD Advisor to the Dept. of Water Affairs) (secretary to the National Action Committee)	1. Representative of Ministry of Health 2. Representative of Ministry of Community Services	1. Director General DJCK as Chairman 2. Representative of Dir. of Water Supply 3. Representative of Dir. of Programme Development 4. Representative of Dir. of Environmental Sanitation 5. Representative of IHS 6. Representative of Ministry of Interior 7. Representative of Ministry of Health
		PARTICIPATING SCIENTIFIC INSTITUTIONS	(occasional): University of Sri Jayawardenapura	1. University of Zambia (representatives of Community Health Dept., the Technology Development Advisory Unit, and the Department of Civil Eng. 2. Chainama College of Health Sciences		Institute of Technology, Bandung
	Inter-national	UN/NON-UN	Representative of World Health Organization	World Bank Project Co-ordinator	Project Manager, UNCDF/UNDP/WHO Urban Communual Point Project	

TABLE 2: CRITERIA FOR SELECTION OF LOCATION OF DEMONSTRATION SCHEMES

CRITERIA	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
GEOGRAPHY	Contrasting provinces and districts	Flat savanna		Hilly area Coastal area Flat area
TECHNICAL/ MANAGERIAL ASPECTS	Existing water supply system	Existing water supply system	Existing water supply system	Existing water supply system and spring
SOCIO-ECONOMIC AND CULTURAL	Ethnic, religious, income pattern, and culture	Willingness of the community to participate in the project, expressed through existence of previous participation in projects (health-centre, school)	Willingness of the community to participate in the project	Urban, semi-urban, rural, homogenity, heterogenity, and main occupation
DISTANCE		Supervision from PCI's Office	Supervision from PCI's Office	Supervision from PCI's Office
DEMOGRAPHY	Population: 2000 - 5000	Density sufficient	Population 1,000 - 10,000	
COUNTERPART PROJECT	Availability of counterpart funds		- Existing counterpart scheme - Availability of supporting local institutions - Age of counterpart scheme - Other criteria (already included in counterpart scheme selection)	Availability of counter-part funds

TABLE 3: ROLE SHARING

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
INTERNATIONAL AGENCY	- UNICEF provided materials - UNDP and WHO provided technical assistance	WHO and UNDP provided advice	UNCDF, UNDP and WHO provided funds and technical assistance for earlier counterpart project	WHO and UNICEF attended Workshops. Financial support for a workshop from UNESCO
GOVERNMENT OR PUBLIC SECTOR	NWSDB and Ministry of Health provided technical assistance, community education and health/ hygiene education	- Department of Water Affairs provided technical assistance - Min. of Health provided one source of water and health education - District Councils provided 3 sources of water, technical assistance and material - Min. of Labour and Social Services provided help with organization of community participation - Univiversity of Zambia provided design of toilet	- Water Dept. provided technical assistance, materials, counterpart funds and source of water - Min. of Health provided health and hygiene education - Min. of Community Services provided organization, community education/ motivation	- Min. of Public Works through Directorate of Water Supply provided funds and materials - IHS provided technical assistance, motivation, community education - Min. of Interior provided organization, community education/motivation - Institute of Technology in Bandung provided design of windmill
PRIVATE SECTOR		- Willy Kit Company provided sanitation kits - Community farms Fringilla and VandeVente provided some pipes		
NGO	- Gramodaya Mandalaya	- Churches and foundations provided pipes, bricks and funds		
COMMUNITY	Land, labour, money and materials and decisions	Land, labour, money, materials, management and decisions	Management at operational level and money for maintenance	Land, labour, materials, meals, management and decisions
PROBLEMS	Difficulties to get counterpart funds for hard-ware from project holder	Difficulties to get counter-part funds for hardware from project holder	Money for funding activities of supporting project participating institutions	Synchronization of funding activities during construction

TABLE 4: COMMUNITY PARTICIPATION

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
BACKGROUND	Existing tradition of self-help	Existing tradition of self-help	Existing tradition of self-help	Existing tradition of self-help
GENERAL UNDERSTANDING OF COMMUNITY PARTICIPATION BEFORE PROJECT	Mobilization, particularly in construction, operation and maintenance	Mobilization, particularly in construction, operation and maintenance with emphasis on reinforcement of community initiatives	Mobilization, particularly in construction, operation and maintenance with emphasis on reinforcement of community initiatives	Mobilization, particularly in construction, operation and maintenance with emphasis on sharing responsibility in stages of development
GENERAL UNDERSTANDING OF CP AFTER PROJECT	Government agencies and communities working together in promoting community participation in planning, implementation and management of development (water supply) projects, with government agencies in a supporting role.			
APPROACH AND MEANS	- Generating felt need through direct communication between project team and communities - Utilizing existing local institutions (Gramodaya Mandalaya) - Establishment of local institution (village action committee)	- Discussing with local/community leaders of the benefits of the project through project staff - Establishment of local institutions (village water committees) - promoting awareness of benefits of community participation among local government employees	- Convincing local/community leaders of the benefits of the project through project staff - Strengthening existing institutions (Centre Water Councils)	- Generating felt need through community self-survey - Strengthening the role of local authorities - Strengthening existing community institutions in the village
COMMUNITY CONTRIBUTION	Mainly in establishing water committees, labour in construction and management in operation	In all steps of development, including location of taps, planning, construction, operation and maintenance, and establishment of water committees. Contributions for water use, maintenance and repairs.	- Operational management - Maintenance costs - Financial management	In all stages of development including location of taps, planning and programming, construction, maintenance and operation and establishment of development caders, co-operatives and caretakers

TABLE 5: TECHNICAL ASPECTS

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
TYPE OF SOURCE	Spring water	- groundwater-boreholes - river	Dams, rivers and boreholes	- 2 springs - 1 deep well - 1 City Water Enterprise
TYPE OF PIPE	galvanized iron pipe	galvanized iron	galvanized iron and PVC pipe	PVC pipe
TYPE OF STANDPOST	Encased single water tap	Uncased single water tap and encased with lifting pillar	Standard IRC design. Encased, with two or three taps with raised pillar	Encased standpost with 2 or 4 water taps
TREATMENT AND DISTRIBUTION	Water is collected in reservoir and distributed by gravity, with chlorination	Boreholes, pumped by diesel engine to water reservoir, no chlorination, complete plant (except where the source is a river)	Pumped by diesel or electrical pumps, full treatment	- 2 spring cappings, no chlorination, gravity distribution - 1 deep well, pumped by windmill, no chlorination - 1 complete plant
DRAINAGE		With drainage and soak-away drainage	With drainage and pits	With drainage and soak-away drainage
SANITATION IMPROVEMENTS	New water-seal toilet with leaching pit	New pit latrines (both VIP and the traditional type)		

TABLE 6: HEALTH AND HYGIENE EDUCATION THROUGH THE PSWS PROJECT

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
STEPS UNDERTAKEN SO FAR WITHIN THE PROJECT	- Workshops at demonstration schemes - Planning long-term health education at village level through voluntary action.	- Workshops at demonstration schemes - Utilizing existing methods and institutions - Some informal health and hygiene education through the Project Manager	- Meetings at demonstration schemes - Relating the project to existing health programme	- Direct involvement of District Health Centre in the project for training development caders - Relating the project to existing health programme
OPPORTUNITIES FOR ORGANIZING HEALTH AND HYGIENE EDUCATION THROUGH GENERAL PROGRAMMES	- Health education by volunteers - Health education by schools	- Utilizing existing methods and institutions	- Utilizing existing methods and institutions	- Utilizing existing methods and institutions

TABLE 7: SANITATION THROUGH THE PSWS PROJECT

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
APPROACH	- Through health and hygiene education - Demonstration of the appropriate model - Training of Masons	- Through informal health and hygiene education - Demonstration of the appropriate and less-appropriate models	Through health and hygiene education	Through health and hygiene education
RATE OF ADOPTION	Many people constructed their toilet according to the demonstrated latrine	Increased awareness of the advantages of the appropriate latrine, although the rate of adoption is still modest		

TABLE 8: FINANCIAL MANAGEMENT AT DEMONSTRATION SCHEME LEVEL

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
MECHANISM OF COLLECTION	being developed	Water Committee Treasurer collects money monthly	Water Committee Treasurer collects money monthly	Co-operative Treasurer collects money monthly
REMITTANCE/ BANKING		Part of it goes to providers of water sources and part is kept by treasurer for maintenance and repair	All money remitted to Government Cashier	All money is kept by the Treasurer to be loaned at interest to members to establish small businesses
RECORD KEEPING		Simple accounting system	Simple accounting system	Simple accounting system

TABLE 9: OPERATION, MAINTENANCE AND REPAIR

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
ORGANIZATION	Consumers	- Consumers - Water Committees - Tap caretakers	- Consumers - Centre Water Councils - Tap Committees	- Consumers - Official village org. - Co-operatives - Tap caretakers
REGULATION	- Free water - No specific operating hours - No specific responsibility division	- contribution to District Council ZK 2,- family/month (flat rate) - no specific operating times	- Group connections are metered - Paid water, flat rate ranging from MK 0.5 to MK 1.5 family/month - Specific operating times	- Paid water, flat rate ranging from Rp 100 to Rp 400 family/ month - Operating hours vary from area to area
MAINTENANCE AND REPAIR ARRANGEMENT	Expected to be taken over by local institution (DDC)	Repairs shared between Community and District Council	Community responsible for all maintenance costs; actual repair done by Water Agency	Responsibility of the community with technical assistance from District Water Agency
ADMINISTRATION		Treasurer of water committee maintains simple account records	Tap Committee Treasurer maintains simple account records Tap Committee Chairman reports to Water Agency	The treasurer of the co-operative maintains simple account records The head of the co-operative reports to the official village organisation

TABLE 10: TRAINING THROUGH THE PSWS PROJECT

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
TYPE OF TRAINING/ INFORMATION/ PROMOTION	- Workshop for health workers - Training volunteers - Training of caretakers	- Workshops at demonstration schemes - Opening ceremony for taps - training of caretakers	- Workshops at demonstration schemes - Training of extension workers - training of treasures	- Orientation of district and sub-district authorities - Training for trainers - Training for development caders - Training and information for communities - Evaluation and opening ceremony - Exchange visits
INSTITUTION IN CHARGE	NWSDB Ministry of Health	- Department of Water Affairs - Ministry of Health - Department of Social Development	Water Department Ministry of Community Services	- Regency Authorities - Social Welfare Division at regency level - Head of district - Village headman
TARGET GROUP/S	- Teachers of local school - Community leaders - Extension workers - Volunteers - Communities	- Extension workers - Local authorities - Community leaders - Communities	- Local authorities - Extension workers - Community leaders - Communities - Related Sectoral Officers at the district level	- Local authorities - Related Sectoral Officers at regency and district level - Selected person from the community - Individual families
SUBJECTS	- PSWS Project objectives and policy - Health and hygiene education - Simple techniques for caretakers	- PSWS Project objectives and policy - Community benefits - Community responsibilities - Government responsibilities - Operation and maintenance - Hygiene education	- PSWS Project objectives and policy - Community benefits - Community responsibilities - Government responsibilities - Operation and maintenance - Hygiene education	- PSWS Project objectives and policy - Government policy and strategy for water supply - Water and health - Pipe construction technology - Community development - Mass communication - Community self-survey - Better understanding of government-sponsored projects - Community benefits

TABLE 11: COMMUNICATION, REPORTING AND EVALUATION

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
COMMUNICATION	- Personal contacts by project staff to other institutions for promotion - International exchange visits - Video production - Slide show production	- informal communication between neighbouring villages - Personal contacts by project staff with other institutions for promotion - International exchange visits	- Personal contacts by project staff to other institutions for promotion	- Personal contacts by project staff to other institutions for promotion - International exchange visits - Mass media (television programme)
REPORTING	- Progress reports - Guidelines/manuals - papers presented at workshops/ seminars	- Progress reports - Guidelines/manuals - Papers presented at work-shops/seminars	- Progress reports - Guidelines/manuals - Papers presented at work-shops/seminars	- Progress reports - Guidelines/manuals - Papers presented at workshops/ seminars
EVALUATION	- Country project evaluated during inter-country evaluation	- Country project evaluated during inter-country evaluation		- Country project evaluated during inter-country evaluation

TABLE 12: PUBLICATIONS, VISUAL AIDS

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
PUBLICATIONS	Four guidelines dealing with procedure for promoting community participation, operation and maintenance, financial management and a caretaker's manual. Final report in preparation	A Project Overview with methodology for community participation A First Review Document Pamphlets on sanitation and on water-borne diseases Final Report in preparation	Several guidelines dealing with procedure for promoting community participation, operation and maintenance, financial management and a caretaker's manual Final Report in preparation	Eight guidelines dealing with procedure for promoting community participation, design and technology, administration, community self survey, and evaluation Two handbooks for trainers and caders Final Report in preparation
VISUAL AIDS	- Edited video film - Slide presentation with synchronized tape - Illustrated brochure - Photos	- Unedited slide film - Photos	- Slide film - Photos - Posters	- Unedited video film - Slide film - Photos

TABLE 13: INTERNATIONAL ACTIVITIES

		SRI LANKA	ZAMBIA	MALAWI	INDONESIA
IRC SPONSORED	AS ORGANIZING COUNTRY	National workshop in Sri Lanka with international participation			International workshop in Indonesia
	AS PARTICIPATING COUNTRY	- Participated in IRC International Meeting in Thailand - Participated in PSWS Workshop in Indonesia	- Participated in IRC International Meeting in Thailand - Participated in PSWS Workshop in Indonesia - visits to Malawi and Botswana - Participated in National Workshop in Sri Lanka	- Participated in IRC International Meeting in Thailand - Participated in PSWS Workshop in Sri Lanka	- Participated in IRC International Meeting in Thailand - Participated in PSWS workshop in Sri Lanka
SPONSORED BY OTHERS			- Participated in WHO/DANIDA water and sanitation workshop in Malawi	- International workshop on water and sanitation sponsored by WHO/DANIDA - Participated in workshop on National strategy for Operation and Maintenance of Rural Ground Water Supply in Malawi	- Participated in Asian Water Technology Conference in Kuala Lumpur
INTERNATIONAL EVALUATION (see also table 11)		- Participated in multi-country evaluation in Indonesia and Sri Lanka	- Participated in multi-country evaluation in Zambia	- Participated in multi country evaluation in Zambia - Review of multi country PSWS experience with Indonesia	- Participated in multi country evaluation in Sri Lanka and Indonesia - Review of multi country PSWS experience with Malawi

TABLE 14: DEGREE TO WHICH PROJECT HAS STIMULATED OTHER ACTIVITIES

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
ECONOMIC		- School gardens - Vegetable growing - Animal keeping		- Establishing fish ponds - Growing cashcrops - Money-lending cooperatives - Emergence of small scale retail trades
SOCIAL	- The establishement of community organization - Improvement of social cohesion - Improvement of water use practices	- The establishement of community organization - Improvement of social cohesion - Improvement of water use practices	- The establishement of community organization - Improvement of social cohesion - Improvement of water use practices	- The establishement of community organization - Improvement of social cohesion - Improvement of water use practices
HEALTH	-Improved hygiene practices -Improved sanitation	- Improved hygiene practices - Improved sanitation	Improved hygiene practices	Improved hygiene practices
RESOURCE MANAGEMENT	Mobilization of national resources	Mobilization of national resources	Mobilization of national resources	Mobilization of national resources

TABLE 15: FOLLOW UP

	SRI LANKA	ZAMBIA	MALAWI	INDONESIA
NEW DEMONSTRATION PROJECTS	Application of PSWS approach in larger projects		- Testing of PSWS approach in counterpart project areas in all three regions (results still being monitored) - Development of a project with a wider scope	New PSWS Demonstration Schemes in nine locations (different regions)
SCOPE	Possible emphasis on rehabilitation	Broadened to include other types of piped supplies for small communities (communal taps, yard connections, house connections)	Broadened to include other types of piped supplies for small communities (communal taps, yard connections, house connections)	Application of PSWS approach to full scale projects/wider scope (housing sector)
TECHNOLOGY				Possible application of slow sand filtration
INFORMATION EXCHANGE	- National workshop/ seminar - International workshop/seminar	- National workshop/ seminar - International workshop/ seminar	- National workshop/ seminar - International workshop/ seminar	- National workshop/seminar - International workshop/ seminar - Documentation and information assembly
EXTENT OF FINANCIAL SUPPORT REQUIRED	Partial support	Full support	Full support	Partial support

APPENDIX B

PSWS PROJECT STAFF AND INSTITUTIONS

TAKING PART

Indonesia

Project Staff:

Ir. S.M. Ritonga	- Project Manager (1984 onwards)
Mr. S. Djauhari	- Project Manager (1983/84)
Mr. A. Parwoto	- Project Officer

Co-ordinating Institution:

Institute of Human Settlements,
Agency for Research and Development of Public Works,
Jalan Tamansari 84
Tromol Pos 15
Bandung, Indonesia

telephone: Bandung 81082/81083
telex : 28327 DBR BD IA
cable : REHOCE BDR

Paticipating Institutions:

Cipta Karya (Directorate General of Human Settlements, Ministry of Public Works)
Ministry of Health
Ministry of Interior
Institute of Technology, Bandung

Malawi

Project Staff:

Mr. F. Kwaule	- Project Officer (MoWS)
Mr. D.T. Nyasulu	- Project Liaison Officer (MoH)
Mr. I.Z. Nkunika	- Project Liaison Officer (MoCS)
Ms. R. Banda	- Field Assistant
Mr. S. Mlelemba	- Field Assistant
Mr. C. Manjawila	- Field Assistant

Co-ordinating Institution:

Water Department,
Ministry of Works and Supplies
Tikwere House
Private Bag 390
Lilongwe 3
Malawi

telephone: Lilongwe 732155
telex : WORKS MI
cable : LAVAWATER LLW

Participating Institutions:

Minsitry of Health (MoH)
Ministry of Community Services (MoCS)

Sri Lanka

Project Staff:

Mr. S.J.P. Wijegoonewardene	- Project Manager (NWSDB)
Mr. P.M.R. Pathiraja	- Project Manager (NWSDB) (1983/84)
Mr. W.A.N. Weerasinghe	- Project Manager (NWSDB) (1984/85)
Mr. H.I. Karunadasa	- Project Officer (MoH)

Co-ordinating Institutions:

National Water Supply and Drainage Board,
Galle Road,
P.O. Box 14
Ratmalana
Sri Lanka

telephone: Ratmalana 715887/714631/715281/2/3
telex : 21482 NWSDB CE
cable : WATERBOARD RATMALANA

Participating Institutions:

Ministry of Health

Zambia

Project Staff:

Mr. M.K. Chimuka	- Project Manager (MoH)
Mr. D.M. Kabumu	- Project Engineer (DWA)
Mr. K.L. Kamalata	- Project Support Officer (DSB)
Mr. J. Malama	- Project Technician (DWA) (1984)

Co-ordinating Institution:

Department of Water Affairs,
Ministry of Agriculture and Water Development
Mulungushi House,
P.O. Box 50288
Ridgeway
Lusaka
Zambia

telephone: Lusaka 215281
telex : 43950 ZA
cable : ZAMWATER LUSAKA

Participating Institutions:

Ministry of Health
Ministry of Labour and Social Services
(Department of Social Department)
University of Zambia

APPENDIX C

LIST OF WRITTEN OUTPUT FROM

PARTICIPATING COUNTRIES

1. INDONESIA

In Bahasa Indonesia:

(1) Buku Pentunjuk Pelaksanaan Studi Kelayakan Utk Penyediaan Air Bersih Melalui Kran Umum Pada Proyek Sekala Kecil (Guideline for Feasibility Study for Public Standpost Water Supply), January 1984

(2) Buku Petunjuk Perencanaan Teknik Kran Umum (Guideline for Designing Public Standpost Water Supply), 1st ed. 1984, 2nd ed. 1985, 3rd ed. 1986

(3) Buku Petunjuk Teknik Pelaksanaan Kran Umum (Technical Guidelines for Construction PSWS), various editions 1984-1986

(4) Buku Petunjuk Umum Pengelolaan Kran Umum (Guidelines for Operation and Maintenance PSWS), various editions 1984-1986

(5) Pedoman Merencanakan Dan Melak Sanakan Survai Kampung Sendiri (Guidelines for Community Self Survey), various editions 1984-1986

(6) Langkah Langkah Menumbuhkan Partisipasi Dearah (Guidelines for Generating Local Participation)

(7) Buku Petunjuk Latihan Pelatih Dan Kader (Guidelines for Training for the Trainer and Cadre)

(8) Buku Petunjuk Pelatih/Fasilitator Kader Pembangunan Desa Bidan Air Bersih (Guideline for Facilitator/Trainer)

(9) Buku Petunjuk Kader Pembengunan Desa Bidang Air Bersih (Guideline for Cadre)

(10) Buku Pedoman Evaluasi Proyek PSWS (Guideline for Internal Evaluation PSWS Project), January 1986

(11) Laporan Temukarya Evaluasi Proyek Demonstrasi Kran Umum (Workshop Report of Evaluation Demonstration PSWS Project) January 1986

(12) Penyediaan Air Bersih Melalui Kran Umum Desa Playangan (Water Supply System at Playangan), January 1986

(13) Penyediaan Air Bersih Melalui Kran Umum Desa Gumulung Tonggoh (Water Supply System at Gumulung Tonggoh), January 1986

(14) Penyediaan Air Bersih Melalui Kran Umum Desa Karyamulia (Water Supply System at Karyamulia), January 1986

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