1984

TANZANIA SWEDEN

HESAWA

LAKE REGIONS

PRINCIPLES AND PROCEDURES FOR COMMUNITY PARTICIPATION, HEALTH EDUCATION AND SANITATION

CONTENTS PAGE

	PREFACE	1
1.	INTRODUCTION	2
1.1	Background	2
1.2	The Pre-study	3
2.	THE MAGNITUDE OF THE PROBLEM	3
2.1	General	3
2.2	Large-scale Well and Handpump Programme	3
2.3	An Improved-Latrine-For-All-Programme	6
2.4	Health Education Programme in All Villages with New Water Supply	7
3.	OBJECTIVES AND PRE-CONDITIONS FOR VILLAGE PARTICIPATION	8
3.1	Overall Objectives for Village Participation	8
3.2	Pre-conditions for Village Participation	8
4.	BASIC POLICY ISSUES AGREED UPON	9
5.	RECOMMENDATIONS FOR COMMUNITY PARTICIPATION, SANITATION AND HEALTH EDUCATION	10
5.1	Organization for Village Participation - General Level	10
5.2	Village Level Organization	12
5.3	Village Selection	12
5.4	Village Contribution to Construction	12
5.5	Village Contribution to Operation & Maintenance	13
5.6	Village Participation in Planning	13
5.7	Sanitation	13
5.8	Health Education	14

		PAGE
6.	PROCEDURES FOR VILLAGE PARTICIPATION	14
6.1	Some Basic Assumptions	14
6.2	A Model for Implementation	15
6.3	Programming and Timing of Activities	18
6.4	Monitoring and Evaluation	20
7.	INSTITUTIONS WITH A POTENTIAL SUPPORTING AND COMPLEMENTARY ROLE AND PROJECTS WITH RELEVANT EXPERIENCE	20
8.	BIBLIOGRAPHY	23
Annex 1	TERMS OF REFERENCE	25
Annex 2	ITINERARY LIST OF PERSONS CONTACTED AND PROJECT VILLAGES VISITED	26
Annex 3	EXPERIENCE FROM IMPLEMENTATION PROGRAMMES IN OTHER REGIONS	30
	Shinyanga	
	Morogoro	
	Mtwara - Lindi	
	Iringa - Mbeya - Ruvuma	
	Rukwa - Kigoma	
	Singida	
Annex 4	FLOW SHEETS. SHALLOW WELLS SITE INVESTIGATION	43

ABBREVIATIONS, ACRONYMS AND SWAHILI WORDS

AFYA	Ministry of National Health
Balozi	Ten-Cell Leader
CDR	Centre of Development Research, Copenhagen
DCDO	District Community Development Officer
DWE	District Water Engineer
Fundi	Craftsman
IRA	Institute of Resource Assessment, University of Dar es Salaam
IRA	International Reference Centre for Community Water Supply and Sanitation, the Hague
MAENDELEO	Community Development Department
MAJI	Ministry of Water and Energy
PMO	Prime Minister's Office
RCDO	Regional Community Development Officer
RDD	Regional Development Director
RHO	Regional Health Officer
RMO	Regional Medical Officer
SIDA	Swedish International Development Authority
VIP	Ventilated Improved Pit Latrines
WMPCU	Water Master Planning Coordination Unit

PREFACE

The draft version of this Report has been presented and discussed in a series of meetings held during the Joint Swedish-Tanzanian Rural Water and Health Sector Review Mission, February 1984. In meetings, February 17 and 18, in Mwanza, the recommendations of the Report were thoroughly discussed with the members of the Joint Review Team representing AFYA, MAJI, PMO and SIDA and regional representatives from Mara Region. On February 20 the Report was discussed in the 5th meeting of the Steering Committee for the Rural Water Supply, Sanitation and Health Education Programme in the Lake Regions. On February 22 the essentials of the Report were presented to regional and district staff representing AFYA, MAENDELEO and MAJI in a meeting at RDD's Office in Mwanza. The Report has, furthermore, been circulated for comments among the Ministries concerned. In the present version of the Report, relevant comments have been incorporated and amendments have been made accordingly.

The situation today in Tanzania with respect to community participation in rural water supply, sanitation and health education can be characterized as highly dynamic. The emphasis is on developing workable approaches. Various studies have been conducted and pilot projects have been carried out in different parts of the country. It is of utmost importance to coordinate all these various efforts to arrive at procedures which, with due local adaptions, have a common applicability in the country.

In this Report is has been the explicit intention to align the recommended policies with work already done in the country and principles put into practice in the various pilot projects. Indebtness is particularly expressed to the IRA/CDR and the PMO/IRC Studies (IRA/CDR, 1983, PMO/IRC, 1983).

INTRODUCTION

1.1 Background

In March 1982 an Agreement was reached between SIDA and the Government of Tanzania on the principles for the concentrated Swedish support to the Rural Water Supply Programme in the Lake Regions (Kagera, Musoma and Mwanza). Following this Agreement an Implementation Programme has been formulated which is to be initiated during 1983/84. The Implementation Programme is based on the Implementation Plans (VIAK, 1981) of the Regional Water Master Plans for the Lake Regions (Brokonsult AB 1978).

In the Agreement of March 1982, the long-term objectives for the Rural Water Supply Programme were stated to be:

- To gradually transfer responsibility from the Government to the consumers (villages) for constructing, operating and maintaining their water supply scheme.[1)]
- To increase the knowledge and awareness among the rural population of the linkage between better health and improvements in safe water provision, hygiene and sanitation.
- To reduce Tanzania's dependence of external aid in the field of rural water development.
- To apply technical and administrative solutions that facilitate local participation and minimize the costs, particularly in terms of foreign currency, for operation and maintenance.
- It is envisaged that a development towards self-reliance will be completed in about five years time and need for expatriate personnel would be eliminated followed by a second stage during which the external financial assistance will be phased out.

The short-term objectives for the Programme were formulated as follows:

- Rehabilitation of existing rural water supply schemes
- Completion of ongoing works
- Improvements in the functions of operation and maintenance
- Increased utilization of cost effective systems and methods in both the technical and administrative areas
- Initiation of activities aiming at increased local participation and awareness of hygiene and sanitation requirements for improved health conditions
- New construction for basic water supply with priority given to identified "crisis villages"

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1) This should be understood in terms of shared responsibility, Government/Village, through participation.

In order to meet these objectives particular emphasis will have to be given to Community Participation, Health Education and Sanitation in the Programme. In terms of principles to be followed, organization, manpower and finance detailed plans will have to be worked out in which regional and local conditions are given due consideration. Furthermore, all parties involved in the implementation of the Programme, i.e. The Donor, the Regions, Ministries and other Government Agencies concerned, must commit themselves in practical and concrete terms for the long-term efforts required to fulfil the task on which agreement has been reached.

1.2 The Pre-Study

In the Implementation Plans (1981) general recommendations were given concerning Community Participation, Health Education and Sanitation. For the Implementation Programme, however, it was considered that a more detailed Action plan should be worked out. In February 1983 SIDA therefore approached Water Master Planning Institute of Resource Assessment (IRA), University of Dar es Salaam with a request for a pre-study on how to integrate Community Participation, Health Education and Sanitation in the Water Supply Programme for the Lake Regions and to prepare a report, summarizing findings and making recommendations as appropriate for the implementation of the integrated programme (ToR for the Study, Annex 1). Following affirmative responses of WMPCU and IRA on the SIDA request the study was initiated in August 1982 (Itinerary and ToR, Annex 1 & 2). The study team consisted of Mr. Ingvar Andersson, IRA, and Mr. Per Brandström and Mr. Damas Shirima, WMPCU.

THE MAGNITUDE OF THE PROBLEM

2.1 General

For realistic planning the magnitude of the task must be understood. To embark on regional projects aiming at an overall improvement for a large population is both costly and time consuming. The following discussion is based on the proposals as put forward in the Implementation Plan (1981) and provides an illustration of the magnitude of the problem.

2.2 A Large Scale Well and Handpump Programme

The rural population in the three Lake Regions is at present about 3,3 million people. Assuming a 2,5 % annual growth rate, the population to be supplied with improved water in rural areas will be around 5,1 million by year 2000 (compare table 1).

In the Implementation Plan emphasis is placed on construction of shallow and medium depth wells equipped with handpumps as the appropriate technology for rural water supplies.

Mwanza Region is here used as an illustration of the proposed development, but the discussion is valid also for Kagera and Mara Region.

The rural population of Mwanza Region now stands at roughly 1,5 million (compare fig. 1, graph a). By year 2000 it will reach 2,2 million. Not all areas can, however, be supplied by wells due to a

	Rural Population (000)			Nos of villages	Average village population	Nos of rural households (000)	Nos of households per village	Average household size
	1978 (1)	1983 (2)	2000 (2)	1978 (1)	1978 (1)	1978 (1)	(1978) (1)	1978 (1)
Kagera	976	1 104	1 680	455	2 150	216	475	4.5
Mwanza	1 295	1 465	2 230	630	2 050	208	330	6.2
Mara	679	768	1 169	340	2 000	106	310	6.4
Total in Lake Regions	2 950	3 337	5 079	1 425	$\bar{x}$ = 2 070	530		

Table 1 Lake Regions

Population statistics

(1) 1978 census
(2) 2.5 % annual growth rate

number of constraints. At least 20 % of the population must get water by other means due to unavailability of ground-water, high salinity and flouride etc. (graph b, fig. 1).

To achieve any health benefits it is generally agreed that there must be a sufficient number of supply points in the village - 250 people per well is the most quoted figure.

The Implementation Plan recommends an output of 400 wells and hand pumps per year for Mwanza. A very ambitious production target considering that much of the work is supposed to be done on self help basis. No other well-project in Tanzania has as a matter of fact reached such level of production. Best results have been reported from Mtwara/Lindi where a highly mechanized project supervised by a lagre number of expatriates (between 15 to 20) anually installs between 300-400 pumps.

The number of people to be supplied through wells and handpumps in Mwanza Region is given in fig. 1 as graph c (400 x 250 = 100.000 people/year). About year 2000 80 % of the rural population will be supplied. After this there is a need for another 150-200 wells/year to cope with the population growth alone. In all 6.800 wells must be drilled or dug to satisfy the demand for improved water and if we also consider the need for replacement of worn-out pumps more than 10.000 new pumps are required under the Programme.

A normal size village must have 8-9 pumps conveniently located to provide acceptable coverage and accessibility. Thus if the 400-wells-per-year target is maintained 40-50 villages must be supplied annually.

Recent cost estimates from Mwanza indicate that the cost per well and handpump is close to TAS 30.000. The total cost for the programme for Mwanza Region only will be around TAS 200 million (not considering rate of interest, inflation etc).

2.3 An Improved-Latrine-for-all Programme

The estimated coverage of latrines in rural areas of the Lake Region is given in table 2 below

	Coverage acc. to 1978 census			Coverage as estimated by
	Own %	Shared %	None %	health authorities %
Kagera	75	9,5	15,5	60
Mwanza	75	7,5	17,5	75
Mara	68	8,5	23,5	45

Table 2 Lake Regions

Latrine coverage

The coverage as estimated by the regional health authorities probably gives the most realistic figure.

The standard of the latrines is generally very poor. The pit is shallow and easily caves in. The slab made of poles and mud is eaten by termites. The latrine has often no roof and the walls are built of mud and wattle or straw. Often the latrines collapse early in the rainy season and are normally not repaired till after the rains have finished. Many villagers complain that they have to rebuild their latrine every year.

It is difficult to estimate to what extent the latrines are used but there is a great probability that the actual usage is much lower than the coverage indicated in table 2.

Expectations of improved latrine standards must be related to present housing conditions in the rural areas in the various regions. (Compare table 3). One can hardly expect people to invest money and improve latrines to a standard higher than that of their homes

	Improved walls 1) %	Improved roof 2) %
Kagera	5	43
Mwanza	3	17
Mara	3	17

Table 3 Some indicators of housing standard in Lake Regions (Source: 1978 population census, vol. VI)

1) Walls of burnt bricks or cement blocks
2) Roof of corrugated iron, burnt bricks etc.

To achieve the expected health benefits the overall standard of the latrines must improve. Given the poor present conditions almost all households have to be involved in latrine improvements. To indicate the magnitude of the undertaking the numbers of households in the three Lake Regions are given in table 1. More than 500.000 households will be affected and due to beliefs, taboos etc many households need more than one latrine to ensure a proper use.

The task to proved improved sanitation to the rural population is enormous. Some project (eg. Wangingõmbe) have a small subsidy to allow the villagers to get a lined pit and cover of good quality. Even if the subsidy is kept very low, eg. TAS 200 per unit as for Wangingõmbe (overheads not included), the total cost for Mwanza Region only would amount to about TAS 40 million (at today's prices)

The conclusion must be that there is little room for subsidy in a large scale latrine programme. An alternative strategy would be to support a revolving fund to allow the villagers to buy basic inputs like cement and reinforcement bars. If the latrine programme is supposed to keep pace with the waterproject there is a need for improved latrines in 40-50 villages/year in Mwanza alone.

2.4 Health Education Programme in All Villages with New Water Supply

There is a need for health education programmes in each village with improved water supply to ensure that the message about the linkage water-sanitation-health is transmitted to the individual households. To illustrate the magnitude reference is again made to table 1 and the numbers of villages in the various regions to be included. To keep pace with the rural water supply programme in Mwanza Region health education programmes should be launched in between 40 to 50 villages each year.

3. OBJECTIVES AND PRE-CONDITIONS FOR VILLAGES PARTICIPATION

3.1 Objectives for Village Participation

The overall objectives of village participation is to gradually increase the responsibility of the villages/consumers for constructing, operating and maintaining their water supply schemes and to increase the level of knowledge and awareness among the villagers of the linkeage between better health and improvements in safe water provision, hygiene and sanitation.

In order to meet these objectives, measures should be taken to enable each village to plan, build, operate and maintain improved water supplies with a minimum of assistance. Similarly health education and sanitatary improvements should be promoted with a minimum of outside assistance, using village participation to ensure sustained village interest and efforts in improvements of health conditions in the community.

These objectives should be understood in the context of the Tanzanian policy of self-reliance, which aims at improving the living conditions in the rural areas through the mobilization of the people towards increased local initiative and responsibility for village undertakings.

More narrowly defined, however, the objectives of village participation in water supply and sanitation programmes particularly, aim at achieving results which can be expressed in terms of the following:

CONVENIENCE - reduced time and effort of fetching water resulting in less drudgery particularly for the women.

HEALTH - reduced numbers of deaths and episodes of sickness caused by specific diseases such as gastro-enteritis, diarrhoea, typhoid, cholera, dysentery, shistosomiasis, worms, trachoma, scabies etc.

ECONOMIC ASPECTS - more time for productive activities by making water readily available and by reducing the number of working days lost due to sickness; increased cost efficiency of the water schemes due to raised village capability of caring for the operation and maintenance of the schemes.

EDUCATIONAL ASPECTS - raised village organizational capability for other development efforts by experience gained through participation in the entire programme cycle of planning, implementing and running of rural water supply and sanitation programmes.

3.2 Pre-conditions for Village Participation

A necessary condition for soliciting village response and participation is that the need for particular improvements is strongly felt among the villagers. Thus for village participation in water supply, health education and sanitation, it is necessary to ensure that:

- The water scheme and its service level is in accordance with the expressed needs of the community.
- The need is so strongly felt that the community is willing to contribute significantly in cash and in kind to construction, operation and maintenance of the scheme.

- Health and sanitation measures are directed towards proble recognized by the villagers.

- Health and sanitation measures proposed are affordable an acceptable to the community.

- Health education is directed toward all layers of the community.

- Promotion work is carried out in order to make the villagers fully aware of both their right and their obligations before any construction activities start in the village.

- The level of technology is such that it maximizes the options for participation (construction, operation and maintenance).

4. BASIC POLICY ISSUES AGREED UPON

In the Agreed Minutes of April 27, 1983, between SIDA, PMO and MAJI, som basic policy jssues concerning the Rural Water Supply and Sanitation Programme in the tree Lake Regions were agreen upon. It is stated in the minutes:

> A common policy in regard to the village participation, coordination with the health sector, etc is required for all the three regions. Such a policy shall guide the implementation work and will apply to all activities within the Programme irrespective of source of financing

The policy issues outlined in the document are as follows:

(i) Ownership of village water supply schemes

For all schemes to be constructed or rehabilitated under the Programme the village will be regarded as the principal owner of its water supply scheme.

(ii) Village contribution to operation and maintenance

The principal responsibility for the schemes, including the cost of operation and maintenance will rest with the village. The offices of RWE and DWE will provide the villages the necessary technical backstopping and supply services. The costs of the services shall gradually be taken over by the villages.

(iii) Selection of villages

The selection of schemes to be constructed or rehabilitated shall be based on the willingness of the villagers to contribute to the construction cost either in cash or in kind.

(iv) Level of contribution

In determining of extent of the contributions the Programme shall adopt the general policy concept guiding the RIDEP Shallow Well Programme in Mwanza. For the two main types of

water supply schemes this will mean:

Wells with handpumps - A cash contribution for all wells to be constructed under the Programme with the exception of a number of demonstration wells to be provided free of charge to the villages.
Piped schemes - A contribution in cash and in kind shall be agreed upon and confirmed in a contract between the village(s) and the RWE's office.

(v) Water for livestock

SIDA resources shall only be used for the construction of dams for watering of livestock under the condition that the beneficiaries of such sources pay the full cost of construction.

(vi) Improved hygiene and sanitation

In order to ensure the optimum benefits of clean water to the rural population, promotion activities aimed at increased awareness of hygiene and sanitary requirements shall be carried out on a priority basis.

The policies above thus constitute general guidelines to be followed in the implementation of community participation, health education and sanitation activities under the Rural Water Supply, Sanitation and Health Education Programme. However, there is a need of detailed and explicit proposals as how to operationalize the general guidelines and adapt them to local conditions.

5. RECOMMENDATIONS FOR COMMUNITY PARTICIPATION, SANITATION AND HEALTH EDUCATION[1)]

5.1 Organization for Village Participation - Regional/District Level

5.1.1 AFYA, MAENDELEO and MAJI (regional level) should be responsible respectively for health, participatory and technical aspects in the Implementation Programme.

5.1.2 Other relevant departments such as KILIMO, MIFUGO and ARDHI should be involved and consulted in the planning and implementation of the village water projects.

5.1.3 At regional and district levels AFYA, MAENDELEO, MAJI and MIPANGO (Planning Officer) should form a worktask committee for the coordination of the water related programme activities with RCDO/DCDO as chairman and RWE/DWE as secretary (fig. 1).

5.1.4 A Promotion Coordinator for village participation in water related activities should be recruited for the Implementation Programme. He/she shall support and coordinate community participation, sanitation and health education activities in the Programme in all the three regions. The Promotion Coordinator shall develop workable

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1) The Party has the leading role in the mobilization of the people. The recommendations are therefore given under the assumption that the Party is rightly involved in the programme activities at all relevant administrative levels, region to village.

PROPOSED ORGANIZATIONAL STRUCTURE FOR COMMUNITY PARTICIPATION, SANITATION AND HEALTH EDUCATION PROGRAMME ACTIVITIES (SIMPLIFIED)

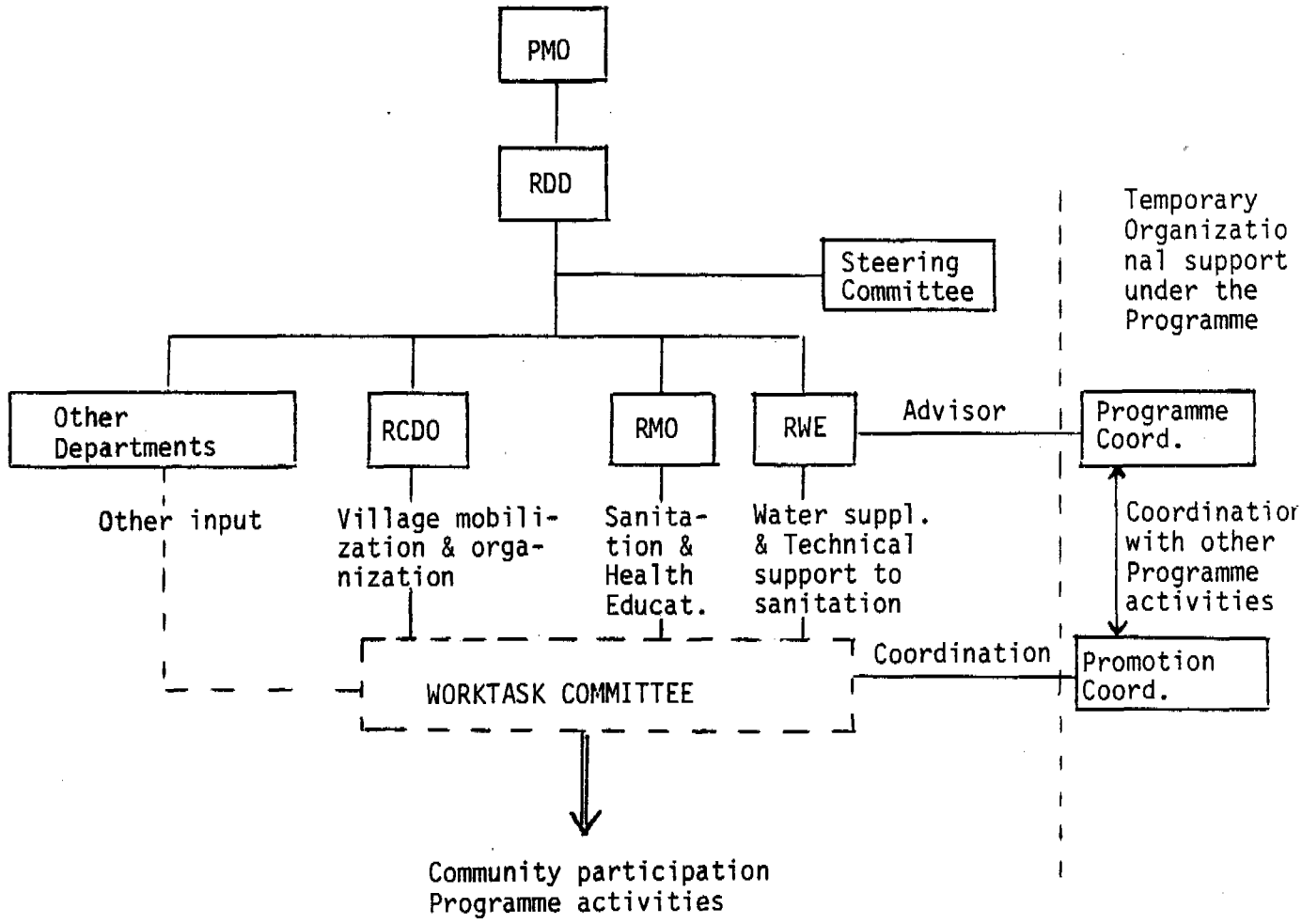

Fig. 1

routines, monitoring and evaluation procedures and action plans for the implementation of the water related activities, propose appropriate training programmes for relevant staff and in cooperation with authorities concerned plan and initiate pilot activities decided upon within the programme (fig. 1).

5.1.5 In order to strengthen the participatory aspects in the Programme certain MAENDELEO personnel will be given special responsibility for promotional activities.

5.2 Village Level Organization

5.2.1 For the smooth running of the water scheme and the integration of sanitation and health education aspects a sub-committee (Village Water and Sanitation Committee) under the committee for Education, Culture and Social Welfare should be formed when a project is initiated in the village. At least two women should be represented on this sub-committee.

5.2.2 Two schemes attendants (preferably one man and one woman) should be elected by the Village Government. The candidates should be well established villagers, likely to remain in the village. The scheme attendants will be responsible for preventive maintenance and repair-work of the water installations.

5.2.3 One caretaker for each supply point (hand pump, well domestic point) should be chosen by the balozis among the households close to the supply point. The caretaker will be responsible for the proper use of the installation and the hygienic conditions of the surroundings.

5.3 Village Selection

5.3.1 Preference in the selection of villages for water projects should be given to villages with a proven willingness to contribute to their projects in any kind.

5.3.2 Among villages with proven willingness to contribute those villages defined as "crisis villages" should be given first priority.

5.3.3 In villages with insufficient organizational and/or economic capability to meet the above conditions, motivational campaigns and supplementary programmes to increase leadership skills and village income should be initiated.

5.3.4 For efficient utilization of resourses, implementation should to the extent possible be concentrated in a few geographical areas at a time.

5.4 Village Contribution to Construction

5.4.1 All unskilled labour in connection with construction work shall be provided by the villagers on self-help basis.

5.4.2 For wells: the villagers shall, where necessary, contribute in cash to part of the construction costs, i.e. part of the cost of the handpumps[1]. The cash contribution shall be made prior to construction.

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1) In the Agreed Minutes of April 27, 1983 (section 4:iv in this Report) and in the 3rd Steering Committee Meeting of August 1, 1983, in Mwanza, it has been agreed that the general policy concept guiding the RIDEP Shallow Well Project in Mwanza, shall be adopted in the Programme for the tree Lake Regions. The level of contribution will, however, be decided by respective region.

For piped supplies: the villagers shall contribute in cash and/or in kind. This shall be agreed upon and confirmed in a contract between the village(s) and the RWE's office.

5.4.3 To attain a good coverage, the level of contribution must be such that it is affordable to the villagers.

5.4.4 RWE shall supervise and coordinate the construction work and be responsible for the provision of all equipment and material required.

5.4.5 A formal agreement should be reached between RWE and the village stating the division of responsibilities between the two parties.

5.4.6 After the completion of the construction a certificate of ownership should be issued to the village. Before handing over. RWE and representatives of the village should inspect the installation, to ensure that the work is of acceptable standard to both parties.

5.5 Village Contribution to Operation & Maintenance

5.5.1 The villagers should contribute to the cost of operating the village water supply (attendants, fuel, electricity etc). If the same scheme supplies several villages, the cost of operation should be divided between the villages in accordance with supply level.

5.5.2 The villagers should maintain the water supply within the village boundaries. On wells this includes all handpumps and aprons. On piped water supplies this includes all installations from tap to tank. RWE should assist the villagers with major repairs.

5.5.3 RWE should assist the village by executing and paying the cost for remaining maintenance tasks, e.g. maintenance of the substructure of wells and boreholes, mainlines, storage and break pressure tanks, major repairs of motorized pumps. RWE should also carry out regular inspections of the installation and water quality testing.

5.5.4 Spare parts for handpumps and pipes and fittings for village distribution systems should be stocked at district level (DWE), from where they can be bought by the users at full cost price.

5.6 Village Participation in Planning

5.6.1 The village should participate in the selection of water sources and siting of supply points to ensure that the scheme is adopted to local conditions and settlement patterns. This should be done subject to technical, economic, social and environmental constraints.

5.6.2 RWE should support and advise the village in the planning to ensure an acceptable level of service and a sufficient coverage (number of supply points, hand pumps, water quality etc).

5.7 Sanitation

5.7.1 Promotion acitivities for improved sanitation should be initiated at the planning stage of the village water project.

5.7.2 Promotion acitivities should aim at attaining a full coverage of latrines in the village i.e. at least one latrine per household.

5.7.3 Village health education campaigns should be launched to promote the proper use of latrines and improved personal hygiene.

5.7.4 Efforts should be made to develop and uppgrade existing latrine types.

5.7.5 To promote a good future latrine standard demonstration latrines (VIP) should be built in the project villages. The siting of these demonstration latrines will be decided by the village.

5.7.6 RHO assisted by RWE should be responsible for the construction of the demonstration latrines. RWE's involvement in the technical side of latrine improvement should complement the promotional and educational work which is done by AFYA. Villagers should participate in the construction of these latrines in order to learn how to build similar ones.

5.7.7 Material for the demonstration latrines will be provided free of charge by RWE.

5.7.8 Subsidies to latrine construction for individual household might be necessary. Forms of subsidies cannot be decided upon, till models of improved latrines, which are hygienic, affordable, maintainable and acceptable to the users, have been studied within the Programme.

5.8 Health Education

5.8.1 Promotion activities for improved health education should be initiated at the planning stage of the village water project.

5.8.2 Village health education is supposed to be a continuous process under the primary health care programme. However, in connection with the introduction of the Rural Water Supply and Sanitation Programme, there is a need of intensified educational efforts directed particularly towards water and excreta related diseases.

5.8.3 For the Programme an educational package (water, sanitation and health) should be developed containing teaching aids, booklets, pamphlets, posters etc. to be used in discussion groups, adult education classes and primary schools.

5.8.4 Local resources (Village Health Workers, RMA's Environmental Health Assistants, Primary School Teachers etc) should be mobilized to the extent possible, supported by the Programme and supervised by AFYA (Region/District).

6. PROCEDURES FOR VILLAGE PARTICIPATION

6.1 Some Basic Assumptions

- The existence of human settlement implies that some form of water supply is available.

- The development of water supply should aim at finding an optimal design for each individual village. It should not be taken for granted that the most appropriate technical solution always is shallow wells and handpumps.

- A village water project should not only provide water for domestic use but should also consider water for economic uses such as livestock and irrigation.

- When new technologies are introduced in a village, it is important to understand advantages and shortcomings of exisiting traditional methods. The new ideas must from the consumers' point of view have obvious advantages compared to old techniques.

- Shallow ground water resources are generally well known and already utilized by the villagers.

- Most villages have several traditional sources (permanent and/or seasonal) in use which have been modified by man in one form or another.

- There exist local skills which can be utilized to improve traditional sources without major input from outside.

- In villages which have been provided with "improved" water supplies, traditional sources are still in use due to insufficient coverage and poor reliability.

- Health education can have considerable inpact on water-use habits provided that educational efforts are sustained over time and combined with improved water supply and sanitation.

6.2 A Model for Implementation

The model for implementation is presented as a flow chart (se following page).
The different steps on the flow chart are elaborated below:

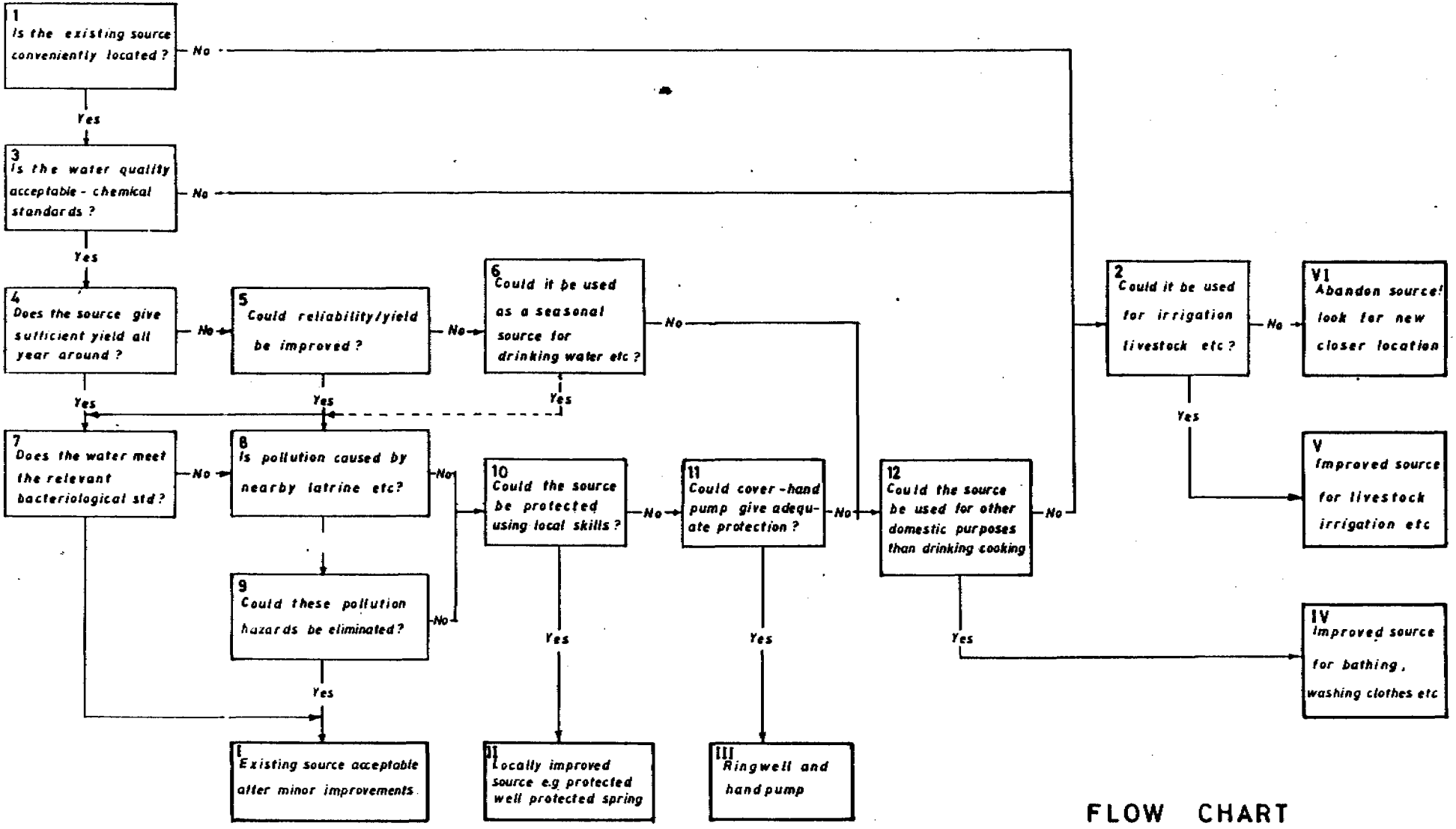
Step 1: Convenience (accessability) is considered to be of extreme importance if a source is supposed to be in use permanently, in all seasons. If it is not conveniently located, new sites should be explored. Medium, deep boreholes or other technologies might be considered.

Step 2: A source far away and/or of poor quality could be used for non-domestic purposes such as water for livestock or irrigation. Only if the source is of very poor quality and of no use, should it be abandoned and use prohibited.

Step 3: There is a risk of high flouride and/or conductivity in certain areas of the Lake Regions. A chemical test must be carried out already at an early stage of the investigation. The check can be made on the spot by means of a field kit. Water found unsuitable for domestic use should be considered for other purposes.

Step 4: Reliability of the source is very important if any health benefits are to be achieved. The consumers must have water of fair quality at any given time and in sufficient quantities.

Step 5: If the yield is not sufficient, possibilities to improve the source should be explored - make it deeper? arrange storage?



FLOW CHART

STRATEGY FOR IMPROVING RURAL WATER SUPPLIES

Step 6: If the source dries up during the dry season the possibility of using it as a seasonal source for domestic use should be considered. There is a need for an improved wet season source if other sources are far away. Alternative uses for washing and bathing could be considered.

Step 7: The bacteriological standards as specified in Tanzanian legislation are difficult to meet. In fact very few rural water supplies in the country are up to standard. A realistic criteria on acceptable level of bacteriological pollution must be set. Completely safe water is hardly possible to supply. Experience of treatment plants even if small-scale, is not encouraging and for a foreseeable future the rural population has to use water containing organic matter of varying degree. Pollution can, however, be prevented and efforts should be made to eliminate contamination as far as possible.

Step 8: Pollution caused by poor environmental sanitation can often be prevented. Knowledge of existing ground conditions is essential to determine the risk-zone for contamination.

Step 9: Some pollution can be eliminated. A dirty cattle pool can be filled up if alternative sites for watering can be used. Instead of pit latrines other techniques with less risk of leakage can be applied.

Step 10: Local know-how, skills and materials should be considered before more expensive techniques are applied. A well can be provided with a waterproof lining for the top few metres. Construction of head walls, drainage apron and soakaway will lower the risk of dirty surface water running into the well. Pulley and windlass could be introduced on an experimental basis. Removeable covers could further eliminate the hazards. Local fundis are often available in form of masons or bricklayers. The practice of making burnt bricks is common in some areas and lining must not necessarily be of concrete. Additional materials like cement, reinforcement bars etc, can be provided by the projects as well as supervision, but the actual work should be done by the villagers.

Step 11: A safe way to protect a shallow well is by installing a handpump on a covered well. To eliminate the pollution hazards the workmanship must be of good standard and input from outside is crucial. There is thus less possibility for participation. Assistance is required to keep it in running condition (spare parts, tools, transport, etc).

Step 12: In cases where not even a protected well with handpump is considered sufficient to prevent contamination, the possibility for the source to be used for purposes other than cooking and drinking should be considered. It could be used, for example for washing and bathing. Various improvements could be considered here, for instance washing slabs and shelter/cabin for bathing to provide privacy. If no domestic use can be recommended, the source should be considered for non-domestic uses or the search for a better alternative continue.

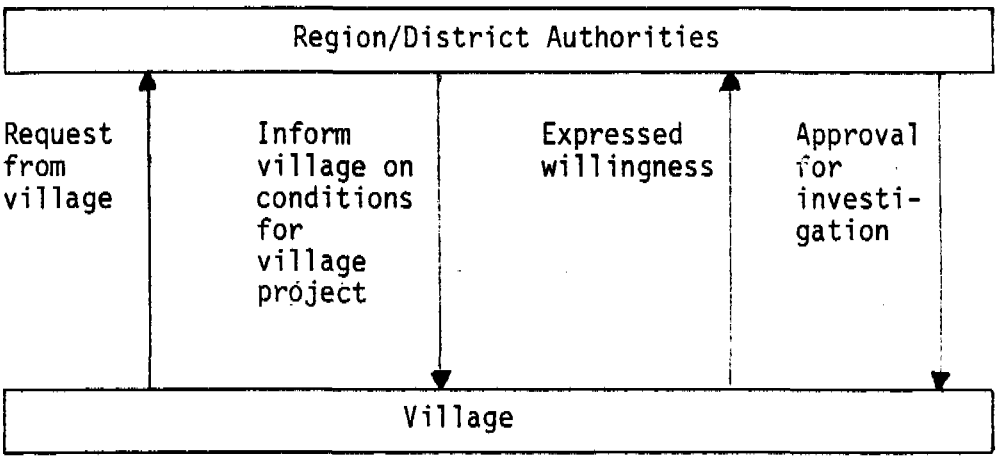
In the continued search for location of supply points, the priorities in choice of technology set out below should be followed:

1. Handdug lined shallow ringwells with or without handpump.
2. Handdrilled well with handpump.
3. Machine-drilled well with handpump (medium depth well).
4. Other technologies - gravity, hydram etc.

The flow sheet for Shallow Wells site investigation as developed by DHV (see Annex 4) can be of great value in the search for the most appropriate source and technology.

6.3 Programming and Timing of Activities

Before any activities are started at village level a selection process as illustrated below, should have taken place.



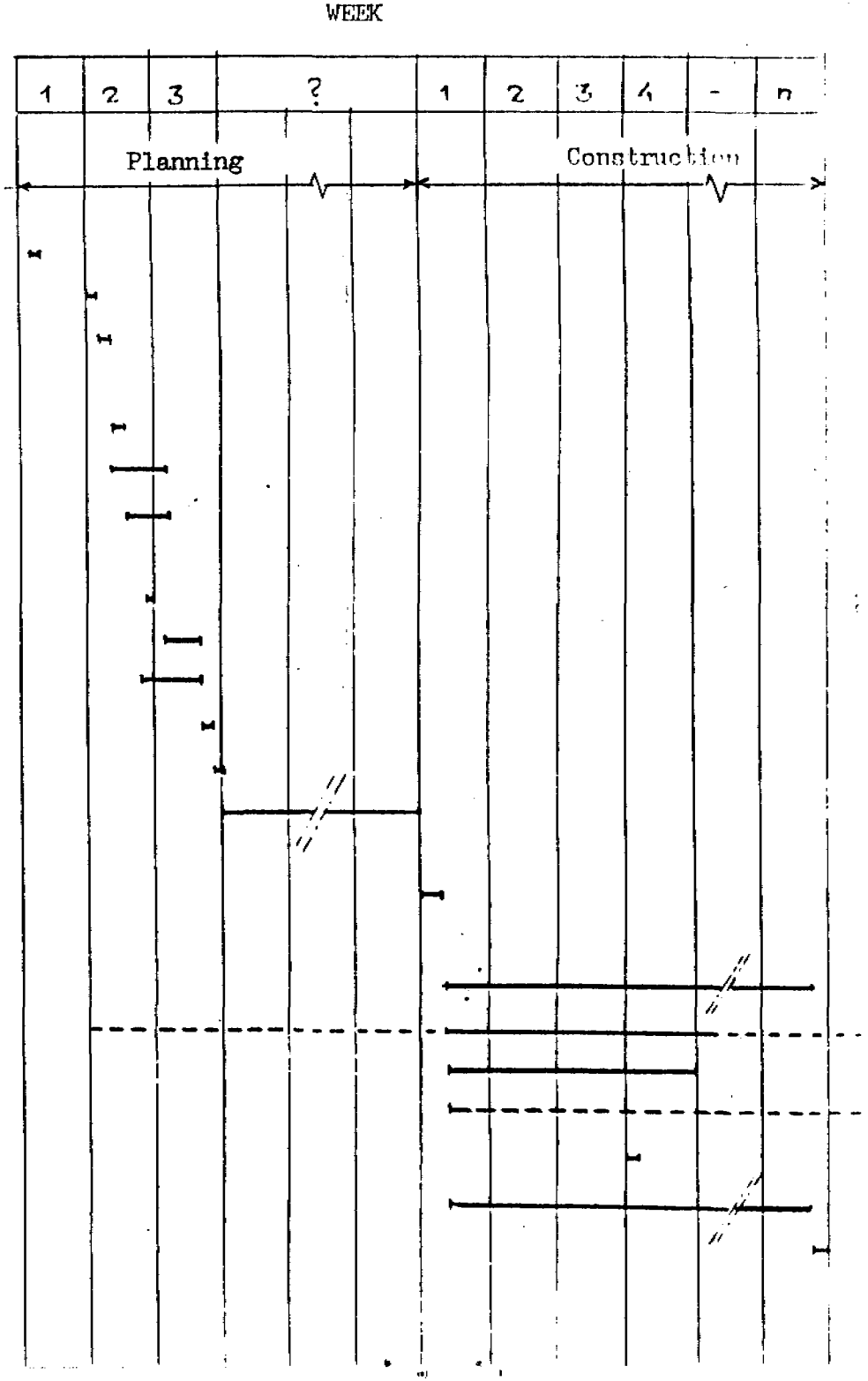
The various steps in planning and impelmentation are schematically illustrated on the following page.

For detailed proposals on procedure for village participation in rural water supply, sanitation and health education in Tanzanian rural context, reference is made to the IRA/CDR and PMO/IRS Studies (IRA/CDR, 1983; PMO/IRC, 1983). In these studies handbooks have been developed, which elaborate on the various steps and activities in participatory planning and implementing village water schemes, improved sanitation and health education, including timing of activities and instructions for coordinated input from the different departments involved in the process.

However, taken into consideration local socio-cultural conditions and various constraints on regional and district level in terms of man-power, transport, village accessibility, technological options etc. detailed practicable procedures can only be developed in the process of programme implementation in respective area.

ACTIVITY

SELECTION OF VILLAGES
MEETING TO PREPARE FOR PROJECT IN VILLAGE
ESTABLISH TEAM IN VILLAGE - arrange meeting
VILLAGE MEETING, - collect village information
- information on CP and other conditions
LOCATION OF EXISTING SOURCES - chemical tests
MAPPING OF EXISTING SOURCES, SETTLEMENT PATTERNS
DISCUSSIONS AT WATER SOURCES informal data collection
survey of public institutions
CONSULTATIONS AT RWE OFFICE - Bacteriological samples to lab
HOUSEHOLD SURVEYS OF WATER AND SANITATION
SURVEY OF NEW SOURCES
VILLAGE MEETING - discussions of findings, election of committee
CONSULTATIONS AT OFFICE (RWE) - water quality testing
PREPARATION FOR CP - discussions within village
discussions at RWE, AFYA, Maendeleo
VILLAGE MEETING - formal decision, contract,
committment to pay, elect scheme attendant
SOURCE IMPROVEMENT, WELL CONSTRUCTION - demonstration
HEALTH EDUCATION - water and sanitation
DEMONSTRATION LATRINES - at sites decided by the village
IMPROVEMENT OF INDIVIDUAL LATRINES
VILLAGE MEETING - problems, selection of caretakers
TRAIN SCHEME ATTENDANT - on-job training
VILLAGE MEETING - handing over, establishing by-laws
information about O & M



The approach proposed in this Section should therefore be seen as a principal framework for the programme activities in the three Lake Regions on which agreement has been reached between the parties involved in the Programme Implementation. The sutdies referred to above are recommended as basic documents for the implementors in the work to develop the detailed procedures which are relevant to respective region.

6.4 Monitoring and Evaluation

Since a separate study has been made outlining a monitoring and evaluation system for the entire Programme in the Lake Regions (Samset & Stokkeland, 1983), this topic is not treated in this report. What should be emphasized here is that the question of practicability mentioned above (6.3) also applies to this field. Progress monitoring and performance evaluation should form an integral part of the Programme, but its effectiveness will depend on how well the system is adapted to local conditions. The development of such a system for the community participation, sanitation and health education components of the entire Programme should be one of the main responsibilities of the proposed Promotion Co-ordinator (5.4).

7. INSTITUTIONS WITH A POTENTIAL SUPPORTING AND COMPLEMENTARY ROLE AND PROJECTS WITH RELEVANT EXPERIENCE

In planning and implementing the rural water and sanitation programme, contacts should be made with institutions, which may provide valuable input. Below a number of relevant institutions are listed:

Rural Construction Units and Building Brigades (MAENDELEO)

In all districts MAENDELEO is establishing Rural Construction Units with the purpose to train and assist villages in implementing village development projects. Part of this activity is to develop Village Building Brigades, ideally one in each village.

It should be looked into how these activities could be strengthened and extended to the rural water supply and sanitation programme.

National Institute for Medical Research

- Mwanza Medical Research Centre

Mwanza Medical Research Centre has a long experience in research on tropical diseases, particularly schistosomiasis. The institute has declared an interest to take part in evaluation and monitoring health impact in the water and sanitation programme. The Programme would benefit from a close cooperation with this institute.

Health Assistance Training School (Ngudu)

One of the main subjects in the training of Health Assistants is water and sanitation. Contact should be established between the Programme and the Training School for mutual benefit. There is a need for students to have field practice. The Programme could provide such opportunities. The senior staff of the school could advise on health education, sanitation and community diagnoses and the students could carry out small scale village surveys.

Health Education Unit (HEU), AFYA

HEU possesses considerable expertise on health education. The Unit should be approached for advice on health education in the Programme.

Rural Sanitation Unit (RSU), AFYA

RSU has a supervisory role for rural sanitation at a national level. In the Programme RSU should serve as adviser on sanitation matters and ensure that experience gained elsewhere is properly taken account of.

ARDHI

Concerning sanitation ARDHI:s responsibilities cover mainly urban areas. There is however a considerable experience from low-cost sanitation projects (mainly Dar es Salaam) within this ministry. ARDHI is therefore a useful source for information and advice , particularly on technical aspects (e.g. Dar VIP).

Instituet of Adult Education

The institute has a long and thorough experience in designing and executing adult education and is at present engaged in conducting a minicampaign to promote a sanitation pilot project in Dar es Salaam.

Close contacts should be established with IAE, especially through its zonal office in Mwanza.

Institute of Resource Assessment (IRA)

IRA has over a long period of time paid great attention to studies and research on integrated rural water development. In Iringa, Mbeya, Ruvuma. Rukwa and Kigoma Regions the Institute has been involved in carrying out Water Master Plan socio-economic studies. The Institute has also been involved in conducting community participation pilot projects in four of these regions in connections with the implementation of willage water schemes. IRA could play an advisory role and also be approached for designing and conducting research, defined as necessary under the Programme.

Community Participation Pilot Projects

Various pilot projects on community participation in rural water supply have been carried out during the last few years. In Iringa. Mbeya and Ruvuma pilot projects have been conducted by IRA/CDR (Institute of Resource Assessment and Centre for Development Studies, Copenhagen) in connection with the Water Master Plan (WMP) studies; in Rukwa IRA has carried out a pilot project in connection with the NORAD sponsored WMP studies; and in Morogora and Shinyanga Regions a pilot project has been conducted by IRC/PMO (International Reference Centre, the Hague, and Prime Minister's Office). In addition to this pilot activities have started in Singida Region under the Australian-Tranzanian Water Development Project. It is important to ensure transfer of experience from these projects to the Programme in the Lake Regions.

8. SELECTED BIBLIOGRAPHY AND LIST OF REFERENCES

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The Hague: WHO/IRC

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PMO/IRC (1983), Prime Minister's Office (Tanzania)/International Reference Centre for Community Water Supply and Sanitation (The Hague)
PROJECT FOR THE DEVELOPMENT OF A COMMUNITY PARTICIPATION COMPONENT IN THE TANZANIAN RURAL WATER SUPPLY PROGRAMME (preliminary Report)
Sponsored by DGIS (Directorate General for Development Cooperation, the Netherlands)

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The Hageu: WHO/IRC

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WMPCU-31, Tanzania Ministry of Water and Energy

Terms of Reference

1. The mission will visit projects, authorities and institutions for the purpose of assisting in the identification and preparation of a community health education and participation component in a water and sanitation project in the Lake Regions of Mara, Mwanza and Kagera. Specific activities will include but not be limited to:

   a) investigate and visit various sectors and agencies in Tanzania, having programmes involving health education and/or community participation in water and sanitation projects,

   b) identify types, scales and costs of existing water supply and sanitation programmes which involve community health and participation and identify linkage existing between the water supply agency and other community development programmes,

   c) identify constraints och successes in the organisation and objectives of such programmes,

   d) ensure that objectives are set which can be accomplished within the time frame of the LRWS programme and that the Community Health Education, Participation and Sanitation (CHEPS) components can be integrated with the sector institutions and Lake Region Water Supply Programme (LRWS),

   e) initiate discussions with political and ministerial representatives and technical personnel which will lead to the setting of realistic objectives for CHEPS component for LRWS pilot projects,

   f) identify possible pilot area(s) in the Lake Regions and collect and carry out preliminary assessment of social, health and economic factors in the communities of the pilot area(s),

   g) tentatively identify programmes, methodologies and resources needed to accomplish the objectives of the integration,

   h) discuss the report with SIDA, PMO, AFYA, MAJI and Regional authorities and obtain comments and approval of the report,

   i) if required prepare a final project document for the integration of water, sanitation, health education and community development including details for pilot project(s).

2. Prepare a report, summarizing findings and make recommendations as appropriate for preparing a project document for the Lake Region.

Annex 2

ITINERARY, LIST OF PERSONS CONTACTED AND PROJECT VILLAGES VISITED

Mtwara - Lindi 4/8 - 8/8

Persons contacted:

Mr Heikkonen	. Water Source Controller/Ag. Project Manager
Ms Kyber	. Training Officer
Mr Rajala	. Assistant Training Officer
Mr Malinga	. Assistant - Training Section
Mr Mouninen	. Construction Engineer
Mr M Mbulo	. Coordinator - RWE's Office/Rural Water Supply Project in Mtwara and Lindi Region

Villages visited:

- . Rutamba (Shallow wells)
- . Kimengene (-"-)
- . Kitangari (Makonde Water Supply, Mechnized Scheme)

Ruvuma 9/8 - 11/8

Persons contacted:

Mr Z J Abuya	. Regional Planning Officer
Mr A M Churi	. Regional Water Engineer
Mr B S Kapinga	. Socio-Economic Researcher
Mr I Dyrnum	. Implementation Engineer (CCKK)

Villages visited:

- . Lipaya (Shallow wells)

Rukwa 12/8 - 16/8

Persons contacted:

Mr H A Hashil	. Regional Water Engineer
Mr M S K Aliston	. Cp Engineer-Implementation Programme (Norkonsult)
Mr Makwinga	. Implementation Programme (Norkonsult)
Mr E Malambika	. Technical Assistant
Mr O Stefterud	. Construction Engineer

Villages visited:

- . Mawenzusi (Hydram pump)
- . Isesa (Deep borehole fitted with hand pumps)
- . Milanzi (Gravity scheme)

Mbeya 17/8

Persons contacted:

Mr M O Ngalisoni	. Regional Water Engineer
Mr J P Gwimile	. Sanitary Engineer
Mr G Kaduri	. District Water Engineer
Ms S Mukunga	. Socio-Economic Assistant
Mr P Carry	. Implementation Engineer (CCKK)
Mr J Kushaka	. Site Foreman (Iwala-Ihombe)
Dr M Mujwahuzi	. Senior Researcher (IRA)

Villages visited: . Iwala-Ihombe (Gravity scheme)

Wanging'ombe Sanitation Project 17/8

Persons contacted:

Mr I A Blakely	. UNICEF Project Representative
Mr C Ngwaeje	. Division Secretary
Mr J Mligo	. Ward Secretary

Villlage visited: . Mayale

Iringa 18/8 - 19/8

Persons contacted:

Mr T Sheuya	. Deputy Regional Water Engineer
Mr H E Haule	. Site Engineer
Mr D Luhanga	. Socio-Economic Assistant
Dr M Mwakajila	. Regional Medical Officer
Mr J R Challenge	. Principal-Environmental Health Assistants Training Centre
Mr M A Magohagasenga	. Vice Principal-Environmental Health Assistant Training Centre
Mr J A Okeyo	. Principal-Training for Rural Development Centre
Mr P Sinyangwe	. Communication Unit-Training for Rural Development Centre

Project visited: . Tanagozi (Village Group Scheme)

Morogoro	20/8
Persons contacted:	
Mr F H J Van-de-Lack	. Project Manager-Morogoro Shallow Wells Project
Ms M Kirimbai	. Project Manager-ICR/PMO Community Participation Project
Villages visited:	. Yusanga (Shallow Wells)
	. Manyinga (-"-)
Singida	7/9
Persons contacted:	
Mr G Roberts	. Project Manager,Australian-Tanzanian Water Development Project
Mr P Guiness	. Social Anthropologist, Australian-Tanzanian Water Development Project
Kagera	9/9 - 13/9
Persons contacted:	
Mr J M K Mlengu	. Regional Water Engineer
Mr A Abdalla	. District Water Engineer
Mr Mshobozi	. Assistant Regional Health Officer
Ms Keziah Joel	. Regional Community Development Officer
Ms M Bulegi	. Assistant Regional Community Development Officer
Ms D Shogatela	. District Community Development Officer
Villages visited:	. Rubare (Gravity Scheme)
	. Nsheshe (Shallow Wells)
Mwanza	14/9 - 21/9
Persons contacted:	
Mr L Shiyo	. Ag. Regional Planning Officer
Mr D Lumelezi	. Regional Water Engineer
Mr D Nkinda	. Planning Engineer
Mr S N Shoo	. Project Manager - RIDEP Shallow Wells Project
Mr S Ishengoma	. Hydrogeologist, RIDEP Shallow Wells Project
Mr S N Cedrik	. District Water Engineer, Magu
Mr Msuya	. District Planning Officer, Kwimba
Dr Majuwa	. Regional Livestock Development Officer
Mr R M Makaya	. Regional Community Development Officer
Mr N M Mbakile	. Assistant Regional Community Development Officer

Dr E K Masali	. Regional Medical Officer
Mr E V Mapunda	. Regional Health Officer
Mr P Maganga	. Community Development Civil Technicians Training Institute
Mr V Barozi	. Health Assistants' Training School, Ngudu

Villages visited:

- . Kakora (Shallow Wells)
- . Usagara (-"-)
- . Ilendeja (-"-)
- . Malela (-"-)
- . Ichobela (-"-)
- . Ngula (-"-)
- . Nyanguge (-"-)
- . Missungwi (-"-)
- . Lubuga (-"-)
- . Jojiro (-"-)
- . Bugomba (-"-)

Musoma — 22/9 - 24/9

Persons contacted:

Mr G N L Kyangenyenka	. Ag. Regional Planning Officer
Mr R M L Msengi	. Regional Water Engineer
Dr H H M Omaitaria	. Regional Medical Officer
Mr F B Kalimanzila	. Regional Health Officer
Mr Nkauwa	. MAJI-Musoma, i/c Construction

Village visited: . Etaro (Mechanized Scheme)

MINISTRIES

AFYA — 5/9

Mr E K Simbeye	. Rural Sanitation Unit
Mr S H D Chizenga	. Health Education Unit

PMO, Dodoma — 6/9

Mr D E Masanja	. Ag. Commissioner, Community Development Department, PMO
Mr M F Malya	. Director Research and Planning, Community Development Department, PMO

Ardhi — 20/10

Mr F Naju	. Director, Sewerage and Drainage Division

EXPERIENCE FROM IMPLEMENTATION PROGRAMMES IN OTHER REGIONS

SHINYANGA (The Netherlands)

Water Master Plan by NEDECO 1971 - 1973.

Implementation programme

Implementor: DHV between 1975 - 1978. During this period about 750 wells were build. Max. capacity 250 wells/years. Another 250 wells have been built after the handover to RWE in July 1978. At present the rate of construction is very low. Emphasis is instead placed on rehabilitation of old wells and handpumps. The rehabilitation programme is also financed by Dutch aid.

Technology

Initially only shallow ring wells were constructed but later there has been a shift towards the use of tubewells (handauger). In the early stages of the project a workshop was established for manufacturing handpumps based on locally available materials. Present output from factory is very low and the quality has deteriorated. In the rehabilitation programme Dutch-made handpumps (SWN 81) are exclusively used.

Organizational set-up

During 1975 - 1978 DHV was executor under RWE but in reality the project was very independent. In 1978 the project had 3 hand-dug well construction units and 1 mechanically-dug unit.
Staffing: 12 expatriates, 115 locally employed (1978).

Cost aspects

Investment cost for a shallow well with handpump was 1978 TAS 60 per capita. Cost for O & M was 1978 estimated to be TAS 700 per well and year (43 % material cost, 36 % transport, 21 % salaries). The annual maintenance costs are now estimated to have doubled due to higher material and transport costs. The annual maintenance budget for 1000 wells is TAS 300.000 while the actual cost for O & M would amount to over 4 times present budget.

Policy/Priority Criteria for Selection of Villages

In collaboration with regional authorities, a priority list was drawn up of villages which have to be supplied. Early ambitions in the project to supply 1 well per 250 people had to be given up of "political" reasons. Limited resources had to be equally distributed between the villages, resulting in a low coverage. Construction was, however, concentrated to one or two districts at a time.

Maintenance

The initial centralized maintenance system was found to be too expensive and has eventually been replaced by a four-tier decentralized system for O & M.

At regional level are workshop, water quality testing (not operating anymore) and central administration.

At district level a district maintenance officer (DMO) checks the wells regularly (ideally twice/year), stocks and provides spares, carries out repairs and keep well visit records.

To decrease the cost of transport, a system with divisional maintenance officers using bicycles has been established.
However, due to budgetary constraints only 7 out of 20 posts have been staffed.

At the village level, unpaid caretakers are selected by the village authorities and trained on the job, or in seminars for preventive maintenance. No training material and equipment is provided apart from a spanner.

The present organization for O & M is not working satisfactory due to a number of reasons:

- lack of preventive maintenance
- village does not feel responsible
- caretakers do not function in a village organization
- the women are not explicitly involved
- unbalanced distribution of support staff

Participation

There is a little or no participation in planning and implementation. To some degree villagers have contributed with unskilled labour. Wells are formally handed over to the Village Government but within the villages there is no organization responsible for well ownership. At present IRC/PMO is engaged in a pilot project in Shinyanga to develope appropriate means for participation in O & M.

Sanitation	None
Health education	None
Problems	Low reliability of old pumps Slow implementation due to logistic problems

MOROGORO (The Netherlands)

No Water Master Plan as such.

Implementation Programme

Implementor DHV
Total number of wells made by the project from 1978 till June 1983 now stands at 827.
Annual production capacity about 200 wells/year.

There is also a separate Duch-aided piped water supplies programme in the region.

Technology

Emphasis on shallow wells with handpumps (ring and tube wells).
The Kangaroo pump developed in the project is the most common (75 %).
About 20 % are type SWN 80 or SWN 81.

Organizational set-up

DHV executor under RWE but in reality working as a spearate organization.
Expatriate staff: 14, Tanzanian coutnterparts: 6
Tanzanian staff: 120 (1982)

Funding and Cost Aspects

Investment costs covered by Dutch assistance.
The financing of recurrent costs is supposed to be equally divided by the Netherlands and Tanzania but in reality 80-90 % is Dutch funding.
Cost for maintenance is estimated to around TAS 1.000 per well and year (1982).

Policy/Priority Criteria for Selection of Villages

Similar policies as in Shinyanga.
The coverage is in general better in Morogoro Region than in Shinyanga (average 4 wells/village).
In the ongoing rehabilitation programme attempts are made to improve the coverage. Following criterias are given:

- 300 people per well
- or a maximum distance of 500 m.

Maintenance

Until recently all maintenance was carried out by the implementor. Half-yearly visits were made at a cost of TAS 1.100 per well. After rehabilitation completed wells will be handed over to RWE. A two-tier (region - district) maintenance service is presently under development.
For village participation in maintenance two caretakers will be appointed by the village and trained in checking of pumps, fastening

of nuts and bolts, cleaning of site and reporting of problems. In the future the caretaker will also be trained for replacement of broken parts and the village be asked to aquire spare parts from village funds.

Participation

A pilot project under IRS/PMO has been carried out in the region. Recommendations concerning participation in planning, construction and O & M are expected but the report has not yet been made public.

Sanitation

None

Health education

For education of the users, locally produced and designed posters are put up and left in the villages.
Their messages concern:

- Water-borne diseases
- Project activities
- Hygiene on well-sites
- Productive use of water

It is reported that these posters have had positive influence on well-hygiene.

A seminar for village chairmen and ward secretaries was also reported to have had an impact on well-hygiene.

Problems

To find an acceptable formula for handing over maintenance of wells and handpumps to RWE.

MTWARA - LINDI (Finnida)

Water Master Plans by Finnwater (1977)

Implementation Programme

Carried out by Finnwater. 1.350 wells constructed since 1978. Annual output 300-400 wells.

Technology

Emphasis on ringwells and handpumps (NIRA)
In areas with no groundwater potential construction of large-scale mechanized supplies like Kitangiri W/S (serving 100 villages).
3 construction groups (ringwells) have a capacity of building 3-5 wells/week using hydraulic tractor excavators. 1 group (hand drilled tube wells) has a capacity of 1 well/week.

Organizational set-up

Separate project coordinated with RWE's office.

Management	Finnwater
Expatriate staff:	13 - 21 plus Tanzanian counterparts
Tanzanian staff:	permanent 90 - 120
	temporary 160 - 300

Cost aspects

Construction cost shallow well + handpump TAS 98 per capita (1981).
Construction cost mechanized supplies TAS 320 per capita (1981).
Present yearly maintenance costs per well are close to TAS 1.000. This amount to a total maintenance cost of more than TAS 250.000 for manpower and fuel costs alone, too heavy a burden for the regional maintenance budgets.

Policy/Priority Criteria for Selection of Villages

Selection of villages to be supplied is made by the regional authorities.
Design criteria: one well per 200 people.
In villages with existing piped supplies 1 well per 400-600 persons is also provided.
Sometimes seasonal wells are constructed. These will dry up at the end of the dry season but provide safe water for the major part of the year and minimize the use of closeby but polluted water.

Maintenance

A tow-tier maintenance system functions as part of the construction project.
At the regional level two mobile maintenance units (4 men, 1 pick-up) pay regular maintenance visits to each well 3-4 times/year.
At the village level 2 caretakers are appointed by village chairman for preventive maintenance and well-hygiene.

Compensation is advised but the decision is left to the village. The caretakers are trained on the job during construction and through area seminars (1-2 days) after 5-10 villages have been served.

Project experiences with village maintenance are on the whole negative. The caretakers do not do their work properly because they expect payment but the villagers are unwilling to pay them.
To solve the problems caretakers are now trained for more extensive maintenance and repair tasks. Every 2 months, 5 caretakers from 5 villages are sent on the job training on the mobile teams. The villages have to acquire the tools for TAS 500 (actual value TAS 2.000 for a set of 12 different tools). Spare parts are as yet provided free of charge by the project.
Maintenance is a big problem in areas inaccessible during rains. In surch an area it was found that 40 % of all handpumps were out of order after a period of eight months without any maintenance.

Participation

Compare earlier section on maintenance.
There is no cash contribution before construction.
During the early stages of the project unskilled labour was provided by villagers and compensation paid to village funds.
The option for participation in construction is rather limited due to an efficient, mechanized implementation organization.

Sanitation

Sanitation is proposed by Finnida to be included in the project. A study has been carried out by TAG (The Technical Advisory Group, World Bangk/UNDP). The report of the study is not yet made public.

Health Education

Some basic education is given by Finnwater staff at village meetings. Posters illustrating relations bad water - poor health have been printed and Finnwater has orgnaized one seminar for the health staff on district, divisional and ward level.

Problems

Many wells dry up completely in extremely dry years. For example 1981 out of total 1.160 wells 21 % were completely dry, 29 % had not enough water. Remaining 50 % had a sufficient recharge at the end of the dry season.

IRINGA - MBEYA - RUVUMA (Danida)

Water Master Plans vol. 1-11, 1982, by CCKK.

Socio-Economic WMP study, WMP vol 12, 1982, and vol 13, 1983, by CDR/IRA
Donor: Danida

Implementation Programme

The inception phase of the WMP Implementation Programme started 1983.

Technology

Main emphasis on gravity schemes.
Second priority on wells fitted with handpumps.

Organizational Set-up

DANIDA Steering Unit at Maji - Ubungo, DSM (staffed with three expatriates) coordinates project activities and caters for essential procurement. In the regions no separate implementation unit. Through CCKK two expatriate technical staff are recruited for each region with one coordinator for the three regions posted in Iringa. In addition DANIDA recruits two community participation Coordinators/Advisers, one for Iringa and one for Mbeya. A Community Participation Coordinator is already present in Ruvuma through secondment from IRA. The experts recruited are considered as a staff function to existing organizations, particularly to RWE's office.

Costs

CCKK figures for operation and maintenance of various types of water schemes, cost per person per year in TAS:

Gravity 14, shallow well 18,

borehole, pumped 34.

Average investment per new village scheme is estimated to amount to 1 million shilling.

Funding/Commitment

In December 1982 the Financial Committee of the Danish Government approved the allocation of D.kr. 249 million for water supply development within the three regions during the period 1983-1987. This being part of the overall agreed 400 million for the whole "Decade".

Policy/Priority Criteria for Selection of Village

Four priority criteria are proposed in the RWMPs; need, development potential, cost criteria, operation and maintenance criteria. The first criteria "need" overrules all the other three. The need criteria includes three factors:

- High health risks connected with present water source(s)
- Low capacity of present water source(s)
- Low accessibility of present source(s)

However, in addition to this set of priority criteria there is a participation criteria. It is proposed that Government resources for a new water scheme should only be committed for the villages which prior to construction have made a cash down-payment (cash deposit) to Maji equivalent to one year's cost of operating and maintaining the distribution system or hand-pumps in that village. This policy has still to be endorsed by the regional authorities. Consequently the policy has not yet been tried out in practical terms.

Maintenance

The village is supposed to pay the full cost of maintaining the distribution system within its boundaries. On piped water supplies this includes the installations from tank to tap. On wells this includes all handpumps and aprons. The village is also supposed to pay the full costs of operating the part of the scheme which is located within the village boundaries, i.e. attendants, fuel, etc.

Maji assists the village on the rest of the scheme by executing and paying the full cost of maintaining intake, borehole, pump and engine, main lines, all storage and break pressure tanks and all wells. Spare parts for the distribution system and handpumps are proposed to be stocked by Maji at district level, from where they can be bought by the village at full cost level.

Two attendants are chosen by the village for the village scheme. The attendants are trained by Maji in their village to do repairs and preventive maintenance. They should be paid by the village.

One tap attendant, preferably a woman, is chosen by the balozis among households close to each domestic point/hand pump to look after the up-keep of the domestic point/hand pump and its surroundings.

Participation

Village Water Committees are established in each village which is going to receive assistance for improved water supply. The VWC consists of three men and three women. Villages are requested to contribute self-help labour during the construction phase. As for contribution to operation and maintenance see above. A handbook for village participation has been prepared. This handbook describes step by step, in a systematic way, the procedure to be applied in implementing village water schemes. Of particular interest in this handbook is the timing of acitivities and instructions for coordinated input from the different departments involved in the process.

Health Education

A handbook for village participation in health education has been prepared along the same lines as the handbook for village participation in water schemes mentioned above.

Sanitation

A study has been made for a sanitation pilot project in Mbeya.

RUKWA - KIGOMA (Norad)

Water Master Plans by Norconsult, 1982

Socio-Economic WMP study by BRALUP, 1981
Donor: NORAD

Implementation Programme

The inception phase of the WMP Implementation Programme started in 1983.

Technology

Technology mix; gravity, hydraulic ram, pumps. boreholes fitted with handpumps, motorized schemes. First priority is then feasible gravity schemes.

Organizational Set-up

Implementation Units in the regions attached to RWE's office. Expatriate staff in the regions is 15-17 experts. Consultant, Norconsult, responsible for Implementation Unit. Other expatriate staff recruited by Norad to strenghten RWE's office. Technical Advisor, Norad's office, DSM, will be recruited as liaison officer/coordinator for the Norad sponsored programme.

Funding/Commitment

Norad has approved the allocation of N.kr. 126 million for Water Supply Development within the two regions during the period 1983 - 1987. 66 % of these funds are earmarked for Rukwa Region and 33 % for Kigoma Region.

Policy/Priority Criteria for Village Selection

Choice of villages to be supplied directed by regional authorities. In the WMPs the need criteria for selection of villages is given highest priority. At present it is, however, unclear as to what extent the WMP priority criteria will be decisive for village selection.

Maintenance

Maintenance sections in RWE's offices in the regions strengthened by expatriate staff. Extra supply of spare parts amounting to 20 % of the value of each package provided for the region. Village involvement in the running of the schemes.

Participation

No cash contribution from the villagers but village involvement in planning and self-help labour. Project villages supposed to form a committee for water and sanitation development and to select and pay village scheme attendants (this applies for Rukwa Region).

Sanitation

Demonstration latrines have been constructed in project villages in Rukwa Region. A UNICEF/TAG mission to Rukwa for assessment of sanitary conditions and requirements have been made and a plan of action for a sanitation pilot project has been prepared.

Community Participation Pilot Project

Since early 1982 a community pilot project has been conducted by IRA in five project villages. This project has covered popular involvement for improved water supply, health education and sanitation aspects with the intention of disseminating the findings and experience gained in the expanded implementation programme. A consultance report was made to Norad in 1982 with proposals for project components for community participation, sanitation and health in the implementation programme for Rukwa Region. However, no action for the implementation of these proposals has so far been taken.

SINGIDA (Australia, ADAB)

No Water Master Plan as such but an inventory was carried out 1975 - 1976 named: Hydrogeological Statement and Surface Water Resources.

Implementation Programme

Implementation SMEC.

Technology

The programme initially emphasized mechanized drilling of deep boreholes equipped with windmills and Monopumps. 165 deep wells have been drilled of which about 62 have been equipped with pumps (35 windmills, 27 dieselpowered Monopumps). Since 1980 there has been a shift in policy. Mechanized drilling is at a stand-still. Present implementation is exclusively shallow wells (ring and tubewells) with handpumps (mainly Kangaroo and SWN from Morogoro). About 150 wells are built so far.

Organizational Set-up

Contract between the Government of Tanzania and Australia. SMEC is contractor to ADAB.
The project has separate offices and workshops but is integrated with RWE's office.
Australia supplies equipment and expatriate staff (7 nos), RWE counterpart staff, labourers and consumable items, RWE controls and pays the labour force.

Funding/Commitments

External budget 1,5 million Australia $.
Tanzanian contribution TAS 600.000 (1982).

Policy/Priority Criteria for Selection of Villages

RWE instructs which villages to be supplied.
In general a low coverage - on average 3 wells/village.

Maintenance

Centralized maintenance system.
The major workload on the project is maintenance mainly of dieselpowered and windpowered water supplies (urban and rural) 60 % of all time is estimated as being spent on this form of maintenance. Remaining 40 % on construction of new wells. Maintenance of shallow wells and handpumps is planned to be handed over to DWE.
There is an expatriate training officer (no counterpart). Training has so far been concentrated on maintenance of vehicles, engines and windmills.

Participation

Participation was introduced in a more formalized way 1982. The project has positive experiences from two villages and among these experiences this should be mentioned:

- Early and repeated contact with village leaders from earliest possible stage.

- Plans must be explained in detail to avoid potential antagonism.

- Accessibility is seen as a vital requirement.

- There is no opposition to handpumps as the form of water facilities supplied.

- Cattle watering holes are frequently dug near site for use in dry season.

- Individual pump attendants have been appointed for each pump site.

- Village leaders have appointed a person to monitor the condition of all village pumps and report break-downs.

To ensure participation at an early stage, a social survey team consisting of two terrestrial surveyors and two female community assistants has been formed. The team stays about one week in the village. The scope of investigation:

- Mapping settlement patterns, water resources, areas for farming, grazing, forest etc.

- Interviews with village leaders for village data.

- Survey by questionnaire of village women concerning water use habits, sanitation and hygiene, diet and food etc.

Sanitation

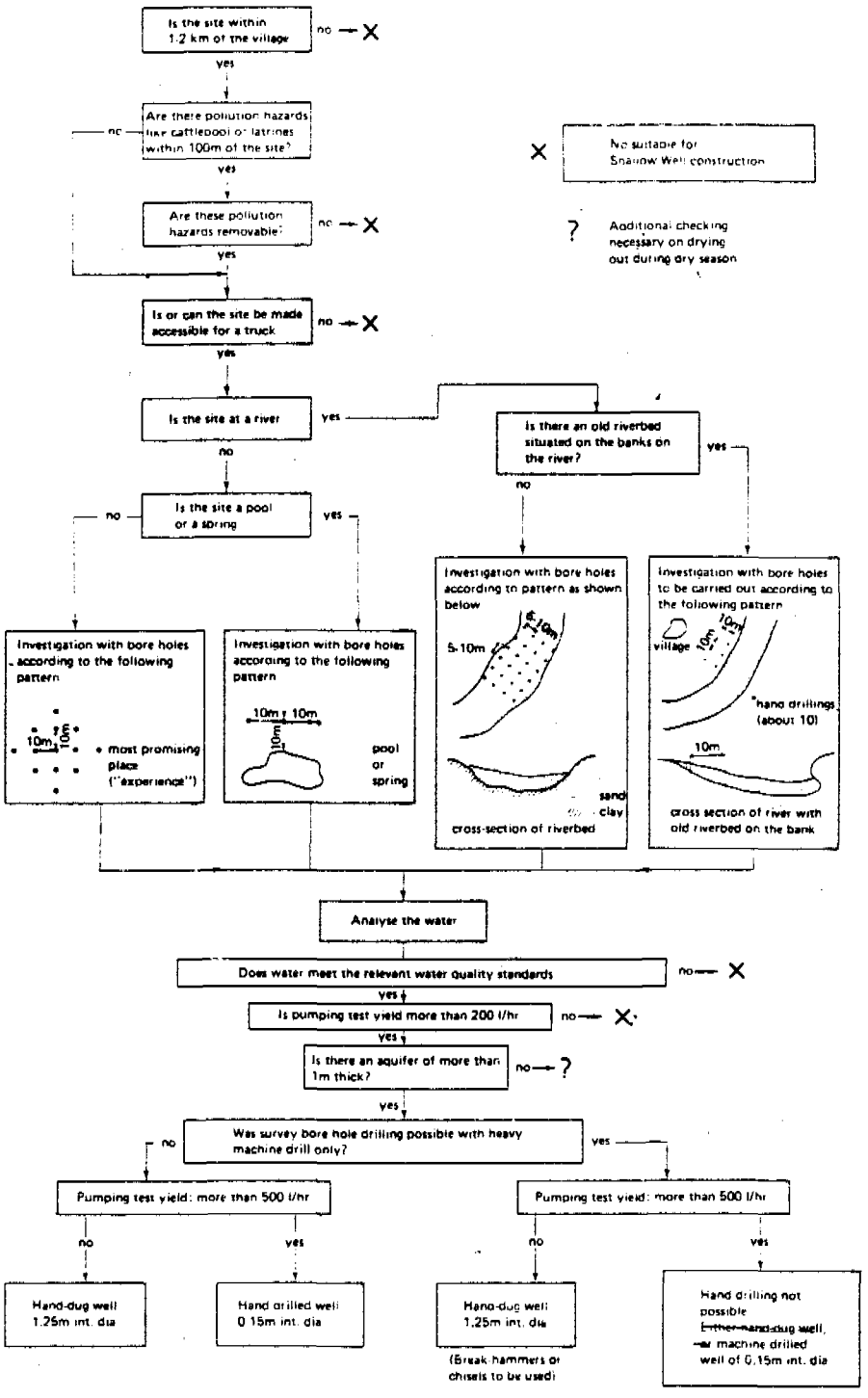
None at present - proposed in later programme.

Health Education

None at present - proposed in later programme.

Problems

Integration with RWE's office and lack of control of work force.
Fuel.
Slow implementation rate.



Flow Sheet Shallows Wells Site Investigation

(source : DHV, Shallows Wells, 1978, p 51)