RURAL DOMESTIC WATER SUPPLY AND SANITATION PROGRAMME IN NYANZA PROVINCE - KENYA

REPORT OF THE REVIEW AND APPRAISAL MISSION OCTOBER 1987

SUBMITTED TO:

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LIST OF ACRONYMS

-	CDO	Community Development Officer
-	CPA	Certified Public Accountants
-	DC	District Commissioner
-	DDC	District Development Committee
-	DG	Hand Dug Well
-	DHV	DHV Consulting Engineers
-	DO	District Officer
-	DVDC	Divisional Development Committee
-	IFAD	International Fund for Agricultural Development
-	LBDA	Lake Basin Development Authority
-	LSDA	Locational Social Development Assistant
-	MD	Machine Dug Well
-	MOH	Ministry of Health
-	MoWD	Ministry of Water Development
-	NGO	Non-Governmental Organisation
-	PC	Provincial Commissioner
-	PHC	Primary Health Care
-	PVC	Polyvinyl chloride (plastic)
-	RDWSSP	Rural Domestic Water Supply & Sanitation Programme
-	SDA	Social Development Assistants
-	SPSS	Special Programme for Social Science
-	VLOM	Village Level Operation and Maintenance/management
-	VIP	Ventilated Improved Pit (latrine)

ACKNOWLEDGEMENTS

The evaluation team wishes to acknowledge the outstanding cooperation and assistance given to the Mission by the members of the RDWSSP staff. Particular mention should be made of the Managering Director of LBDA Mr. Sam Obura, who mobilized his staff and made facilities available to the team, of David Arunga who gave his time unsparingly to cater for all our needs, of the manager of the Sunset Hotel, who gave us his own sitting room to work in and prepare the report and of Margaret Nyamweya who worked long hours to type the report on the computer.

EXECUTIVE SUMMARY

The Mission was asked to review the activities of the Rural Domestic Water Supply and Sanitation Programme, to analyse the constraints and successes of the programme and to recommend modifications to target strategies and activities for a continuation of the programme with particular reference to its sustainability within the institutional and social framework available.

Much has been achieved and the RDWSSP of the LBDA is to be congratulated on the start which has been made. A high standard of well constuction has been established, and demonstrated in South Nyanza district and is now being extended to Siaya and Kisumu districts. Community awareness of the problem together with an expectation of things to come has been stimulated. Furthermore the Water Resources Inventories and Geophysical Surveys for each Division are, or soon will be, completed and will give a basis for planning and inplementation in the next phase. The present phase comes to an end December 1988.

The following summary of observations and recommendations are made for executive comsumption and are a necessary pre-requisite to planning for the next phase. It is therefore important that these recommendations are incorporated into the RDWSS Programme as soon as possible, and in any case before the formulation mission for the next phase is convened.

1. Key recommendation

The Mission recommends that the RDWSS Programme should continue and that it should be so structured in the next phase as to ensure that it is capable of being coordinated at the end of the phase through the District Development Committees in accordance with the Government of Kenya's policy of District Focus for Rural Development. The construction and maintenance components of the project should be sustainable at the district level at the end of the next phase and beyond.

2. Supervisory development

The Mission found that there were at each construction unit the following supervisors:

- Supervisor Hand digging
- Supervisor Concrete works
- Supervisor Superstructure
- Supervisor Pump installation and maintenance

This multiplicity of staff not only increases the supervisory and transport costs, but it also confuses the village committees if they are trying to be responsible for their well.

In fact, any construction supervisor who has himself worked in a discipline and is of sufficient callibre to supervise can be taught each of these disiplines. It is then possible to have one

supervisor with whom the village committees and other bodies can relate, and turn to for advice. The Mission therefore strongly recommends that the good supervisors should be trained in all these diciplines and given the responsibility to supervise all aspects of well construction at Divisional level (see Field Staff Coordination Chart). These supervisors will then become the trainers of junior staff (wells operators) and in so doing will build up a cadre of field staff on whom the future supervision of the programme will depend. Furthermore this cadre of supervisors will have learnt to relate to the village committees and become the reference point from which the programme can become truly a village programme, rather than the Government giving out wells. This approach is fundamental to the eventual success and sustainability of the programme.

The training of these supervisors and the setting up of divisional organizations structured in this manner should be the prime responsibility of the consultant engineers during 1988. Only minor adjustments will be required where present divisional centres are operational. However an intensive and practice oriented training programme will need to be organised. With the proper training the supervisors will gain confidence to undertake the responsibility and so bring about the change to the division oriented structure which is recommended (see field staff coordination chart).

In the long term it will be necessary to have technical support at the District level. This could be suitably experienced Kenyan Engineers recruited for the programme or volunteers recruited from overseas.

The details and timing of the handover of responsibility to the District should be worked out in a formulation exercise.

3. Training

It was observed that the position of the Manpower Development and Training Officer for the project had not yet been filled.

Presently the function of training for the project is under the institutional development and manpower training expert employed to serve the whole of LBDA. The Mission found this arrangement to be very unsatisfactory due to the many different demands for other services placed on the expert by LBDA. Such high demands have led to a situation where the actual training needs of the project have been very much neglected.

The Mission recommends that the programme obtains the services, if necessary on a contractual basis, of a professionally qualified person. This person will have the task of adapting the existing theoretical concept developed by the expert to a more pragmatic and practical application. This should be done as soon as possible.

4. Steering Committee

The Steering Committee should be reactivated with its role and functions redefined to specifically include that of coordinating the implementation of the project within the four districts. In the long run the Steering Committee should plan for the smooth continuation of the project even after the current financial support terminates.

5. Water Resources Survey

This very useful Inventory of existing water sources and of Geophysical Data will be a valuable asset to future planning and implementation of water supplies. The completed survey will be in 25 volumes, one for each Division. The Survey Unit is also established.

6. Liasion with DDC

The technical expertise of the project should be made available to DDCs during their planning exercise in order that technical and economic feasibility is adequately taken into account before the district priorities and plans are formalised.

7. Community Development

Special arrangement should be made with respective local authorities to attach Social Development Assistants to the RDWSSP. Training courses should be arranged to orientate them to the programme and thus make them effective contributions to its success.

8. Project Management

The management of the project is the main responsibility of the Project Coordinator and in view of the fact that the present designation does not adequately indicate the responsibility which goes with the position, the Mission recommends that the position be designated as Project Manager. The Project Manager is answerable to LBDA for daily management and is accountable to both the Government of Kenya and the Government of the Netherlands, through the LBDA Managing Director for the effective use of the funds channelled through the project.

9. Financial Aspects

Accounting for construction services has been computerised making it possible to get instantaneous overview of the state of the finances allocated and expended. Attempts are being made to include the imprest accounts in the existing computer along the same lines applied for construction services. The need to adjust the whole computerised accounting for the project with the aim of unifying the two accounts has been identified. This will make it

possible for the project management to obtain accurate financial statements when such are needed for decision making. (See Annex 4)

It was observed that during the current phase, the project funds were split up and channelled to the project in different ways. This situation led to the fact that project management was not able to have complete overview of all the funds in the project when this was required. It is recommended that the existing accounting system be unified following the system already developed for the technical section.

A qualified accountant with experience of computerised accounting should be appointed with immediate effect to handle all project accounts and he should be directly responsible to the Project Manager. As recommended elsewhere, he should be appointed following professional procedures and the appointment and termination should be approved by LBDA in consultation with the donor.

The project accounts must be audited on an annual basis by a qualified firm of auditors having international repute.

10. Transport and Supervision Costs

In common with most other similar programmes transport costs are a major concern and all the more so when the costs have to be sustained from local funds. With the extended programme being implemented in all districts at the same time, transport costs will inevitably be high. The Mission recommends that a detailed analysis should be made before the planning of the next phase showing the cost per mile of each type of vehicle (including replacement) distances involved, and the costs of supervision and other necessary activities. In addition a reporting and monitoring system should be established to give effective costing data and control.

11. Sanitation component

The responsibility of slab construction should be transferred to the construction section of the programme where adequate supervision is available, once a redesign approved by the Ministry of Health has been made. The slabs should be made under contract to a target price of 400/= each.

The Mission has established that the sanitation component is not progressing well. It is an integral part of the Community Development component and it is essential that it compliments the supply of good clean water. It is therefore recommended that the next year is used to consolidate the component, train relevant personnel including those attached to the programme and rectify the mistakes that have been made. Expansion into one other division may take place in order to gain experience of correct implementation procedures. When this is satisfactorily achieved the sanitation component could then be expanded rapidly.

12. Pump Maintenance

The Mission was concerned that the question of maintenance of the pumps appears to have been shelved in such a way that it is not the main concern of engineers and supervisors, but has been assigned as the responsibility of a remote "Maintenance Supervisor".

Clearly this is not an adequate maintenance system and we recommend that engineers and supervisory staff personally aquaint themselves with pump installation and maintenance procedures. It will be possible to formulate what maintenance can be done at various levels - pump attendant - mechanic - supervisor. This could be done as a supervisors' training exercise. An appropriate maintenance system should then be worked out and put into effect with the necessary routines and training. It is expected that the supervisors will become the reference point for maintenance at Divisional level.

If this is not possible it may be wise to re-think the choice of pump and try to find one which can be maintained at village level.

13. Surface Water Catchments

The 1988 work plan calls for rehabilitation of traditional dams, however, as this is a domestic water supply programme and no appropriate means is readily available to make such polluted surface water safe, it is recommended that the project concentrate on protected springs and wells.

14. Spring Protection in Kisii

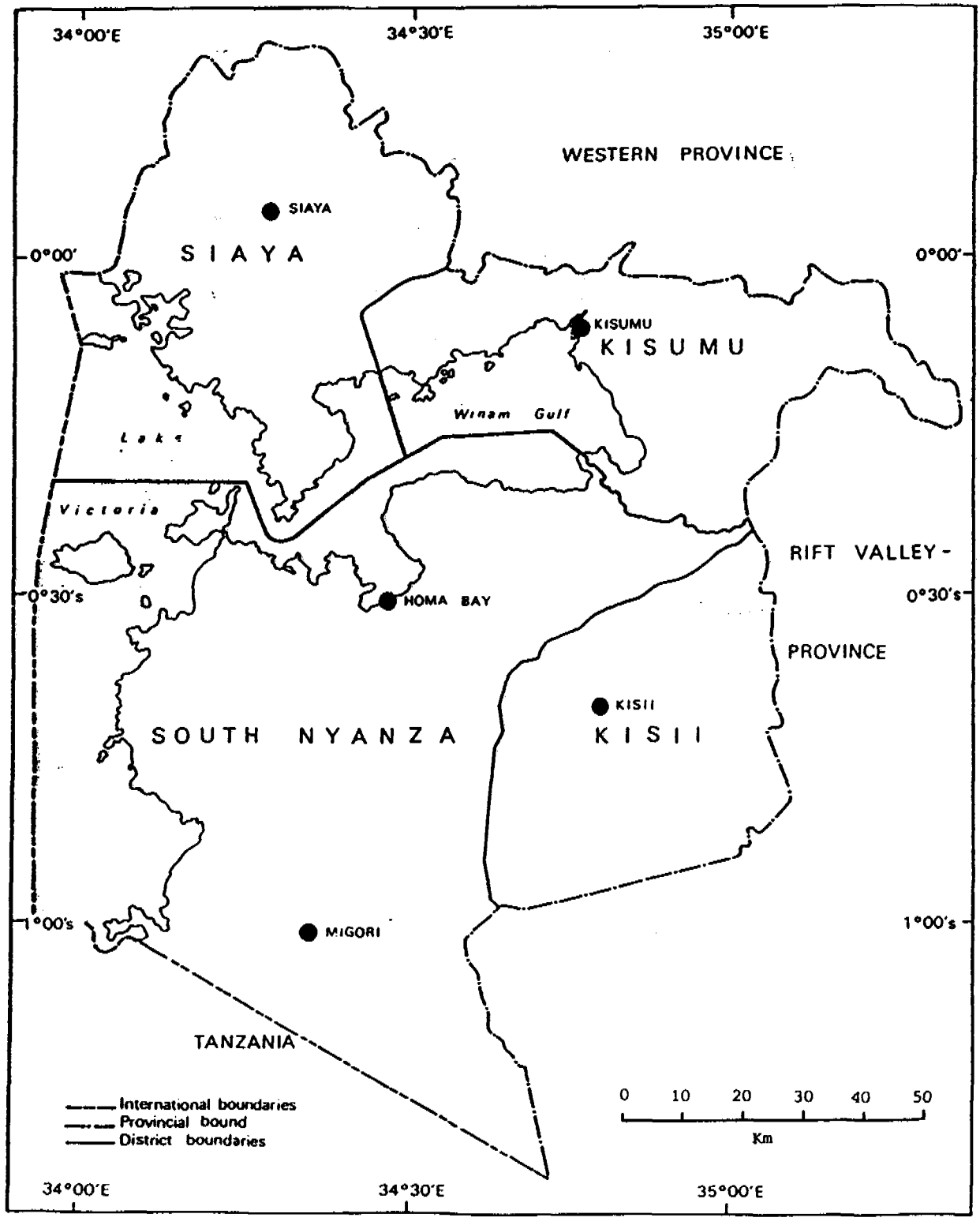
Kisii district is generally more well watered than some of the other districts and has springs which can be protected. Therefore it is not expected to require the same degree of emphasis on well construction. Spring protection projects are often able to utilize more self-help than well construction projects. We therefore recommend that this District should be left until a more complete plan of water development has been drawn up for Kisii and the question of community involvement has been further studied, perhaps together with other agencies who are working in the District.

15. Formulation Mission

It is recommended that there should be a Formulation Mission to plan in detail Phase II of the Programme. This should be not later than July 1988.

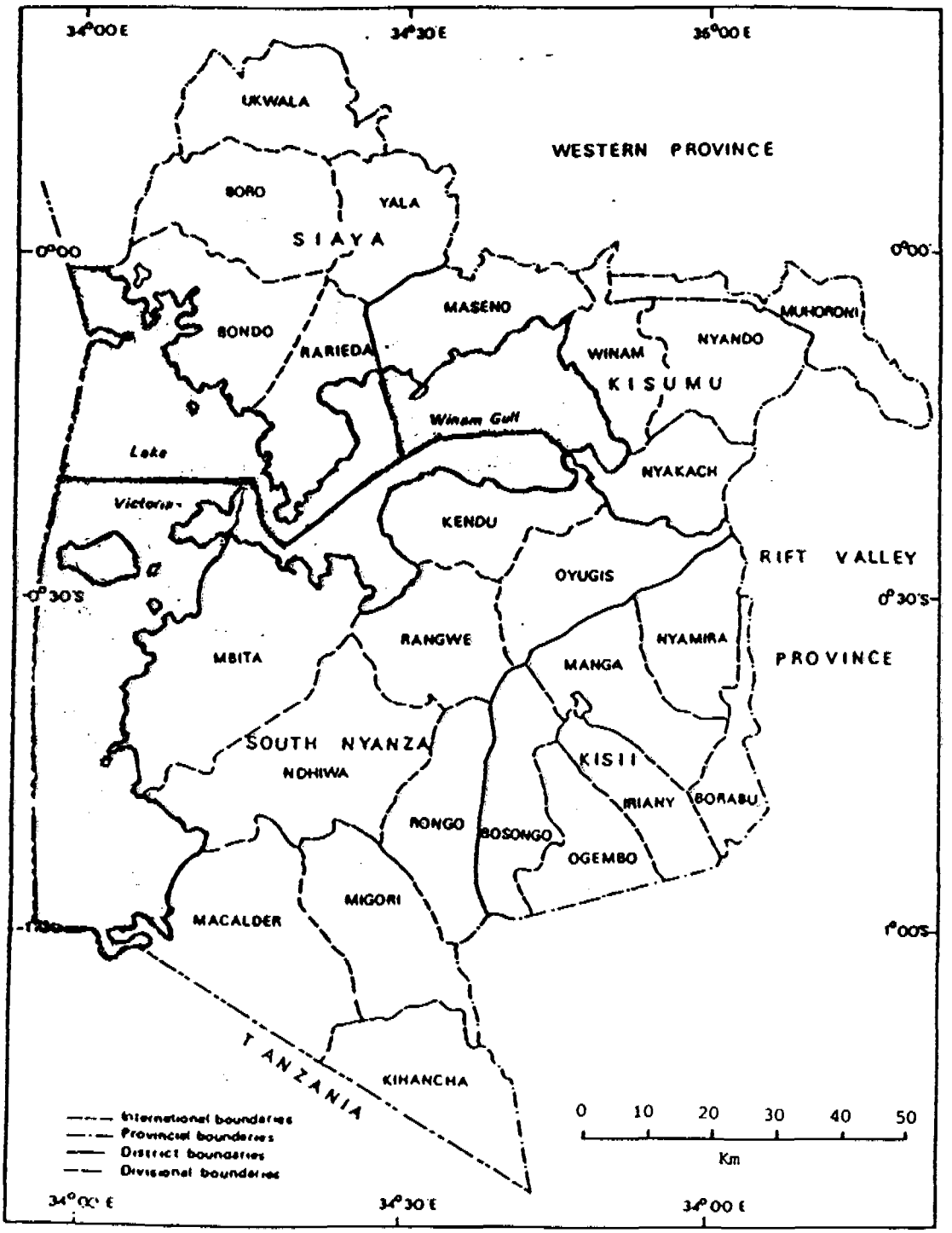
NYANZA PROVINCE

DISTRICT CENTRES AND BOUNDARIES

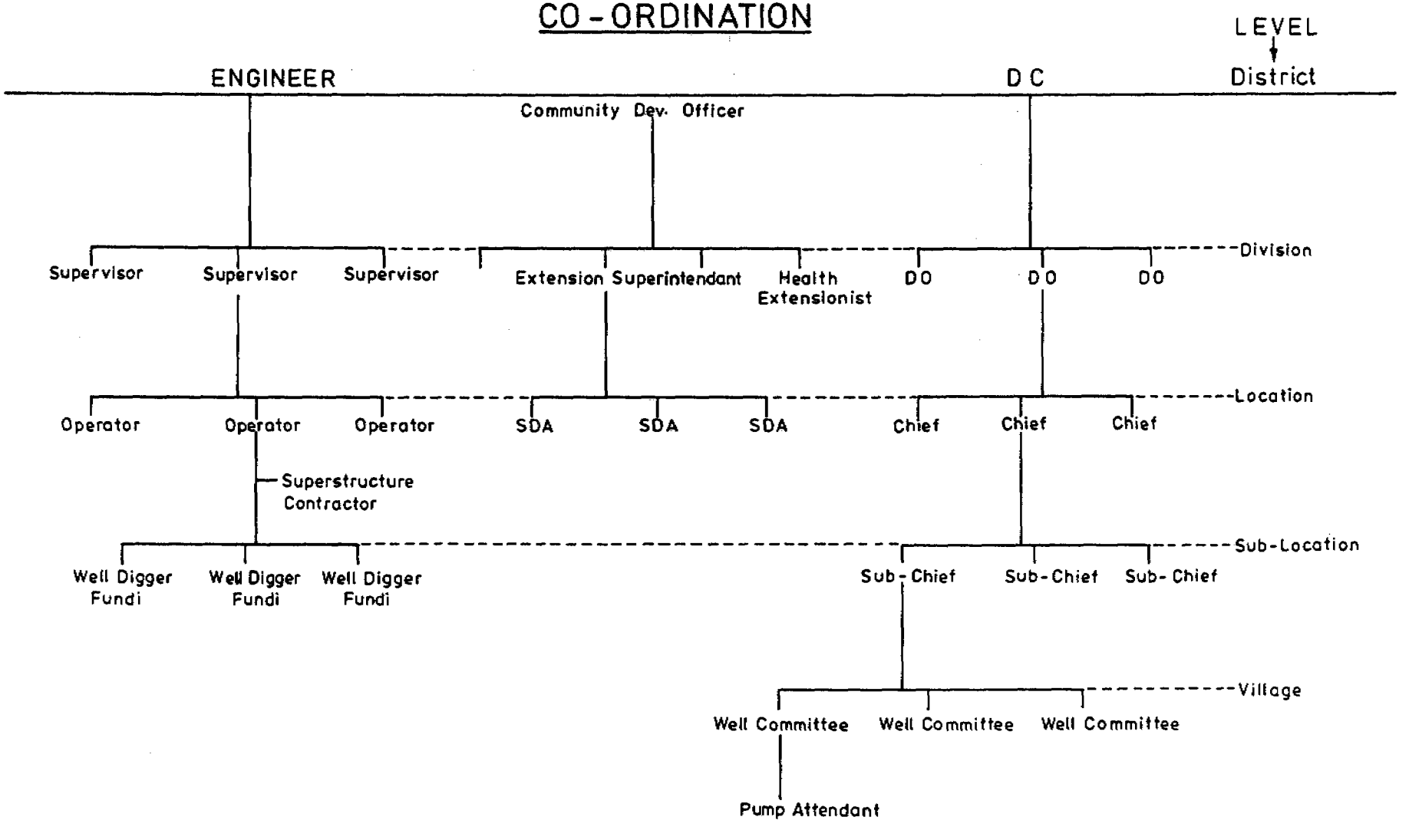


NYANZA PROVINCE

DIVISIONAL BOUNDARIES



RDWSSP FIELD STAFF CO-ORDINATION



1. INTRODUCTION

This report gives the findings of the Review Mission which was constituted by the Government of Kenya and the Government of the Netherlands to review the activities which have been implemented by the Rural Domestic Water Supply and Sanitation Programme, and to examine and evaluate issues for feasibility concerning the continuation of the project after the completion of the first phase at the end of 1988, and to recommend any modifications to the original objectives and targets, strategies and activities in relation to the institutional human and financial resources needed for the sustainability of the programme.

1.1 Composition of the Mission Team

The team assembled in Nairobi on Monday 5th October. The members of the team were as follows:

Lindesay Robertson	Team Leader
James G. Wilson	Sanitary Engineer
Thomas Oyieke	Economist
Joseph Owindi	Sociologist
John D. Skoda (16th - 23rd)	Civil Engineer
Anne Malm (5th - 17th)	Civil Engineer

1.2 Programme of the Mission

October

5-6	Nairobi
7	Travel to Kisumu
8	Meeting with LBDA
8-10	Discussions with RDWSSP staff
9	Meeting with Provicial Commissioner, Nyanza Province
12	Meeting with District Commissioner, South Nyanza District
12-14	Field tour in Ndhiwa, Mbita, Macalder and Rangue divisions
15-19	Further discussions with RDWSSP Staff
18-21	Writing report
22	Round up meeting LBDA

2. BACKGROUND

2.1 Project History

2.1.1 In 1979 the Lake Basin Development Authority (LBDA) was constituted by an Act of Parliament with the overall objective to accelerate the development of the Region. It initiated a shallow Wells Project in 1982. The Dutch Government under a bilateral aid programme subsidised the pilot phase, during which 41 handpumps of the SWN 80 and 81 types were installed.

2.1.2 Early in 1983 a Dutch Government Evaluation Mission concluded that the physical feasibility of the abstraction of safe drinking water by means of handpump technology in the Region had been established and at the same time emphasized the need for a viable maintenance system, community mobilisation and the relationship between safe water and sanitation in the improvement of health. The Mission called for a Shallow Wells Workshop, which was held in October 1983.

2.1.3 On the basis of the recommendations of the workshop, two survey activities were started.

(a) a comprehensive and systematic technical survey in the Ndhiwa division of South Nyanza District, an area which was known to be badly off in terms of water supply;

(b) a socio-economic survey with the primary aim of identifying target communities.

2.1.4 After these surveys had been carried out a proposal was drawn up which formed the basis of the Rural Domestic Water Supply and Sanitation Programme (RDWSSP). This Project was approved and funded in an agreement between the Government of Kenya and the Netherlands Government for the period 1985-88.

2.2 Aims

2.2.1 To provide safe water, easily accessible in quantities adequate for drinking, food preparation, personal hygiene and in some cases (small) livestock, at a cost in keeping with the economic level of the communities and through acilities which can be easily operated and maintained at the local level.

2.2.2 To provide health education with emphasis on safe disposal of human excreta through low cost, easily maintained facilities, with the explicit aim of protecting the health of the people from water and excreta-related diseases.

2.2.3 To reduce the burden of carrying water over long distances which, particularly in the case of women and children, who are the chief haulers of water, will save considerable amounts of time and energy, thus creating resources which could be spent on alternative productive activities.

2.2.4 To establish the required institutionalised organisational framework, which will have a positive impact on the organisational capacity of the community.

2.4 Objectives: Phase I 1985-1989

2.3.1 Well construction

To install low cost water supplies in the neediest communities in the whole of Nyanza Province.

2.3.2 Technical Survey

To complete the techincal survey of all surface and groundwater resources in Nyanza Province in a systematic and comprehensive way.

2.3.3 Survey and Design Section

To establish a small but effective Survey and Design Section which will be responsible for all technical planning operations such as the tendering procedures and design documents for all the possible alternatives construction methods, be it pump technology, spring protection or improved low cost sanitation facilities.

2.3.4 Pump Manufacture

To provide the start to the manufacturing of the pump and other water supply installations within the Lake Basin region in close collaboration with the World Bank Pump Testing Programme in Kenya.

2.3.5 Construction Planning and Monitoring Section

To establish a Construction Planning and Monitoring Section which will determine where the improved water supplies and demonstration sanitation facilities will be located and which will by means of appraisal take care of an effective follow-up system.

2.3.6 Training

To initiate and establish Technical Training on four fronts, viz:

(a) the continued training of survey crews for various techniques of water exploration;

(b) the training of water management committees, pump attendants, corrective maintenance crews, stationed in the vicinity of the improved supply points, and maintenance supervisors, so as to guarantee a continued supply of safe water;
(c) the training on-the-job of water supply construction technicians skilled in the various relevant alternative techniques such as pump technology, spring protection, boreholes, dams construction etc;
(d) the training in the production line of the potential manufacturers of reliable pumps, spare parts and other accessories related to water supply technology.

2.4 Statistical data

District	Population 1979 census	Area km2	Population Density km2	Annual Rainfall (Approx)
South Nyanza	815,000	5,700	143	1,318 mm
Siaya	471,900	2,100	224	"
Kisumu	479,700	2,400	200	"
Kisii	867,700	2,300	377	2,407 mm
Total	2,634,300	12,500	210	

South Nyanza, Siaya and Kisum are in lowlands with low rainfall. The driest areas being in the South and West. The Kisii highlands have a plentiful rainfall where there are many rivers and springs.

Population figures are from the 1979 Census

It is estimated that the population in Nyanza Province in the year 2000 will be 4.8 million.

3. PROJECT OPERATIONS

3.1. Construction

Presently, (10 September 1987) a total number of 201 water points have been completed by RDWSSP. 129 of these have been handed over to the communities. This includes also the 50 wells constructed during the pilot phase. The construction during 1986 and 1987 is shown in the table below.

Table 3.1.1. Well Construction 1986-87

	Completed Water Points	Drilled	Dug	Hand drilled	Springs
Before 1986	63	15	48		
1986	68	43	23	2	
1987(10 Sept)	70	19	47		4
Totals	201	77	118	2	4

The target for 1986 was 130 completed water points and for 1987 it is 150. During 1986 a total of 56 holes were abandoned (35 dug and 21 drilled) due to either dry or insufficient yield. So far 24 holes have been abandoned during 1987.

3.1.1. Dug wells

Construction

The construction of a dug well is a rather lengthy procedure, on average 4 months in the project. Factors that have complicated the well digging have been;

- Depth of the ground water. Most wells had to be dug to a depth of over 15 meters and sometimes beyond 20 meters.
- Unstable soil conditions. Most wells needed some sort of lining to avoid collapsing.
- Hard rock (using hammer & chisel).
- Excessive surface and subsurface runoff. During rains the well gets filled with water which means that the digging programme virtually comes to a stand still.

Even though all the above mentioned constraints may occur in one well, a hand dug well is cheaper than a machine drilled well if the ground water level is at 15 to 20 m depth. When no lining is required this is the case for ground water depths of 25-30 m.

Lining of a well in the RDWSSP is carried out in two ways. One way is to cast the lining in-situ which costs nearly Kshs 800 per meter. In-situ lining is used when the top soil is unstable and the prospect of finding water is favourable. (If no water is found the lining cannot be removed and the investment is lost). The other way is to use pre-cast concrete rings. The rings are slightly more expensive than the cast-in-situ lining and with transport and lowering cost the total cost is about double. Not many wells have been deepened within the project. The problem is often that the bedrock has been reached and there is no point in digging further.

Organization

It is the policy of the RDWSSP to contract out construction to local contractors. Two types of well digging contracts are being used. In each case rates per foot are based on various depths and conditions. In the first system the diggers are paid by the project and supervision is done by the project supervisor. In the second system the diggers are paid by a local building contractor who also does the day to day supervision of the digging and lining and these goes on to construct the super structure and install the pump. In practice the project supervision has to assist anyway especially in the digging stage. The advantage of this contract is to save on supervision in remote areas, however it is recommended that, as the project builds up its own team of experienced supervisors, this intermediary contractor will be phased out. Presently approximately 50 wells are under construction of which about 20 are being constructed by contractors and 30 by individual well-diggers.

Community involvement

The community is supposed to assist the digging crew in their accommodation arrangements and to clear the way to the site.

Cost

The average total construction cost for a hand dug well with superstructure and pump were Kshs 54,440/- in 1986. This includes overhead cost (18,040/- per site) and direct costs but not the depreciation of vehicles and other equipment and the cost for expatriate consultancy services.

Table 3.1.2. COSTING OF DUG WELLS

Construction cost per well	1986 Ksh	1985 Ksh
Siting	3,000	2,000
Digging	10,000	9,340
Supervision of digging	- (*8,650)	- (*1,500)
Superstructure	9,400	17,500
Materials	4,500	-
Supervision superstructure	- (*9,030)	- (*5,800)
Handpump equipment	11,300	11,408
Pump installation	1,700	1,000
Supervision pump installation	- (*360)	- (*600)
Overhead (incl. transport)	18,040	7,900
Rounding	-	852
TOTAL	57,940	50,000

* Comparing the figures given for 1985 and 1986 the direct costs are almost the same except that the superstructure cost has been lowered by Ksh 8,100/- and the overhead has increased by Ksh 10,140/-

3.1.2. Drilled wells

Construction

RDWSSP has so far completed 77 drilled wells of which 62 were constructed during 1986-1987. Presently two rotary rigs are operating in the project.

In general machine drilling operations have not met with insoluble technical problems. The major difficulties were encountered when drilling through clayey and alluvial material.

Gravel pack and PVC-casing are transported by project lorries to a central place and from there picked up by the contractor.

It takes about two to three days to construct a drilled well, including the well test.

Organization

Two drilling contractors are presently engaged in the programme, Geodrill Ltd and Kenya Drilling Ltd. They have contracts for a certain number of meters. The performance of Geodrill Ltd has been very good during 1987 while Kenya Drilling Ltd has had problems with well testing due to shortage of equipment. Right now 5 completed boreholes cannot be taken into operation because of this reason.

Two men from the project, one supervisor and one drilling assistant are always present when drilling and well testing is done.

Community participation

The community clears the way to the drilling site.

Cost

A typical machine drilled well with superstructure and pump had an average total construction cost of Ksh 127,470/-. This figure includes overhead cost (18,390/- per site) and direct costs but not the depreciation of vehicles and other equipment and the cost for expatriate consultancy services.

The direct cost for drilling is around 1,200 Ksh per meter.

3.1.3 Recommendations

- In order to achieve the targets of the programme every effort should be made to speed up the well construction work. Furthermore efforts should be made to reduce the unit cost by organising the work into concentrated clusters of wells which can quickly and economically be completed. This should reduce mobilisation and overhead costs and save time.

- The 1988 work plan calls for rehabilitation of traditional dams, however, as this is a domestic water supply programme and no appropriate means is readily available to make such polluted surface water safe, it is recommended that the project concentrate on protected springs and wells.

- The project should keep in touch and periodically visit similar projects in the region in order to keep abreast of development and/or improvements which can be implemented.

- The technical expertise of the project should be made available to DDCs (as well as Divisional, Locational and Sub-Locational Development Committees) during their planning exercise in order that technical and economic feasibility is adequately taken into account before the district priorities and plans are formalized.

3.2. Operation and Maintenance

3.2.1 General

One of the most important elements for the sustainability of a water project is good maintenance of the water points. Many projects have failed due to lack of maintenance skills locally, problems with transport and special tools and lack of spare parts.

The handpumps being installed under RDWSSP are of the SWN type, SWN 80 for shallow wells and SWN 81 for deep wells. Over 190 have been installed so far. Tests carried out in Kenya and Tanzania of the SWN handpump by the UNDP/World Bank Rural Water Supply project concluded in the report Community Water Supply, the Handpump Option:

- The available choice of cylinder sizes means a good discharge for all pumping lifts.

- Consideration of maintenance needs is a major shortcoming of the pump. The method of connection and dismantling the downhole components to and from the pumphead precludes village-level maintenance at any lift. For lifts of less than 12 meters, area mechanic maintenance system is quite feasible but could be difficult for deeper lifts.

- The choice of materials for downhole components provides excellent corrosion resistance.

- A good design and choice of materials gives good abrasion resistance.

- The number of skills and the degree of quality control needed make the pump unsuitable for manufacture in developing countries with only low industrial bases. It is however quite suitable for manufacture in countries with moderately developed industry (e.g. Kenya). During 1987, three workshops in Western Kanya have manufactured two SWN pumpheads each for evaluation of their suitability for manufacturing handpumps. With assistance from the World Bank Rural Water Supply Handpumps Project, the evaluation of the quality of the pumpheads took place in June, 1987. The result was that only one of the three was capable of manufacturing pumpheads to acceptable quality. The next step will now be to give this manufacturer a contract for 35 SWN-80 pumpheads.

3.2.2 Maintenance system

Repairs of handpumps are carried out by maintenance officers on bicycles, Due to the difficulties to repair the pump at village level and the scattered distribution of pumps, this system seems to be suitable at this stage. However, the time between breakdown and repair could be reduced considerably if more maintenance was carried out at village level. Presently the procedure is as follows:

- The Well Committee reports breakdown to Maintenance Officer.
- The Maintenance Officer makes a diagnostic visit to the pump within 5 days.
- The Maintenance Officer diagnosis the breakdown, estimates the cost and hands over an order note for spares and tools to Well Committee .
- The Well Committee arranges transportation of tools and spares from central spares depot to well site.
- The Well Committee informs the Maintenance Officer that tools and spare parts are on site and that maximum 3 labourers will be available.
- The Maintenance Officer carries out the repair within 5 days.
- The Maintenance Officer mails invoice to Well Committee.
- The Well Committee pays the invoice.

Breakdowns that occur within 6 months after pump installation do not have to be paid by the Well Committee.

The procedure for payment of the repair is presently a rather complicated procedure;

- The Maintenance Officer mails the invoice to the Well Committee.
- The Well Committee purchase a money order at the post office.
- The Well Committee forwards the money order to the Maintenance Supervisor.
- The Maintenance Supervisor sends the money order to the Project Head office in Kisumu.
- Head office sends the receipt to the Maintenance Supervisor.

- Maintenance Supervisor forwards the receipt to the Well Committee.

So far, 13 Water Committees have paid for the repair of their pump. Time between invoice issued and paid varies between 3 days to 7 months, with an average of 2 months. Next time the pump breaks down, the Committee has to produce the receipt from their last payment. If they cannot do that, the pump will not be repaired.

Average cost for the 13 repairs is around Kshs 300 of which Kshs 100 is the fee for the actual repair and the rest is for spare parts. On top of that the committee pays the transport cost for themselves to go and report and to collect spare parts.

A pump Maintenance Guide has been produced which will be given to the Water Committees. This guide explains the different responsibilities and lists the spare parts with prices. It could be developed further to include the tools needed and pictures of the different stages of how the repairs are carried out.

3.2.3 Observations

The review team visited Rabuor Village near Kisumu and participated in removing the pump head and lifting the rising main and the cylinder. The removal took about one hour. The foot valve was leaking and this may have been due to faulty seating (which could be due to particles in the valve or due to some slight wear when the pump was used for dewatering during construction). The team noted the following points:

- The device to hold up the pump stand (pedestal) and to clamp the rising main is rather large and heavy and therefore not specially convenient to transport (by hand, bicycle or motorcycle). A smaller stand with 8 holes is used to support the pump head during extraction and 2 pipe wrenches are also needed.

- There is a danger that the pipe wrenches and clamp designed for use on steel pipe may eventually damage the PVC rising main itself or the threads either by the teeth on the wrenches cutting into the PVC or by over stressing the pipe or the threads. This would be a concern if the rising main were taken up many times.

- The special wrench for removing the cylinder ends was not available. There are 3 sizes of cylinder for various discharges and the mechanic had 2 of them, but not the one needed for this cylinder.

- One of the joints of the stainless steel connecting rods (8 mm diameter) was incorrectly joined resulting in some damage to the threads. (N.B. in the visit to Homa Bay the team also noted pumprods broken at the threaded connections.

3.2.4. Recommendation

The project should look into the possibility of getting more routine maintenance done at the village level. This would involve training, supply of tools (tripods made of poles or metal) and some modifications to the rising main and down hole components. Standardisation of cylinder diameter would simplify supply of tools and spare parts. One means of catering for different discharges is by varying the handle length rather than changing the diameter.

The mission feels that a change in the set up of supervisors is necessary for the next phase of the programme. As for now, each supervisor carries out his specialty, like supervision of digging construction, pump installation or maintenance. This means that each supervisor has to cover quite a big area with a lot of time and money spent on transport. With an extensive training programme for supervisors, each supervisor could be stationed in a small area (e.g. one division) and be responsible for all activities carried out.

3.3. Sanitation Component

3.3.1. Sanitation Component Activities from February 1986 to September 1987

It must be stressed from the onset of this particular review that very little of the previous Review Mission's recommendations and advice (February 1986) for this Section of the project has been implemented or acted upon with the consequence that this component now needs considerable and immediate adjustment to its mode of operation in order to justify recommending its continuation into the next phase of this programme.

Superficially the sanitation component appears to have been very active during the past twenty months however, it is now apparent that there has been very little supervision or control involvement in its implementation.

3.3.2. Construction of Demonstration Public or Institutional Latrines

Demonstration public latrines have been constructed by contractors in Ndhiwa (19), Mbita (19) and Rangwe (2) Divisions. In Ndhiwa Division they have been evenly distributed between health centres, markets, schools and Chief's camps. In Mbita Division the distribution has been predominantly at schools and the two units in Rangwe Division are at the District Officer's Office.

Though the previous review mission recommended that the design of the public latrine be revised in order to reduce costs and to improve odour control this recommendation was not acted upon with

the result that the public latrines constructed to date are expensive and create odour problems. It was also noted that the size and location of the drop hole on the latrine slab was incorrect thus creating insanitary conditions. In some schools the demonstration latrines were locked and used exclusively by the teachers thus preventing any demonstration effect on the pupils. The programme policy is however, to continue constructing by contractor up to twenty institutional latrines per Division. The Mission has no serious objection to this though it will represent an increasing larger percentage of the sanitation budget.

3.3.3. Recommendation 1

With immediate effect the public latrines should be redesigned on the principle of one pit to one drop hole to one vent pipe. The slabs and drop holes should also be redesigned. The programme should liaise with the Environmental Health Department of the Ministry of Health who have well proven latrine designs available.

3.3.4. Construction of Individual Latrines

The programme has made a total of 620 latrine slabs for distribution to individuals to construct their own latrines. Records of materials used, distribution of slabs and status of latrine construction in the three Division where activity has taken place is extremely sketchy, confusing and contradictory. The Mission noted the poor design of the slabs which will create insanitary conditions when in use, the poor quality of the concrete resulting in cracks in the slabs and the general lack of supervision and control. Though the programme has a suitable design of an individual latrine which has been produced by the Ministry of Health, it does not appear to use it.

The individual latrines inspected by the Mission highlighted the commitment by individuals to construct their own using the most appropriate and affordable materials available e.g. hand made mud bricks, poles and thatching, split sisal poles and mud. This commitment is attributed to the programme health education campaign sensitising people to the need for latrine ownership and has been confirmed by the Mission through interviews. It is unfortunate, in comparison, that the technical advice given by the project is inadequate, in particular in areas concerning good slab design and finish (including mortared screed to the top of the slab) and sub structure design in unstable soil conditions. The policy of distributing slabs and vent pipes to individuals who have excavated their own pits is commended and should continue provided improved supervision of the dimension of the size of the pit is made. The apparent policy of automatically supplying additional slabs to people who have over excavated the area of the pit should be stopped and they should be charged for the extra slabs. Consideration must also be given to supplying trapezoidal blockwork to those constructing latrines in unstable soil conditions.

3.3.5. Recommendation 2

A demonstration of individual latrines utilizing different types of locally available material for the superstructures should be made at suitable institutions where education campaigns to potential recipients will have most effect. It should include a demonstration of different substructure foundations to be used in unstable soil conditions. These demonstration locations could also be used in conjunction with local artisan training.

3.3.6. Recommendation 3

The responsibility of slab construction should be transfered to the construction section of the programme where adequate supervision is available, once a redesign approved by the Ministry of Health has been made. The slabs should be made under contract to a target price of Ksh 400/- each. This price would include the transportation of sand and ballast, proratered from an estimate of Ksh 200/- per ton and the Contractor's overheads and profit estimated at 20 percent.

3.3.7. Recommendation 4

Proper monthly records of slab production, distribution, pit excavation and latrine construction should be made in order that progress can be monitored, cost controlled and problems identified and rectified easily.

3.3.8. Existing form of Agreement between LBDA and Contractors to construct Pit Latrines

The existing form of Agreement and method of agreeing payment to contractors constructing pit latrines is seriously deficient in certain aspects and is contrary to good professional procedures and possibly Kenyan building codes of practice.

The agreement does not stipulate any form of retention of monies owed to the Contractor, usually 10 % on a building contract, nor does it stipulate a retention period during which time any defects should be rectified by the Contractor. LBDA does not therefore have any hold or claim on the Contractor to rectify any faulty work which has been carried out.

The Mission also established that the Contractors are payed the full tendered amount for the contract and not an amount based upon the financial extension of the agreed quantities of materials used. This then does not take into account variations in the quantity of materials used either greater or lesser than that tendered. An inspection of the constructed latrines has revealed that very little substructure blockwork has been used yet the Contractor is payed for the full amount tendered.

3.3.9. Recommendation 5

With immediate effect a revised form of agreement which includes amounts of retention monies and retention time should be drawn up and implemented.

3.3.10. Recommendation 6

In conjunction with the above recommendation final payment to Contractors will be based upon the financial extension of actual agreed quantities of materials used.

3.3.11. Uniformity of Sanitation Policy between Agencies

Unfortunately the Mission was not able to clearly establish the Sanitation Policies of other Agencies working in South Nyanza. The Programme policy of supplying latrine slabs and vent pipes with factory fitted fly screens to those individuals who have demonstrated their wish to have a VIP latrine by excavating under supervision the pit is to be commended. The programme should strive to ensure that it is their policy which is replicated by other Agencies. In order to do this, close coordination and cooperation with the other Agencies and in particular with the Ministry of Health is essential. Now that a common health education curriculum has been established, a common policy is more likely.

Inevitably as the programme expands and a greater demand for slabs and vent pipes is created, the cost of producing them will become an increasing financial burden to the programme. For long term sustainability consideration should be made during the next phase of the programme to introduce some form of cost recovery in order to partially offset the increasing cost. The method of cost recovery should be drawn up in conjunction with the other agencies working in the sanitation field in order that a common policy is implemented.

3.3.12. Traditional Customs and Beliefs

The previous Review Mission stressed the urgency to initiate a study into existing attitudes and practices related to latrine ownership, usage and hygiene in order that the health education campaign may be modified to take these factors into account. To date this study has not been carried out.

The Mission was able to review a draft survey document prepared by the programme covering traditional customs and beliefs on the use of pit latrines. In the preamble to the questionnaire the assumption was made that people understand the connection between insanitary excreta disposal and causes of disease. This is a fallacy and should not be stated. Six of the seven questions of the survey assume that the household has a latrine and that they can differentiate between a traditional and a VIP latrine. The questionnaire does not address the real area of concern i.e. traditional customs and beliefs on excreta disposal. It is just

as important to find out why people do not have latrines as it is to know why they have them. The term VIP stands for Ventilated Improved Pit. A VIP latrine is a pit latrine which has the following salient characteristics:

a) a vent pipe or vent stack;
b) a flyscreen over the top of the vent;
c) a squat slab or seat which is
   1) structurally stable and
   2) washable.

3.3.13. Recommendation 7

That the programme as a matter of urgency should develop a more suitable and meaningful questionnaire inquiring into the traditional customs and beliefs on excreta disposal in the programme area and that this should be formulated with the assistance of the Sanitation Sociologist in the Environmental Health Department of the Ministry of Health.

3.3.14. Recommendation 8

On completion of the revised questionnaire the study should be implemented and the results analysed as soon as possible for incorporation into the health education programme.

3.3.15. Health Education

It is difficult to assess the impact of the health education activities undertaken so far. However now that a common health education curriculum has been agreed upon and once the results of the attitude survey are analysed and incorporated it may then be possible to give some assessment. What is known however is that the latrine sensitization programme appears to be successful; based upon the fact that people are responding by digging their own pits and constructing their own superstructures in return for the free delivery of slabs and vent pipes.

3.3.16. Health Education and Training Media

Relevant material for public health staff and local artisans, covering construction aspects and health education media promoting latrine ownership, use and maintenance, is at present being developed by the Environmental Health Department of the Ministry of Health. The project should liaise closely with this department in order to benefit by this material rather than by trying to develop its own material which will be time consuming and expensive to produce.

3.3.17 Training of Local Artisans

Though three training workshops for local artisans were scheduled to take place in 1986 and subsequently rescheduled for 1987, to date only one such workshop has actually taken place. However, considering the failure by the programme to give good technical sanitary advice to those prepared to construct their own latrines

this delay may have been beneficial. A consolidation of activity will be required to remedy the mistakes made in the construction of both the institutional and individual latrines to date. This could be used as ideal training for local artisans. As the construction techniques improve so the implementation of training workshops for local artisans should expand. It is suggested that for 1988 three workshops should be held, one in Ndhiwa, one in Kehancha and one in Rangwe in all cases limiting the number of participants to 20. Reviewing progress to date, it would be unwise to extend the training elsewhere. If the training could be coordinated with Recommendation 2, to construct demonstration individual latrines in an appropriate institutional area in each division, then it would have greater impact.

3.3.18 Staffing

With the appointment of contractors to construct the institutional latrines and the recommendation that the construction of individual slabs are also initially contracted out, the main thrust of the sanitation unit within the community development section will be towards giving households advice on constructing good sanitary individual latrines.

The initial consolidation followed by the expansion of the sanitation component will require an able Public Health Officer or Engineer with good planning, budgeting and cost control experience to be overall responsible. An additional Public Health Officer might also be considered to give assistance. To compliment and to ensure complete coordination the Health Education Officer should report directly to the Public Health Officer in charge. At Division level coordination and the co-opting of the assistance of Ministry of Health Staff is essential and consideration must be made to employing additional sanitation foremen, making two per division as demand for latrines increases and greater supervision is required.

3.3.19. Organization

The Mission recognized that there is fragmentation between the different sections within the Community Development Department. As there is little coordination between these sections it has led to the current unacceptable development of this part of the programme.

A greater understanding by the head of the department of the problems besetting the implementation of the sanitation component would greatly enhance its chances of success. It is suggested that he attends a suitable sanitation orientation course in order to gain a greater knowledge of the subject so that he can then discuss sanitation policy and implementation with greater confidence with his staff. Equally the Public Health Officer should report directly to him or through him to the Project Coordinator and not to the LBDA Medical Officer as bypassing of the programme organization will continue to lead to the fragmentation of the Community Development Department.

At division level the sanitation foreman though reporting to the Public Health Officer must liaise at all times with the construction supervisor in connection with the production and distribution of the latrine slabs.

3.3.20. Future Five Year Programme of the Sanitation component 1988-1992

Having reviewed the progress made to date, it is the Mission's opinion that 1988 should be used as a year to consolidate and improve upon the implementation procedures and quality of the output of the sanitation component. In view of the numerous insanitary latrines already being built under the auspices of this programme it is essential that priority be given to rectifying them. With immediate effect improved designs for the latrines must be agreed with the Ministry of Health and remedial work carried out on those already built. Alterations to the slabs must be made though it might be easier to scrap those that have already been fabricated and replace them with ones of improved design.

Once the rectification and remedial work is underway consideration could be given to expand into one new division during 1988. Assuming by then that the methodology, quality and delivery systems are acceptable the programme should expand rapidly over the following four years. It will be essential to increase staff, particularly at division level, and resources, so that the component can be implemented in conjunction with the wells programme while interest in participating is high.

The main area of increased activity will be in the provision of slabs, pit linings and vent pipes for domestic latrines. During 1988 this should be limited, taking into account the remedial work that must also be carried out.

From 1989 onwards the component will increase rapidly from say 600 per annum in 1989 to 5000 per annum by the end of 1992 (see table 3.3.5). As the availability of trained manpower increases and experience of running the programme is gained these projected figures should be reviewed and adjusted accordingly. The Mission was informed that the UNICEF funded Child Survival and Development Programme Policy of assisting schools with latrine construction was not active any longer in South Nyanza. The programme should therefore take the initiative and increase considerably the number of institutional latrines being built at schools under the project, on the condition that they will be used by the pupils and not used exclusively by the teaching staff.

As has previously been stated in 3.3.11 serious consideration must be made during the next phase of the programme to implement a form of cost recovery on the production and supply of slabs and vent pipes. Only when recipient attitude towards sanitation is recognized by the programme to be supportive should this be

implemented. However, if it is not done the financial implications to the programme will be considerable as is illustrated in the succeeding cost tables.

3.3.21. Comment

The Mission has established that the sanitation component is not progressing well. It is an integral part of the Community Development component and it is essential that it compliments the supply of good clean water. It is therefore recommended that the next year is used to consolidate the component, train relevant personnel including those attached to the programme and rectify the mistakes that have been made. Expansion into one other division may take place in order to gain experience of correct implementation procedures. When this is satisfactorily achieved the sanitation component could then be expanded rapidly.

Table 3.3.1 Estimate for one latrine construction workshop

	Ksh
Transport for participants 20 at 50/-	1,000.00
Transport for facilitators 5 at 100/-	500.00
Fuel for LBDA vehicle	2,000.00
Hire of skilled labour 3 at 50/- for 5 days	750.00
Accommodation 5 nights for 20 at 100/-	10,000.00
Accommodation 5 nights for 5 at 150/-	3,750.00
Stationary	1,500.00
Materials for construction of 5 latrines at 1000/-	5,000.00
Total for 1 workshop	24,500.00

Table 3.3.2 Estimate for one individual VIP latrine with trapezoidal block lining, concrete slab and superstructure of temporary materials

	Unit	Rates (Ksh)	Quantity	Project Cost (Ksh)	Household Cost (Ksh)
Excavation	Item	-	-	-	500.00
Slab (contractor built)					
Cement	kg	2.00	31	62.00	-
Weldmesh	m^2	60.76	1.8	109.40	-
Sand	m^3	287.31	0.063	18.00	-
Ballast	m^3	349.00	0.127	44.00	-
Moulds	item			18.00	-
Labour	item			10.00	-
Transportation of sand and ballast	item			72.60	-
Contractors overheads and profit	item			66.00	-
			Sub total	400.00	500.00
Floor finish					
Sand	m^3	287.31	0.052	15.00	-
Cement	kg	2.00	25.00	50.00	-
Skilled labour	day	40.00	0.5	20.00	-
Transport & Supervision	item	60.00	-	60.00	-
			Sub total	145.00	-
Superstructure					
Poles	no	12	10	-	120.00
Sticks (fitoes)	no	18	2	-	36.00
Thatch	item	14	-	-	14.00
Nails	kg	10	2	-	20.00
Labour	item	-	-	-	200.00
Vent pipe with factory Fitted stainless steel fly screen	no	110	1	110.00	-
			Sub total	110.00	390.00

Total for latrine with unlined pit					655.00	890.00

i.e Project cost 655.00
Household cost 890.00
Total cost 1545.00

Pit lining
(average depth 2m using trapezoidal blockwork and dry joints)

Trapezoidal blockwork	no	90	7.0	630	-
Skilled labour	day	40	1.0	40	-
Unskilled labour	day	20	1.0	20	40
Transport & Supervision	item	-	-	60	-
			Sub total	750	40
Total for latrine with lined pit				1405	930

i.e Project cost 1405.00
Household cost 930.00
Total cost 2335.00

Cost of Contractor built Institutional Latrine

The average cost of a contractor built institutional latrine based upon the three tender prices available, correcting all quantities and price extensions and including a dividing wall for the pit and two vent pipes is Ksh 10,000/-. This price assumes that a quarter of all the institutional latrines will require full depth pit lining due to unstable soil condition.

Table 3.3.3 Revised budget for sanitation activities 1988

	Ksh
Practical latrine construction workshop for local artisans 3 at 24500/-	73,500.00
Contractor built institutional demonstration latrines 38 at 10000/-	380,000.00
Concrete slabs 300 at 400/-	120,000.00
Screeding to all slabs 920 at 145/-	133,400.00
Construction of pit linings 100 at 750/-	75,000.00
Vent pipes with factory fitted stainless steel flyscreen 300 at 110/-	33,000.00
Total	814,900.00

Table 3.3.4 Projected Cost of Sanitation Component 1988 - 1992 Ksh x 1000

Item	1988		1989		1990		1991		1992	
	Number	Cost Ksh	Number	Cost Ksh	Number	Cost Ksh	Number	Cost Ksh	Number	Cost Ksh
Workshops	3	74	3	81	5	148	6	196	6	215
Institutional latrines	38	380	60	660	100	1210	120	1597	120	1757
Concrete slabs	300	120	600	264	1700	823	3000	1596	5000	2930
Floor screed	920	133	600	96	1700	298	3000	579	5000	1060
Vent pipes	300	33	600	73	1700	226	3000	438	5000	805
Pit linings	100	75	150	124	425	386	750	749	1250	1373
Totals		815		1298		3091		5155		8140

Assuming (1) 10% per annum increase in costs.
Source: Government Statistics Report 1986.

(2) No cost recovery from recipients.
(They already pay for excavation and superstructure of individual latrines).

(3) 1 in 4 latrines require lining (1988 figures are 1 in 3 but take into account latrines built prior to 1988).

Table 3.3.5 Coverage of Sanitation Component 1988 - 1992

	1988	1989	1990	1991	1992
New Divisions covered	4*	3	5	6	6
Accumulated Divisions covered	4*	7	12	18	24
Accumulated Institutional latrines constructed	78*	138	238	358	478
Accumulated slabs and vent pipes delivered	920*	1520	3220	6220	11220

* Includes those started in 1986 - 1987

3.3.22. Summary

In order to ensure that the sanitation component has realigned itself and is capable of expanding successfully into the next phase of the project it is strongly recommended that a follow up review of this component is made in about six to nine months time. The objective of the review will be to ensure that the following recommendations have successfully been implemented and on that basis to recommend its continuation into the next phase of the programme.

a) To redesign the public latrines.

b) To initiate a demonstration of individual latrines at a suitable institutional area in each Division.

c) To construct redesigned latrine slabs by contractor under the supervision of the construction section.

d) To initiate proper monthly records of programme activities.

e) To revise the form of agreement with the contractors building institutional latrines.

f) To ensure that contractors are paid on the financial extension of agreed actual quantity of materials used.

g) To revise and improve the questionnaire enquiring into traditional customs and beliefs on excreta disposal.

h) To implement the study using the above mentioned questionnaire and incorporate the findings into the health education/sanitation programme.

3.4. Community Development

3.4.1. Community Development Department

Its initial function is to make communities aware of the importance of clean drinking water for the health of that community.

The Community Development Department of the Lake Basin Rural Domestic Water Supply and Sanitation Programme was established to ensure effective community mobilization and proper participation by the programme beneficiaries in operation, management and maintenance of waterpoints and sanitary facilities provided by the programme.

The department is made up of the following components:

- Socio-economic survey
- Health education
- Sanitation
- Monitoring and evaluation
- Women's components.

3.4.2 Identification of needy communities

The identification of needy communities is done through analysis of data generated by three types of scheduled standardised questionnaires:

- household questionnaires, administered to 3 household heads per village;
- key informants questionnaires, administered to 3 opinion leaders per village, and;
- formal discussion questionnaires (evaluation questionnaires), administered in a Sub-location baraza chaired by the Assistant Chief and attended by Village Elders and members of the Sub-locational Development Committees.

From the questionnaires, 16 key parameters which include among other things, the walking distance to improved water points, are given scores. The needy communities are then listed in order of priority scores on Sub-locational basis. From the list of needy communities, sites are identified and presented to the Sub-District Development Committee for approval.

3.4.3 Community Mobilization

The job of mobilizing the Community around the water point starts immediately the water point has been located and agreed upon between the RDWSSP and the local authorities. Water and Sanitation Extensionists are charged with the responsibility of community mobilization. Their job includes:

- formation of the water users group;
- education for election of officer-leaders, the water committee and the pump attendant;
- mobilization of the community to identify with the water point by paying dues for the maintenance and possibly the payment of the pump attendant.
- liase between the community and RDWSSP on the one hand and the community and local sub DDC on the other hand.

It was observed that the existing Extensionists were well trained in their job and sufficiently motivated as was witnesses by the number of committees which had already collected and banked the required Ksh 2.000.

It is recommended that the pace of community mobilization be matched with the capacity of the project to expand its services to avoid raising false hopes and disappointing some communities.

3.4.4. Community Participation

" Community participation requires that as much as possible every one in the community should be involved. Women, all economic classes and ages: community does not only involve the contributions of members' time, money and labour in building the facility, but also calls for community's involvement in decision making etc" Prof. Dr. Migot-Adhola pp. 134-146.

The communities we visited have been sensitized on the need for clean water and sanitation. As a consequence, some have formed water communities and raised at least Kshs 2,000/- (towards maintenance) in anticipation that the Lake Basin Development Authority would dig or drill water wells in their communities. For example Aora Chuodho in Ndhiwa Division had about 24 groups that had raised funds towards this end. Women are actively involved in the quest for water.

There is an acute need for clean water in the Divisions that we visited. These were Mbita, Macalder, Ndhiwa and Rangwe Divisions. The water wells that have been sunk in these divisions areas are scarcely adequate. One woman interviewed at Soko Obilo water well said, she lived five kilometers away from the well. She walks twice a day to collect water for her family. In effect she trecks 20 km per day. It is hard if she has to attend to other domestic chores. Before the well was built other

communities contributed Kshs 1,200/-. There were 600 registered users of the well.

Subsistence farmers and the communities appreciate very much what the LBDA and the Netherlands Government have done to sink water wells in their communities. The water has helped reduce water borne diseases their children have suffered such as cholera, typhoid fever, dysentery, ammoebiasis and bilharzia, (Infant mortality rate was 216 per 1000 births in 1979), yet they still expect the LBDA to dig more holes in order to reduce the long distances women have to walk to collect water. They also have to spend many hours at the wells queuing. The queuing is caused by a number of reasons:

- The water yield may be low.

- The demand for water may be high due to the large number of people using the well.

- Mechanical problems of the hand pumps.

The Rangwe and Macalder areas are sparsely populated. One can travel long distances before coming to homes/villages. There are no clustered villages like those that are in Rangwe Division for example. These distances between homes/villages may make it difficult to give access to water wells to the communities within short distances.

3.4.5. Water Women's Groups

The aim of the Women's Component in the programme, is to mobilize the women for operation and maintenance of the water points, and to involve water users, mainly women in income generating activities around water points. These activities include small scale farming e.g. growing vegetables, tomatoes etc, tree nurseries, afforestation, fish ponds and pottery; etc. These activities are aimed at uplifting the standard of living of women by earning themselves a source of income in order to meet their daily needs e.g. food, clothing and school fees for their children etc.

Women's activities have been seen to succeed around water points where organized women's groups existed and where water yield was high. This can be verified by what the Review Mission saw in the field. Take one example; Aora Chuodho Women's Group in Karungu was growing horticultural crops and tree-nurseries. They had planted trees near the water point and this had transformed the area which otherwise is dry and with little vegetation of any kind. Another successful water point was Pala (Kaumba) spring, a joint venture of the Ministry of Culture and Social Services, the Royal Embassy of the Netherlands and the Fijian University. It has a fish pond, kitchen vegetable garden and a laundry complete. The Pala Women's Group initiated a brick making project at the spring, which was earning them a good income.

Another group in Malela Kanyamwa apart from growing vegetables had fish ponds and was making bricks. On the whole, these groups were doing a commendable job. There are 64 women's groups in six divisions involved in these activities around water points, 2,100 of the women are members of Well Committees.

It was difficult to determine the extent to which the Women's component of the RDWSSP has contributed to the reported success of mobilizing women in the project area.

3.4.6. Recommendations

The LBDA should work closely with the Ministry of Water Development and NGO's that are operating in these areas in building water wells.

The communities should be encouraged to raise funds, if possible through harambee efforts and construct water wells in their areas.

It is recommended that the RDWSSP incorporates the local Social Development Assistants of the Ministry of Culture and Social Services at operational level. This will ensure long term sustainability of the services.

In-service training courses and programmed in-service training for SDAS should be arranged by the Programme Training Officer in collaboration with the Department of Culture and Social Services.

There is a need to conduct a survey to determine the level of participation in the running of water wells and the rate at which water is used; both during the rainy or dry season.

In order to ensure that the women's component of the community development section works more efficiently, the review mission recommends that the women's project officer works under the rural sociologist. This arrangement will help to give more control and guidance to the project officer and will ensure that the necessary support is obtained to facilitate the work of mobilizing the women according to the objectives of the RDWSSP.

The recommendations of both the Community Development Officer and the Rural Sociologist will need to be restructured in view of the existing discrepancy should this recommendation be implemented.

4. INSTITUTIONAL DEVELOPMENT

4.1. Development of Institutions

4.1.1. Background

The RDWSSP is one of the several projects under implementation through LBDA. The programme has remained multi-disciplinary in nature and has focused on integrated development of water, health and sanitation schemes at community level. As such the programme conforms with the declared Government of the Republic of Kenya policy of focusing development at rural and district level especially in terms of provision of water and sanitation facilities.

In order to be able to meet its overall objectives of providing water, health and sanitation facilities at community level, RDWSSP project proposal envisaged to pay a major attention to developing an institutional framework which would be self sustaining in the long run.

4.1.2. Institutional objectives

During the five years of the programme, the following institutional building activities were planned to take place:-

a) The establishment and development of a construction planning and monitoring section for rural water supply and sanitation.

b) The establishment and development of a survey and design section for the rural water supply and sanitation activities.

c) To establish an organizational working relationship between the LBDA and the District Development Committees and other relevant Ministries.

d) The establishment of procedures and arrangements for the creation of water and sanitation committees within the communities and locational/sub-locational development committees.

e) To assist in the development of water and sanitation committees within the communities and villages who will have to be responsible for the community involvement and participation in the implementation, the operations and maintenance of water supply and sanitation facilities.

f) The establishment of a manpower development and training section.

g) To establish the possibilities for the local manufacturing of handpumps, spare parts and other related equipment and to assist on the basis of a feasibility study, in the actual setting up of such a manufacturing unit.

h) To create a distribution network for locally manufactured pumps, parts and other equipments and the development of "servicing" unit which would assist communities in the maintenance.

4.1.3. Institutional Interrelationships

Because of the multi-disciplinary nature of the project and the emphasis on district focus for development, it was imperative to include and involve such Ministries as Water, Agriculture, Health and Provincial Administration in the implementation of the project. A Steering Committee comprising representatives of those Ministries and LBDA was included in the project proposal document. In this, it was hoped that the Ministries would contribute towards the project at policy level and by seconding staff and providing infrastructure where necessary. It was also hoped that through such involvement the Ministries would get committed to the project and ensure its continuity and sustainability should external support come to an end.

The existence of several donors Agencies and NGOs, each with their own set of concepts, goals and policies, but all targeting at the same community with the hope of providing the same types of services was recognised at the onset. It was hoped that the project, through the Steering Committee, would provide a suitable vehicle for harmonizing and coordinating such efforts.

4.1.4. Internal Structures

Apart from developing an infrastructure which would provide an interlink between the project, the relevant Ministries and interested NGO's as referenced above, the project was required to start and develop an internal institutional structure which would most effectively implement programmes and plans aimed at meeting the goals and objectives of the project.

In the initial years of the project an organization structure was developed to meet the initial staff requirement. The structure included:

a) - Project Administration
  i) Project Coordination
  ii) Administration & Personnel
  iii) Accounts

b) - Technical Development Division
  i) Construction Engineering
  ii) Water Resources Engineering
  iii) Geophysical Survey
  iv) Maintenance

c) - Community Development Division
  i) Rural Sociology
  ii) Public Health
  iii) Women's Organization

In addition to the structure described above, a team of external construction Engineers, Hydrologists and Geologists were contracted as consultants to help set up the system and develop their local counterparts. Based on the contractual agreement the consultants were required to maintain executive functions in the project until suitable local counterparts were identified, recruited and trained.

4.1.5. Training

Training component was rated highly in contributing towards achieving the ultimate goals of the project i.e. that of providing clean and safe water and improving health and sanitation for the rural communities and getting such communities to be committed to owning and maintaining the services. Apart from mobilising the communities, the training function was also expected to develop relevant training modules for preparing the staff recruited in the project towards effective and efficient project management. Training was therefore expected to address two but integrated target levels i.e.

- Community training.

- Technical and other staff training.

Whereas community level training was expected to precede the construction and installation of the water pumps, technical and other staff training was expected to be a slow process including on-the-job and experience exposures.

4.2. Observations

It was observed that the project has gone a long way in building institutional infrastructures which have helped meet its initial objectives and goals.

4.2.1. Technical Services

It was observed that construction survey and design sections have been established and developed to satisfactory standards as discussed elsewhere in this report. The DHV Consulting Engineers have nevertheless continued tp perform certain implementation functions as LBDA have not yet recruited suitable staff to understudy and take over these functions.

4.2.2. Government Involvement and Support

It was observed also that the Ministry of Water Development, the Ministry of Health and the Provincial Administration had been incorporated and integrated in the project at operational level. The Ministry of Water Development has seconded two (2) Geologists, one (1) Water Technician and one (1) Field Maintenance Officer to the project while Ministry of Health has seconded three (3) Public Health Technicians. Both the Ministries are meeting the emoluments of those staff they have on secondment. It was observed further that the Ministry of Culture and Social Services has not been involved sufficiently both at policy and implementation levels. It is recommended that this Ministry is incorporated at the Steering Committee level and that the Ministry seconds to the project its Community Development Assistants at the divisional levels.

4.2.3. Establishment of Water Committees

It was observed that whereas water committees had been established and developed at locational and sub-locational levels and also at each water point (well pump or spring), nothing similar had been done in respect of sanitation. Having observed this, it is questioned whether it is absolutely necessary to have different committees in the same community handling sanitation specifically. It will be more advisable to redefine the role and functions of the water committees to include the issue of improved sanitation services within the communities. The Public Health Section of the project should liaise with the community development section within the same division in order to include public sanitation issues in committee training module.

It was noted that the Public Health Section has tended to report for coordination to the Medical Officer of LBDA. This is an unsatisfactory situation which must be discouraged. It is recommended that this section be integrated fully in the project by reporting to the Project Manager through the Community Development Officer.

4.2.4. Recruitment of Training Officer

It was observed that the position of Manpower Development and Training Officer for the project had not yet been filled.

Presently the Training and Institutional Development Expert of LBDA is giving some of his time from LBDA to provide some training for project staff and help them in developing training methodologies required in field training for the communities, the water committees, the leaders, and the pump attendants.

The expert also hopes to provide training to project staff in methodologies of on-the-job training of new and less experienced staff. All these efforts and plans, although impressive, are yet to be implemented for their impact to be measurable. The Mission

recommends that a qualified Trainer with adult teaching diploma and experience is employed at the earliest opportunity whose duties will be to implement training along the lines suggested.

4.2.5. Local Manufacture of Pumps

It was observed that some efforts had been made to establish local manufacturing of hand pumps. It was noted nevertheless that certain pump components may continue to be imported. An important objective of the project has been to see that suitable pumps and spare parts are produced locally. As pump production in Kenya is still in an early phase, there must be careful inspection and prequalification of prospective pump producers. Initially trial orders must be placed and successfully pass inspection prior to the making of larger orders.

4.2.6. Steering Committee

It was observed that the Steering Committee has not been convened at all lately.

4.2.7. Internal Institutional Structure Building

It was observed that the project had gone a long way to start and develop an internal institutional structure which works fairly well and efficiently. It was noted that some positions were filled by unsuitable people maybe due to pressures external to the project and LBDA. It is suggested that strict professional selection procedures be followed when making key appointments in order to avoid compromising the ultimate goals and objectives of the project. Existing unsuitable appointments may be redeployed or phased out by natural wastage. A selection panel should vet all applications. In the case of specialised technical posts the panel should avail itself of professional advice relevant to the particular job and requisite qualifications.

4.3. Recommendations

4.3.1. Steering Committee

The Steering Committee must be reactivated with its role and functions redefined to specifically include that of coordinating the implementation of the project within the four districts. In the long run the Steering Committee should plan for the smooth continuation of the project even after the current financial support terminates.

4.3.2. Organisation Structure

4.3.2.1. According to the plan the expert consultants should not have routine line management functions. In order to make this a reality, the project will have to recruit local professionally qualified and experienced construction engineers to manage the technical services section along the lines suggested in the appended Organisation Chart.

The Mission notes that the prospects for effective functioning of the important technical services department depend very much on who is selected to head the department. Unless and until a professionally qualified engineer with relevant experience and a record of good performance is found, the prospects for future successful functioning cannot be considered as good.

4.3.2.2. The management of the project is the main responsibility of the Project Coordinator and in view of the fact that the present designation does not adequately indicate the responsibility which goes with the position, the Mission recommends that the position be designated as Project Manager. The Project Manager is answerable to LBDA for daily management of the project and in this way accountable to the Governments of Kenya and the Netherlands for effective use of the funds channelled through the project.

4.3.2.3. It is recommended that a professionally qualified (CPA or equivalent) and experienced Accountant be appointed to manage the funds of the project and competently advise the Project Manager on the daily financial position of the project. The present incumbent although he holds the desired paper qualifications and experience does not seem to have the competence to provide that management support. This has to be seen in light of the magnitude of funds which will be committed to the project based on the overall recommendation to channel all the funds through the project.

It is reasonable to recommend that the donor agency be consulted when appointing or terminating the services of the Project Manager and the Accountant as these two positions will be crucial in the overall project management and the management of support funds.

4.3.3. Women's Organization

Since women are the majority users of the wells in terms of drawing water for family use and laundry, their organised activities around the water points will continue to be important.

It is recommended that the Women's Organiser of the project be given more support than was evident until now. A qualified rural sociologist should be deployed to work with the Women's Organiser. Four Field Extensionists, one for each district, should be employed to work in this section.

It is further recommended that the Women's Organisation Section incorporates the services of the Community Development Assistants of the Ministry of Culture and Social Services while mobilising women at water point levels, and that this section fall directly under the supervision of a qualified rural sociologist as suggested in the chart.

4.3.4. Public Health Services

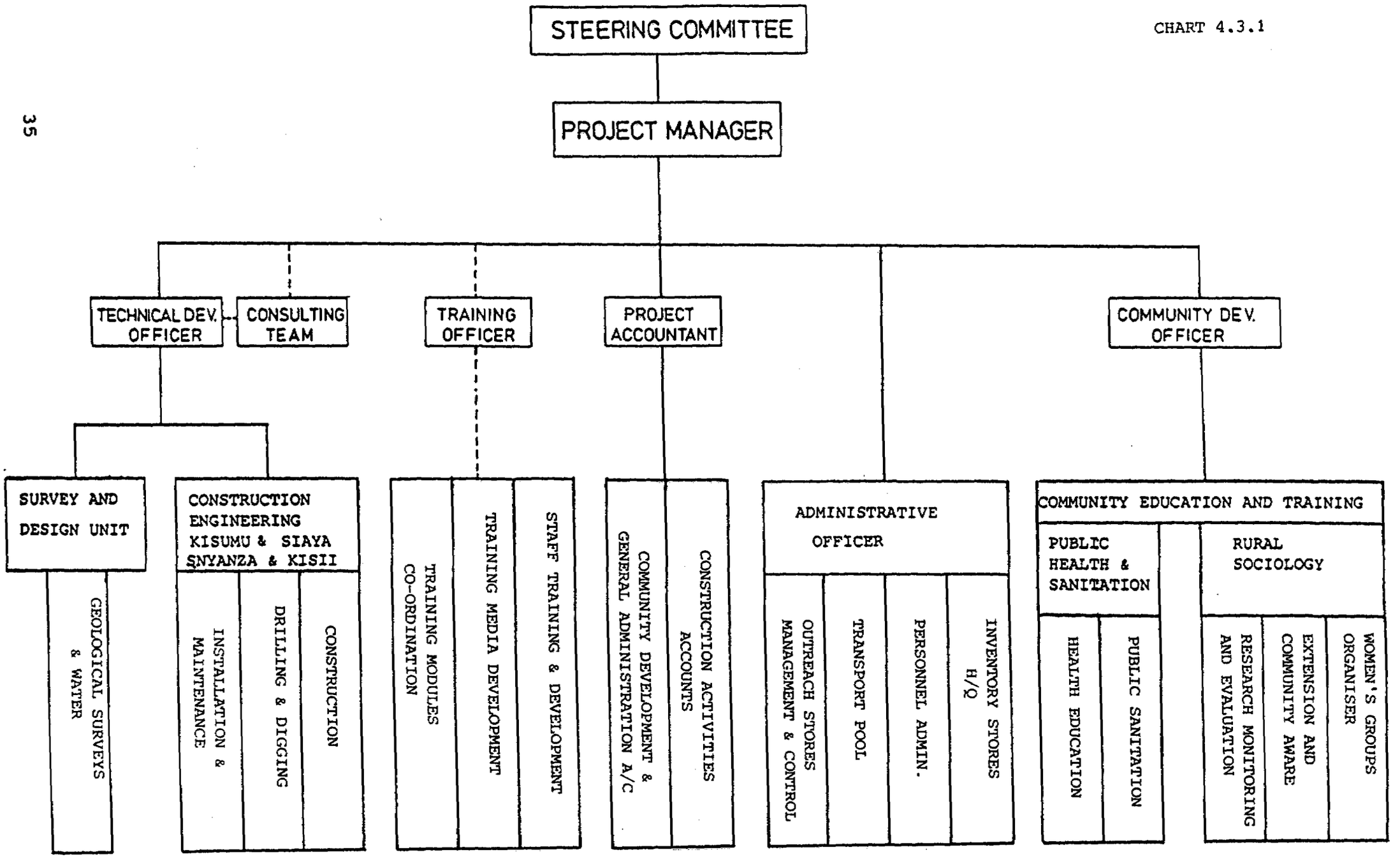
It is recommended that the Public Health Services be reorganised and streamlined within the projects organisation structure. The Public Health Educator should report to the Public Health Technician who in turn should report to the Community Development Officer of the project.

In this way, it will be easier to coordinate the Public Health services and incorporate them under the overall community mobilisation.

4.3.5. Manpower Development & Training

It is highly recommended that a qualified and experienced adult educator be appointed to manage and coordinate all the training functions of the project. This will greatly enhance training for succession and adult training needed at the community levels. It is also recommended that this position be filled on contract or retainer basis in order to avoid having a permanent establishment which may not be sustained after the end of the project support period.

CHART 4.3.1


STEERING COMMITTEE
PROJECT MANAGER
TECHNICAL DEV. OFFICER
CONSULTING TEAM
TRAINING OFFICER
PROJECT ACCOUNTANT
COMMUNITY DEV. OFFICER
SURVEY AND DESIGN UNIT
GEOLOGICAL SURVEYS & WATER
CONSTRUCTION ENGINEERING KISUMU & SIAYA SNYANZA & KISII
INSTALLATION & MAINTENANCE
DRILLING & DIGGING
CONSTRUCTION
TRAINING MODULES CO-ORDINATION
TRAINING MEDIA DEVELOPMENT
STAFF TRAINING & DEVELOPMENT
COMMUNITY DEVELOPMENT & GENERAL ADMINISTRATION A/C
CONSTRUCTION ACTIVITIES ACCOUNTS
ADMINISTRATIVE OFFICER
OUTREACH STORES MANAGEMENT & CONTROL
TRANSPORT POOL
PERSONNEL ADMIN.
INVENTORY STORES H/Q
COMMUNITY EDUCATION AND TRAINING
PUBLIC HEALTH & SANITATION
HEALTH EDUCATION
PUBLIC SANITATION
RURAL SOCIOLOGY
RESEARCH MONITORING AND EVALUATION
EXTENSION AND COMMUNITY AWARE
WOMEN'S GROUPS ORGANISER

5. TRAINING

5.1. Background

5.1.1. Training is an all embracing word which may be interpreted to mean:

- Providing knowledge and skills.

- Changing behaviour and attitudes.

In the RDWSSP training was conceived to mean the provision of knowledge and skills to various levels of staff working in the project and to the community leaders. It was also conceived to mean changing of behaviour and attitudes of the community in relation to domestic water use and the use of certain basic sanitation facilities and the sustainance of good sanitation practices.

The present concept of training in the project has concentrated efforts in training extension staff and some selected technical staff as trainers. Those trained are expected to use the skills and knowledge gained in providing training, either on-the-job for other staff, or for training the community in relation to the use and ownership of the water points.

For the technical staff, the most important training component was planned to be through experience gained from the expert consultants through several years of working together.

In order to provide training based on the concepts described, detailed study of staff training needs has been made and a paper prepared.

The concept of training described above presupposes that everyone can be trained to be a trainer. While this may be so, in practice things are very different. Many psychological factors come into play at work which may hinder a teaching/learning atmosphere. There may exist interpersonal dynamics which may not facilitate teaching/learning. The trainer may be too much under pressure of work to find time to draw up appropriate learning modules for the trainees.

5.1.2. Notwithstanding what is stated above, the steps taken so far in conceptualising training must be commended. A thorough study of the job descriptions of every position in the establishment has been made. This has formed a useful basis for determining training needs. The training modules which have been developed for each job or job categories may also be used to establish performance discrepancies, thus determining the actual training needs for each job or job categories. The existing document may form a useful basis for writing a training manual.

5.1.3. Performance levels have impressed the Mission as generally satisfactory and high. This is because so far the training has focused on manual demonstrable jobs.

The test of training effectiveness will be measured against the ability of the staff at all levels to carry out effective supervision, make effective and accurate decisions, manage the resources they have effectively and efficiently, and finally be able to understand the complex interrelationships between what each of them is doing and what others in the project do and how this affects the overall objectives of the project in terms of national development.

In our opinion the present concept does not address these issues at all, especially at the middle and senior management levels of the project.

5.1.4. The overall objective of training in RDWSSP was very clearly spelt out. It was recognised that certain areas need to be developed more rapidly than others, such as more effective publicity campaigns and monitoring and evaluation procedures which will preceed the technical activities in the field. This in effect means that personnel in community development sections of the project should have been trained and better prepared for their role in training the communities in advance of the technical personnel.

The following training objectives were planned.

- Training will facilitate phasing out of key expatriate professional staff and replacing them with local staff.

- Training should be regarded as a composite part of Institutional Development of RDWSSP and must cater for its efficient expansion to enhance policies, the organisation, resources and environment.

- The training for RDWSSP must be undertaken in conjunction with the LBDA overall training programmes and manpower development plans.

- A Structured Training Programme must be commenced immediately within the RDWSSP.

- The training programme should be utilised to assist the Community Development Department to use existing audio visual educational material and to develop new materials, relevant to the programme, wherever required.

- The training programme should pay attention to developing a methodology of monitoring and evaluation of all the activities within RDWSSP.

- Through the training programme of the RDWSSP, an attempt must be made through LBDA to form a closer liaison with relevant Government of Kenya and Non Government Organizations projects in the field of training and in a constant exchange of ideas materials.

- RDWSSP should develop career development patterns in order to avoid excessive labour turnover.

5.1.5. In order to meet the objectives stated in 5.1.4 above, the training component was planned in three distinct phases.

- Phase I
  - Organisational analysis;
  - job descriptions;
  - training planning;
  - inventory of existing training modules/programmes;
  - formulation of training objectives;
  - link up with inter alia Kenya (Syllabus) Board - National Examination Council-, Training Institute of the Ministry of Water Development.

- Phase II
  - Preparation of training modules;
  - preparation of training courses;
  - detailed training planning;
  - evaluation, approval by LBDA etc.

- Phase III
  - Preparation of syllabi, training programme in detail;
  - implementation;
    * training of trainers;
    * training of personnel.
  - monitoring and evaluation etc.

5.2. Observations

5.2.1. Community Training

The Training component of the project was perceived to be very important and was supposed to be approached at different stages:

- Reconnaissance and community awareness including women awareness to the need for clean water and better sanitation habits.

- Building of groups and organisation structures around the proposed water points.

- Training of community leaders including water committee members, women's group leaders and pump attendants.

- Training of local well diggers.

We observed a very high degree of community awareness for the need for clean water. Many communities had collected the required Ksh 2000/- which was deemed as the amount required in order to qualify for a well/pump.

Many communities had also formed local committees to manage the affairs of the water point and collect funds for maintenance and for paying the Pump Attendants.

Although the majority of the people drawing water from the water points were women, the Mission did not find many activities of women around the pumps. The project was supposed to organise women to embark on social and economic activities centered around the water point. Such activities should have included 1) vegetable growing 2) tree nurseries to improve woodfuel situation 3) washing slabs and bathrooms.

A few of the pump attendants met in the field had been trained to handle the pumps should these break down. Most of them were only required to report breakdowns and in this way covering long distances to reach the maintenance supervisors. It is recommended that all the pump attendants be trained in all mechanical aspects and the functioning of the pumps to enable them to perform minor maintenance and repairs of the pumps.

An effective team of hand diggers had been trained on the practical aspect of hand digging of the wells. In one case we witnessed a team which had also been trained to perform the operation of in situ Well lining while digging in difficult soil structures. The envisaged bookkeeping has not been taught to the hand diggers.

A very appropriate radio programme had been developed and translated in different local languages as a tool for campaign to educate the rural communities on the need to improve rural sanitation and hygiene conditions.

5.2.2. Staff Training

The Mission observed that two senior staff members had been sent out on professional training - one in rural sociology and another in geophysical survey. Other staff members have been taken through sessions to prepare them as trainers in their areas of operation. For example, all staff in community development department have gone through sessions on public speaking and preparation of teaching notes.

As discussed above, a systematic training manual has been prepared for training staff either to perform as trainers or for staff training on the job including performance improvement based on experience.

The project has not found it necessary to organise training sessions to handle such topics inter alia as:

- management functions;
- effective supervision;
- interpersonal relationships and group dynamics as relating to rural communities;
- decision making processes;
- communication and report writing;
- bookkeeping and cost control;
- work planning and time management;
- inventory and stock control.

These topics are considered very essential in preparing the staff member to perform efficiently and effectively at their operational levels. The Mission disagrees with the institutional development and management training expert that the teaching of these topics would lead to high staff turnover. This Mission believes that the rate of staff turnover will be influenced by many other factors other than the job dissatisfaction resulting from rapid training.

5.2.3. Training Coordination

Presently the function of training for the project is under the institutional development and manpower training expert employed to serve the whole of LBDA. The Mission found this arrangement to be very unsatisfactory due to the many different demands for other services placed on the expert by LBDA. Such high demands have led to a situation where the actual training needs of the project have been very much neglected.

It is very strongly recommended that the RDWSSP employs a professionally qualified staff who has at least a Diploma in Adult Education as the Training Officer. This officer will have the duty of adapting the existing theoretical concept developed by the expert to a more pragmatic and practical application. It is suggested that the Training Officer for the project is employed before the next phase of the donor support.

5.2.4. Training Media Development

Although the development of audio visual teaching aids was included in the initial project proposal and funds allocated for it in the annual budgets of donor agency, this service has not been developed sufficiently. It is claimed that the media development is complicated and cannot be managed by the existing staff. The Mission recommends that the services of a media

expert be employed to teach the staff in the technical and community development departments the skills require to develop and produce simple and effective aids.

5.3. Recommendations

5.3.1. Training Officer

In order to achieve the desired results of training at different levels described in this report, it is strongly recommended that a Training Officer is employed to serve only the needs of the Project. The selection of the Training Officer must be done expertly to take regard of professional qualification, experience as an adult educator and with a sense of maturity to operate without close supervision.

It is recommended that the Training Officer should hold not less than a Diploma in Adult Teaching. The Officer should report directly to the Project Manager to ensure neutrality between technical and community development departments.

5.3.2. Media Specialist

The RDWSSP is developing a unique approach to rural community development which is focused around a common activity and service. The spread of the knowledge and skills gained in handling such communities may be enhanced by developing simple audio and visual teaching materials from such real situations of development. If the project succeeds the knowledge and skills gained will be very useful elsewhere.

It is recommended that a Media Specialist be engaged from within Kenya on a limited time contract to teach staff in the technical and community development departments the procedures of developing and producing simple teaching aids.

5.3.3. Staff Training

It is recommended that the existing document be scaled down and a systematic structured training programme be developed out of it. The urgency of restructuring training and developing an appropriate programme is emphasised by the existing backlog of training discussed above and by the expected new recruitments to fill the suggested establishment. There will be need to reorganise and restructure some jobs in the field. This exercise will require specific training plan which must be included in the restructured programme. The restructured training programme should be done in the context of the overall institutional development and manpower development needs. The recommended scaling down of the training proposal and the necessary restructuring of the programme may either be contracted to a local training consultant with an understanding of rural social dynamics or be done by the Training Officer to be recruited to the project.

5.3.4. Community Training

It is recommended that a systematic and structured training for the communities identified for a water point or which already have water points be developed. The components should include a) Community Leaders b) Water Sanitation Committee members c) Pump Attendants d) Women's Groups e) Women's Group Leaders f) Well Diggers. It is recommended that the present Radio Broadcast Programme for Health/Sanitation be perfected and extended to include basic issues of community involvement around a water point.

6. FINANCIAL ASPECTS

6.1. Accounting and Financial Management

The mission obtained sufficient detailed information on costs and expenditures in the project. Accounting for construction services has been computerised making it possible to get instantaneous overview of the state of the finances allocated and expended. Attempts are being made to include the imprest accounts in the existing computer along the same lines applied for construction services. The need to adjust the whole computerised accounting for the project with the aim of unifying the two accounts has been identified. This will make it possible for the project management to obtain accurate financial statements when such are needed for decision making.

It was observed that during the current phase, the project funds were split up and channelled to the project in different ways. This situation led to the fact that project management was not able to have complete overview of all the funds in the project when this was required.

It is recommended that construction activities costs (including related personnel and administrative elements) the community development costs and general administration costs of the project be channelled directly to the project during the next phase. The project manager will be made accountable for these funds both to the LBDA Managing Director and to the Royal Netherlands Government. The cost of consultants plus costs of off shore acquisition of equipments and parts should be retained and managed by the Embassy of Netherlands, but must be fully reflected in the project's financial planning.

The suggested channelling of all costs related to the project directly under the management of the Project Manager will result in the need to engage a well qualified Accountant who has experience in computerised accounting. It is highly recommended that the project recruits an Accountant whose background meets these requirements. This recommendation is made based on the fact that there will be enormous amounts of money channelled through the project and which will be accounted for on a fairly regular basis based on computerised system

6.2. Planning

The existing financial planning was based on an agreed cost sharing formula between the Government of Kenya (through LBDA) and the Netherlands Government. The planning exercise was expressed in terms of project expenditure based on the following percentages:

a) Surveys 15%
b) Community Development 19%
c) Training 13%

d) Local manufacturing 10%
e) Development of low cost techniques 2%
f) Construction activities 50%

The operational details have been included in the annual workplans which have been produced regularly.

It was observed though that the annual workplan budget figures did not include the previous years actual expenditure to facilitate trend control. It is recommended that the previous years actual expenditure figures be included in the future workplan budget figures.

It is also recommended that a four year financial planning be made at the beginning of the next phase bearing in mind possible local take over of the project and its sustainability after the external funding terminates.

It was also observed that hydro-geophysical surveys had been done covering the whole project area. Appropriate maps had been produced. It is recommended that hydro-geophysical component be scaled down accordingly in order to maintain only those staff who will help with the location and siting of water points.

6.3. Project Costing

The previous review mission suggested a layout for presenting a summary of estimated project costings which this mission recommends with modifications (See following table 6.3.1)

6.4. Management Control

At present management control on the project funds is based only on the anticipation that proper accounting and expenditure controls will be applied. An auditor of the Embassy comes to check that expenditure on the imprest account are made in line with the budget. The construction activities account is not audited. Instead monthly statements of account are produced and sent both to LBDA management and the Embassy.

In order to ensure even better control, it is recommended that the project accounts be audited annually by a firm of qualified auditors who have international repute.

6.5. Recommendations

6.5.1. The project funds related to construction activities and the general imprest accounts should be channelled directly through the Project and be made the responsibility of the Project Manager.

6.5.2. A qualified and experienced accountant (CPA or equivalent) should be appointed with immediate effect to handle all project accounts and should be directly responsible to the Project Manager. As recommended elsewhere, it should be

Table 6.3.1. Summary of Project Costs

Descriptions	Local Component	Local Component	Total	Local Component	Foreign Component	Total
Water Supply Construction						
- Dug Wells						
- Drilled Wells						
- Spring improvement						
- Dam reinstatement						
- Equipment						
(Sub total)						
Sanitation Construction						
- Slab manufacture						
- Substruct. reinforcement						
- Cost of rent pipes						
- Institutional latrines						
- (Sub total)						
Socio-Economic Survey						
-						
-						
(Sub total)						
Community Development						
-						
-						
(Sub total)						
Support Services						
- Stores						
- Workshops						
- Vehicles						
- Others						
(Sub total)						

Table 6.3.1. cont.

Descriptions	Local Component	Local Component	Total	Local Component	Foreign Component	Total
Other Costs						
- Consultants costs						
- Personnel costs						
- Office administration						
- Training and Manpower Development						
- Others						
(Sub total)						
Contingencies						
- Physical						
- Price						
(Sub total)						
Duties and Taxes						
-						
(Sub total)						
Total Project Cost						

7. MONITORING AND EVALUATION

7.1. Monitoring and evaluation is interpreted to relate to:

a) the function of the Wells in terms of expected water output and the quality;

b) the ability of the Well Committees to manage the affairs of the Well including taking appropriate actions in cases of break down;

c) assessing and evaluating the effect and impact of the Wells on the community in terms of improved health and sanitation;

d) additional developments resulting from the installation of the Well. These include income generating activities by the community and/or investment to improve the service e.g. bathrooms, washing slabs and public toilets.

7.2. Observations

The project's Community Development Division has developed appropriate systems of monitoring and evaluating the project in all the parameters a) to b) in reference above.
The recommendation by the 1986 Review Mission that appropriate monitoring and evaluation mechanism be developed and incorporated as an integral part of the project has been fulfilled to our satisfaction. However, baseline data and information collected for South Nyanza and Kisii Districts should be analysed and interpreted prior to the commencement of the next phase so as to provide primary comparative data base for future evaluative survey. Presently this information is held in Nairobi in a computer system not compatible to what has been installed.

The most important tools for raising baseline data and for monitoring and evaluation are the questionnaires and Well performance reporting forms. The forms collect running details on water collection patterns and the extent of water users commitment through payments for water drawn. A computer has been installed and programmes developed to process the information. It will be possible to obtain quarterly reports indicating progress made and from which problems may be identified. Example of the information collection instruments are appended.

7.2.3. Recommendations

- It is recommended that the monitoring and evaluation mechanisms already introduced be developed and improved and that sanitation parameters be incorporated.

- It is recommended that the mechanism be used to analyse and interpret data collected before and during implementation in South Nyanza and Kisii Districts by

transferring from SPSS computer programme to the newly installed project computer systems.

- It is recommended that an independent evaluative socio economic survey be carried in South Nyanza and Kisii prior to the next project phase to determine the degree of community participation and appreciation. Similar evaluative surveys should be carried within the project area every two years. Terms of reference for such an evaluation survey are suggested and appended at annex 7.

ANNEX 1

TERMS OF REFERENCE REVIEW MISSION

LAKE BASIN DEVELOPMENT AUTHORITY

RURAL DOMESTIC WATER SUPPLY & SANITATION PROGRAMME

OCTOBER 1987

1. BACKGROUND

The Government of Kenya and the Government of the Netherlands have agreed that Rural Domestic Water Supply is one of the sectors of programme concentration within their development cooperation. In accordance with this it was decided in 1982 to start a "Rural Water Supply Development Pilot Project" followed by several extensions on rural domestic water supply development through "Shallow Wells". In 1984 it was decided to start with a large scale programme which was approved in 1985. The Netherlands grant funding of the programme expires at the end of 1988.

The Planned outputs and activities are as follows:

- Construction of 750 water points (dug wells, drilled wells and spring protections).
- Systematic assessment of the available water resources for the whole of Nyanza Province.
- Rehabilitation of existing wells.
- Monitoring the quality of the water and the use of the handpump wells.
- Organize and activate community participation with regard to and maintenance of the wells and to sanitation and public health aspects.
- Preparation and the beginning of the implementation of a training programme.

The progress of the project was reviewed in February/March 1986. It was agreed to carry out a second review in October 1987, particularly with a view to advise both Governments on the feasibility of a continuation of the programme after December 1988.

2. PURPOSE OF THE MISSION

2.1. To review the activities which have been implemented by the Rural Domestic Water Supply and Sanitation Programme (RDWSSP) and the role and function of the agencies involved and to assess its achievement and development impact, in particular for the period since the review of February/March 1986.

2.2. To analyse and appraise the objectives and targets of the programme versus programme output, achievements and development impact. This analysis should include the identification and appraisal of factors which have constrained or facilitated the success of the programme.

2.3. To appraise the implementation of the recommendations and proposed Plan of Action of the Appraisal Mission of February/March 1986 with special attention to:

a) the functioning of the Women's programme within RDWSSP;

b) the functioning of the training and Institutional Development Programme;

c) community participation (especially women) in decision-making processes.

2.4. To examine and evaluate issues (for feasibility) concerning the continuation of the project after the completion of the first phase at the end of 1988. The time frame for a continuation of the programme should not be less than 4 years.

2.5. To recommend any modifications to the original objectives and targets, strategies and activities in relation to the institutional, human and financial resources needed for the sustainability of the programme.

2.6. Based on its assessment of capacity and readiness on the one hand and the desired objectives on the other hand the review should specifically make detailed recommendations about:

a) the size and scope of the programme;

b) the necessary managerial and institutional arrangements;

c) the required manpower and training;

d) the required financial resources;

e) the phasing of donor versus local inputs in the programme.

Suggestions for incorporation of the above requirements in the 1988 Work Plan should be part of the review's recommendations.

3. TIMETABLE AND REPORT

The Review is to be carried out from 4th to 24th October 1987. The Review Team should present its findings and recommendations in a written report. The findings and recommendations of the Review in their draft version shall be discussed with the Review Team in a meeting with the Lake Basin Development Authority and the Netherlands Embassy before the 24th October 1987.

REVIEW MISSION TEAM

1.	LINDESAY ROBERTSON	Review Team Leader Rural Water Programme Malawi (Retired) Water Aid Engineering Advisor to Ghana (Engineer)
2.	JAMES G. WILSON	Programme Officer, IRC. The International Reference Centre for Community Water Supply and Sanitation, The Netherlands (Sanitary Engineer)
3.	JOSEPH WANDERA OWINDI	Senior Social Development Officer: Ministry of Culture & Social services (Sociologist)
4.	THOMAS OCHIENG OYIEKE	Director, Matrix Development Consultant (K) Ltd (Economist)
5.	JOHN D. SKODA	UNDP/World Bank, Regional Project Officer, Rural Water Supply Handpumps Project (Civil Engineer)
6.	ANNE MALM	UNDP/World Bank, Associate Expert, Rural Water Supply Handpumps Project (Water Engineer)

ANNEX 3

RESOURCE PERSONS CONTACTED

S.B. Obura	Managing Director Lake Basin Development Authority
Leonard Kibera	Deputy Provincial Commissioner Nyanza Province
Cyrus Gituai	District Commissioner South Nyanza District
David D. Arunga	Project Co-ordinator
J.M.G. Odongo	Liaison Officer P.A.to MD LBDA
Paul van Meel	Head Technical Department DHV Consulting Engineers
Leo Poyck	Senior Planner LBDA-RDWSSP
John Nyandoro	Community Development Officer - LBDA
Ouko Reru	Accountant Rural Domestic Water Supply & Sanitation Programme
Chris Ngari	Provincial Director Social Services Nyanza Province
Stan Buckens	Organization Advisor LBDA
J. N. Bonuke	Regional Planner - LBDA

Allan Vincent	Institutional Development and Manpower Training Expert - LBDA/RDWSSP
Alfred Okinda	Rural Sociologist - RDWSSP
Grace Woigo	Women Organizer - LBDA
Onyango Ogembo	Hydrologist/Project Engineer RDWSSP-LBDA
James Adhiambo	Public Health Officer LBDA-RDWSSP
Zephania Nyamongo	Public Health Officer (Health Education) LBDA-RDWSSP
Margaret Ombai	Project Assistant Community Development (Sociologist)
Risper Amore	Community Development Assistant (Sociologist)
Martin Onyonyi	Extension Assistant Community Development RDWSSP

MEETINGS/DISCUSSIONS

Public and site meetings were conducted at Sokobito water point, Waondo Pala water springs and Aora Chuodho. At Waondo we held discussions with representatives of water committees officials from Sindo, Sigana, Kodemba, Kochola and Osoko-Obilo villages in Mbita Division. We were accompanied by the area Chief and extension workers.

ANNEX 4

Computerised Accounting System

DETAILED PROPOSAL OF ACCOUNTING SYSTEM FOR RURAL DOMESTIC WATER SUPPLY AND SANITATION PROGRAMME USING BASIC CODE SYSTEM OF THE ROYAL NETHERLANDS EMBASSY

91	Project Identification, Monitoring, Appraisal
9130	Appraisal Missions
92	Expenses Personnel
9230	Salaries Personnel via payroll
9231	Salaries SES via payment vouchers
9232	Other salaries via payment vouchers
9233	Overtime Allowances
9235	Salary Advances
9240	Payment NSSF Contributions
9241	Payment Taxes (PAYE)
9242	Payment contribution National Hospital Insurance Fund (NHIF)
9250	Housing Allowances via payroll
9251	House Rent extensionists
9255	Other subsistence expenses (uniforms etc.)
9259	Miscellaneous Personnel
9260	Local Sub-contracts sanitation
9270	Consultants
94	Purchases and Investments
9420	Purchase Office Equipment
9421	Purchase Furniture
9430	Purchase Cars
9431	Purchase Motor Cycles
9432	Purchase Bikes
95	Operational Expenses
9510	Rent Office Building
9511	Maintenance Office Building
9520	Maintenance Equipment and Furniture
9530	Running cost vehicles (fuel and oil)
9531	Maintenance cost vehicles
9532	Other cost vehicles (insurance, licences)
9533	Running cost motor cycles
9534	Maintenance cost motor cycles
9535	Other cost motor cycles (insurance, licences)
9540	Stationery Office
9541	Postal expenditure
9542	Telephone expenditure
9543	Telex expenditure
9544	Utilities expenditure
9545	Kitchen expenditure
9546	Photocopying expenditure
9547	Printing expenditure
9548	Drawing Office expenditure
9549	Bank charges - Miscellaneous

OTHER DONORS INTERESTED OR ACTIVE IN THE RURAL DOMESTIC WATER SUPPLY SECTOR IN NYANZA PROVINCE

1. IFAD is giving some support to wells with handpumps as part of an integrated rural development project in Siaya District.

2. UNICEF has supported spring protections through MOH and has a PHC project in South Nyanza. it also has an unfunded component (originally planned to be about 2 million) for a handpump and sanitation project in South Nyanza to complement the other PHC activities.

3. The Diocese of Maseno, Kisii, etc are utilising the technical expertise of the project for their rural water supply activities.

4. Aga Khan Foundation is active in rural water supply and is making good use of the survey data and expertise in the project.

5. SIKRI is a church group which receives support from Germany for rural water supply such as protection of springs and construction of wells.

6. FINNIDA is supporting rural water (and some small town) through the KEFINCO project based in Kakamega. It is active in Ukwala Division of Siaya District and is using a VLOM handpump and maintenance systems.

7. CIDA previously supported investigation of water resources and some piped schemes in the area.

8. Many of the NGO's are interested and active in supporting improved water supply and sanitation in the province through self help. These include CARE, Redd Barna, Green Belt, and Kenya Women's Bureau among others.

LIST OF PROGRAMME DOCUMENTS

- Report of the Review and Appraisal Mission on the RDWSSP. March 1986.
- LBDA Pump Maintenance Guide.
- Summary and construction of wells Part I of instruction manual for low cost water supply. DHV 1985.
- Agreement between LBDA and DHV for Consulting services for RDWSSP, 1986.
- Workplan 1986.
- Workplan 1987.
- Draft Workplan 1988.
- LBDA RDWSSP, A proposal June 1986.
- Annual report Technical Department. DHV Consulting Engineers, March 1986.
- Community Development Department. Annual Report 1986.
- Community Development Department. Progress Reports January - September 1987.
- Annual Report, Ministry of Culture and Social Services, Department of Social Services, Nyanza Province, 1986.
- RDWSSP Reaction to Review and Appraisal Mission's Recommendations March 1986.
- A Socio-cultural investigation into the use and functioning of the completed shallow wells in Nyanza Province August 1983.
- LBDA, RDWSSP report on training workshop for community artisans, VIP pit latrine construction principles and technology, June 1987.

ANNEX 6 CONT.

- Curricula for Health Education.
- Lecture Notes on Well Sanitation.
- Health Education report RDWSSP, June - September 1987.
- LBDA trainers guide.
- The use of remote sensing and geophysics for ground water exploration in Nyanza Province, Kenya R.V. van Lissa et al. DHV Consulting Engineers, 1987.
- Community Water Supply - The handpump option. Saul Arlosoroff et al. The World Bank Washington DC, 1987

LBDA - RDWSSP REVIEW - 1987

TERMS OF REFERENCE FOR AN EVALUATIVE SOCIO-ECONOMIC STUDY OF THE LBDA/RDWSSP

1.0 INTRODUCTION

The background and context for the proposed evaluative socio-economic study of the Rural Domestic Water Supply and Sanitation Programme are provided in the Report of the Review and Appraisal Mission - October 1987 of which this annex is a part. It is recommended to be carried out in South Nyanza and Kisii Districts where the initial phase of the project was implemented. It is recommended that the evaluative study is carried out well before the recommended next phase of the project is commenced.

The evaluative study will have the overall objective of providing comparative data on the field situation in relation to an earlier baseline study in respect to the RDWSSP and its intended impact and beneficiaries. Such data will be most useful in assessing the overall impact and extent to which the original objectives of the project have been achieved.

2.0 THE TERMS OF REFERENCE

The evaluative socio-economic study will be undertaken on the basis of a representative sample which will be defined in agreement with the Project Manager of the RDWSSP. The target will be to survey one third of water points established through the project and ten households within the catchment area of each water point.

The study will be composed of two surveys, based on structured interviews with precoded questionnaires for computer processing. One study will be based on the functioning and utilization of the established water points under the project. The second study will be at household level and will be intended to elicit the impact, effect and water/sanitation related behaviours.

The consultant will design the questionnaires appropriate to these terms of reference and suitable for processing by standard data base and statistical packages.

It is strongly recommended that the proposed study be carried out by an independent outside consultant, rather than by the staff of the project, in order to give it the impartial and objective value it requires.

2.1 Water points development, functioning and utilization

The field survey should provide verifiable data to answer the following questions and/or issues, based on interviews with members of the water committees and observations at the source.

1. What has been the contribution of the community to the water point and the designed project versus current performance in terms of yields, beneficiaries and reliability of supply?

2. Causes of unreliability of supply (if any)?

3. Costs of maintenance, per last occurence and on average.

4. Status of the finance and administration for the supply which should be carried out by the community.

5. The total costs for operation and maintenance per year and incomes gained, including method of payment by users.

6. The physical state of the source and/or service point.

7. The method of location of the point source with particular attention to the "ownership" of the allocation process and the actual supply source between the community and RDWSSP. The question of ownership of land on which the water point is situated.

8. Reduction in distance to be travelled by population when compared to the previous source(s) used.

9. The functioning of the management committee, with particular attention to the role of women. This could include their influence on decision-making viz and viz RDWSSP in all aspects of management and sustainability of supply.

10. The training received by committee members, from or via the RDWSSP.

11. The effects of the project (if any) in relation to:
- increased water availability;
- improved water quality;
- time savings;
- reduced seasonality of supply;
- community activities around water point of:
  . cattle watering
  . laundry
  . agroforestry
  . vegetable growing
  . bathing points

12. Problems which have been experienced: managerial, technical, financial and suggestions which the community or water committee might have for improvement.

13. General considerations on the community sustainability of the supply in the long term with particular attention to issues of dependency on the RDWSSP and its functioning in the future.

14. Access to and equity of utilization of the supply by the surrounding community.

15. Awareness of health and sanitation issues related to the use of the water point.

2.2 Household survey

The household survey should provide verifiable answers to the following questions and/or issues.

1. Number of users in the household.

2. The water source in the wet and dry season. If the household does not use the source provided, the reasons why.

3. Time savings in collection (if any) in relation to volume obtained daily. Frequency of water collection. Time spent at the water point. Amount collected at each draw.

4. Uses of water from the project source and any payments made.

5. Proportion of family income spent in acquisition of water.

6. Effects of availability of project water on the household (as a cross-check to question 11 above).

7. Problems experienced by the household with the project source (as a cross-check to question 12 above).

8. Observations and question data on water use and health related knowledge and required behaviours, e.g., separate and covered potable water storage, use of latrines. The source of the household's health education knowledge and advice on water related behaviours.

3.0 PRESENTATION AND TIMING

The evaluative socio-economic study findings will be made available in two stages and at two levels of analysis.

3.1 Initial presentation

The first presentation of field findings will be of the descriptive statistics (simple frequencies, aggregate responses, etc.) associated with the questions posed and issues raised in the Terms of Reference above. These may be in tabular form with limited analysis. The initial findings must be available to RDWSSP on or before June 1988.

3.2 Final presentation

The final presentation of the field survey findings including suitable cross-tabulations and analysis will be made as a separate report. The date for presentation of this final study report is the 31st July 1988. This final report will have much bearings on the concepts and approaches to the agreement of the next phase.

4.o BUDGET

The budget for the field study is as follows:

1. Senior researcher	35 mandays @ KShs. 4,000/=	Shs	140,000
2. 2 field researchers	25 mandays @ KShs. 1,500/=	"	37,500
3. 2 field assistants	25 mandays @ KShs. 500/=	"	12,500
	Sub-total manpower KShs. 190,000		
4. Subsistence: 36 persondays @ KShs. 250/=		"	9,000
5. Transport (2 x 4 x 4)		"	40,000
6. Computer coding, input, processing and analysis		"	20,000
7. Report production		"	3,000
8. Miscellaneous and contingencies		"	5,000
	Sub-total KShs. 77,000		
	TOTAL = KShs. 267,000		

Notes:

1. The charges to the client will be based on the actual costs incurred within the above budgetary limits.

2. The client agrees to provide an initial payment of Kshs. 90,000 to enable the speedy commencement of the work.

3. Upon presentation of the initial findings, the client will make an additional payment of KShs. 77,000.

4. The balance of the fees will be paid upon presentation of the final report.

LAKE BASIN DEVELOPMENT AUTHORITY

(RURAL DOMESTIC WATER SUPPLY AND SANITATION PROGRAMME)

MAINTENANCE CONTRIBUTION (Fee)

District ..... Location ....

Division ..... Sub-Location .....

Well .....

Member's Name .....

YEAR 198.....

MONTH	MONEY PAID		SIGN OF RECEIVING OFFICER	MEMBER'S SIGN
	SHS.	CTS.		
JANUARY				
FEBRUARY				
MARCH				
APRIL				
MAY				
JUNE				
JULY				
AUGUST				
SEPTEMBER				
OCTOBER				
NOVEMBER				
DECEMBER				
TOTAL				

OBSERVATIONS AT THE SHALLOW WELL (2 consecutive days)

1. Water collection patterns

TIME	NO. OF PEOPLE		NO. OF BUCKETS DRAWN	
	M	F	± 10 Litres	± 15 Litres
5 - 6				
6 - 7				
7 - 8				
8 - 9				
9 - 10				
10 - 11				
11 - 12				
12 - 1				
1 - 2				
2 - 3				
3 - 4				
4 - 5				
5 - 6				
6 - 7				
7 - 8				

Issue a small card No. 1, 2, 3, etc. to see if same family comes back during the day.

HOUSEHOLD	TIME	COLLECTOR	AMOUNT (LITRES)	TIME	COLLECTOR	AMOUNT (LITRES)	TIME	COLLECTOR	AMOUNT (LITRES)	TIME	COLLECTOR	AMOUNT (LITRES)
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												

CONTAINERS	T O T A L
- Bucket	
- Debe	
- Jerry can	
- Clay pot	
- Others	

PLACES OF ORIGIN	DISTANCE FROM WELL	NUMBER OF PEOPLE	TOTAL

CLANS	NUMBER OF PEOPLE

AVERAGE TIME SPENT AT THE WELL (Between 8 - 9)

(Between 11 - 12)

ARRIVAL		DEPARTURE	
8 - 9 a.m.	11 - 12 p.m	8 - 9 a.m.	11 - 12
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

TOPICS OF DISCUSSION (OVERHEARD)

CLOTHES WASHING

TIME	M	F

PERSONAL WASHING

TIME	M	F

Ask Pump Attendant:

1. How many families collect water daily?
2. Is there any difference in collection density during the week?
3. Which are the busiest days?
4. How does collection density during dry season compare with the rainy season?