

NAMIBIA

WATER SUPPLY AND SANITATION PROJECT IN MARULA REGION

PROJECT DOCUMENT

THE REPUBLIC OF
NAMIBIA

THE REPUBLIC OF
FINLAND

NAMIBIA WATER SUPPLY AND SANITATION PROJECT IN MARULA REGION

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THE REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE,
WATER AND RURAL DEVELOPMENT

DIRECTORATE OF
RURAL DEVELOPMENT
DRD

THE REPUBLIC OF FINLAND

MINISTRY FOR FOREIGN AFFAIRS

FINNISH INTERNATIONAL
DEVELOPMENT AGENCY
FINNIDA

PREFACE

Lack of water is a serious problem for the whole Owamboland and is expected to hamper the future development of the area. Therefore it was logical to include the improvement of the water supply and sanitation of the area as one of the main components of the Finnish-Namibian development co-operation programme.

The planning of the project has been carried out as a joint effort by the Ministry of Agriculture, Water and Rural Development of Namibia and a team led by professor Matti Viita-saari from the Tampere University of Technology.

The first phase of the project will cover the period 1992-1995 and aim at developing the capacity of the Ministry to continue with the implementation of the project without external technical assistance and improve the living conditions of the people in the area.

Technical assistance will be provided by Finnconsult ltd for the implementation of the first phase.



Glen Lindholm

Director
Division of Southern Africa
FINNIDA

P R O J E C T F A C T S H E E T

Project title: **Water Supply and Sanitation Project in
Marula Region, Phase I**

Project number: **28103701-6**

Sector: **Water Supply and Sanitation**

Duration: **36 months**

Starting date: **1.1.1992**

Project financing:

- **Government of
Namibia** **FIM 4 320 000.-**
- **Government of
Finland** **FIM 34 630 000.-**

Competent Authorities:

- **Namibia:** **The National Planning Commission
Namibia (NPC)**
- **Finland:** **Ministry for Foreign Affairs/FINNIDA**

Institutional framework for the project implementation:

- **Namibian implementing agency:**

 **Ministry of Agriculture, Water and
Rural Development/Ondangwa and
Oshakati Regional Offices**
- **Consultant for development assistance services**

 Finnconsult Oy

Arrangements for coordination of the project implementation:

- **Coordination committee of competent authorities:**

 Annual Consultative Meeting
- **Coordination at implementation level:**

 Steering Committee

ABBREVIATIONS AND ACRONYMS

BH	Borehole
CCN	Council of Churches Namibia
CR	Cost Recovery
CTP	Comprehensive Training Programme
DARD	Department of Agriculture and Rural Development
DRD	Directorate of Rural Development
DWA	Department of Water Affairs
DWP	Domestic Water Point
EEC	European Economic Community
EIA	Environmental Impact Assessment
FIM	Finnish Mark
FINNIDA	Finnish International Development Agency
H&E	Health and Education
HRD	Human Resources Development
IWEE	Institute of Water and Environmental Engineering (TUT)
JC	Junior College
MAWRD	Ministry of Agriculture, Water and Rural Development
ME	Ministry of Education
MHSS	Ministry of Health and Social Services
MIS	Management Information System
MLRR	Ministry of Lands, Resettlement and Rehabilitation
MRWSU	Marula Region Water Supply Unit
NGO	Non Governmental Organization
NPC	National Planning Commission Namibia
O&M	Operation and Maintenance
Rand	South African Rand
RDC	Rural Development Centre
SWAPO	South West Africa People's Organization
TI	Training Institute
TU	Tampere University
TUT	Tampere University of Technology
UNICEF	United Nations Children's Fund
USD	United States Dollar
VWC	Village Water Committee
W/S	Water Supply
W/S & S	Water Supply and Sanitation

Exchange Rate: 1 Rand = FIM 1.60

MANAGEMENT SUMMARY

Background

The project area comprises a part of the proposed Marula region and parts of Ondangwa and Oshakati regions in the Central-Northern Owambo, see Annex 4: Maps, figures and charts. The population of the area is around 100 000 people.

The project area is a part of an interior drainage system having an extremely low gradient from east and west towards the centre. Due to the top soil formations the infiltration is low. The annual rainfall in the area varies between 300 and 600 mm. The rain-water collects in numerous shallow depressions, known as Oshanas. Even if the run-off is high, recharging the ground water sources is low due to the fine top soil. The situation is still worsened by the high annual evaporation rates, reaching to 2 500 mm.

The deep ground water in the area is often found saline. The shallow formations of perched ground water, however, should give chances to get good quality water. There is the risk of these sources to dry up, turn saline or contaminate if the abstraction of the water is excessive.

The main problems of the water supply and sanitation at the present are the following:

- weak institutional structure
- missing (organized) community involvement
- low number of technically trained personnel
- defective management skills
- inadequate water supply and sanitation facilities
- nonexistent environmental protection
- limited funds

At the present the people are responsible for their water supply and sanitary facilities and pay for the investments and recurrent costs in full. The Government policy suggests at least a partial cost recovery of investments in the improved water supply. The recovery concerning the investments in the sanitation has not yet been defined.

Justification

The availability of water is one of the major limiting factors for the social and economic development in the project area. Measures supporting the basic needs provision, by improving the water supply, needs to be taken.

The scarce water sources of the area are subject to a constant risk for contamination, the major reasons being the poor sanitation situation and the uncontrolled animal husbandry. Proper sanitation services and systems for the livestock watering are required for minimizing the risks of pollution.

The devastating ecological development of deforestation has to be stopped. The Water Supply and Sanitation Project supports the future implementation of the proposed Reforestation Project.

Target Groups

The ultimate target group of the project is the population of the project area. The main target group for the institutional and human resources development shall be the Directorate of Rural Development and the organization of MRWSU and the personnel under it, in particular.

Community involvement has the members of the communities as the actual target group. The women, however, responsible for water, hygiene and health issues in homes, form an important strategic target group for the project implementation.

The target group for the physical improvement of water supply and sanitation, in addition to the users as such, shall be the active population in working age, having new job opportunities through the income generation component under the project.

Institutional Framework

The National Planning Commission (NPC) in Namibia and the Ministry for Foreign Affairs, through FINNIDA, in Finland shall represent the two governments in respect of the project. In matters pertaining to the substance of the project the competent Namibian authority shall be the Ministry of Agriculture, Water and Rural Development (MAWRD).

The operational responsibility for the project stays with the DRD/MAWRD right from the beginning of the project. The MRWSU under DRD/MAWRD shall be responsible for producing the outputs as stated in the project document. The user communities shall participate in all stages of physical improvement of their water supply and sanitation services.

Development Objective

The long term objective of the project is to secure a safe and adequate water supply as well as a proper sanitation

for the population of the project area in accordance with national policies of improving basic needs provision, health conditions and economic capacity for the rural population.

Strategy

The strategy to reach the objectives of the project is to strengthen the existing organization structure of DRD by establishing the MRWSU, and to reinforce the capability of the established organization to fulfill its responsibilities. No separate project organization shall be formed but the technical assistance staff shall work within the MRWSU, integrated to the organization of the MAWRD.

The responsibilities for improving and managing the services shall be clearly divided, between the users and the administration, in a way where an increased involvement of the users shall take place. The corner stones for reaching the sustainability of the developed systems shall be the optimized women's participation, the cost recovery, and the choice of an appropriate water supply and sanitation technology.

The implementation of the project shall emphasize creating new, even temporary job opportunities, using the local services and providing strong support for identifying and initiating new income generating activities.

The implementation of the project takes place under five sub-projects having each their specific immediate objectives and strategies. The sub-projects are:

1. Institutional and Human Resources Development
2. Community Involvement
3. Water Supply and Sanitation Development Plans
4. Physical Improvement of water Supply and Sanitation
5. Logistics

Inputs

The implementation of the project calls for an input from both the Namibian and Finnish Governments as well as the user communities. The financial inputs of the governments are as follow:

- | | | | |
|---|-----------------------|-----|------------|
| - | Government of Namibia | FIM | 4 320 000 |
| - | Government of Finland | FIM | 34 630 000 |

Risks, Assumptions and External Factors

All improvement of the water supply and sanitation, the livestock watering and irrigation included, must be strictly guided by the tolerance of the environment. Neglecting the environmental protection would write a most unfortunate scenario of the future development of the area.

The project can operate only after the organization of the MRWSU has been established and the required personnel has been employed or hired. The DRD has the full responsibility for facilitating and carrying out the establishment process in a rapid pace just in the beginning of the project.

The coordination of the activities of the collaborating projects of forestry and primary health calls for an active role of the Namibian administration. This coordination missing, would endanger the community mobilization activities and the institutional sustainability of the project.

The financial input for the project shall be channelled through the DRD and MRWSU. The financial decision making shall be given a special emphasis in order to facilitate the inputs to arrive timely and to enable the smooth monetary operations of the project.

The financial sustainability of the improved services shall be the absolute pre-condition for all physical improvement activities of the project. Providing water free of charge shall be strictly avoided. The users shall own, manage and operate their improved systems.

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1. BACKGROUND AND JUSTIFICATION

1.1 Background

The estimated present population of Namibia is 1.7 million people, out of which more than a half is living in the northern parts of the country. Over one third of the total population, or 600 000 people, live in the Owambo Region, the central part of the border with Angola.

The project area comprises a part of the proposed Marula region and parts of Ondangwa and Oshakati regions in the Central-Northern Owambo. The population of the area is around 100 000 people. There are some 10 growth centres in the area. They are not actual towns, even if some 20 % of the people live in urban or semi-urban areas. The most people live in scattered homesteads in the rural areas.

Maps, showing the project area as well as the growth centres, are presented in Annex 4: Maps and Charts. The presented boundary of the project area, however, still needs to be fixed in details to match with the regional administration and this way to also to fit with the project area of the proposed Primary Health Project, supported by FINNIDA.

The topography of the area is flat and the altitude is ranging from 1090 to 1150 meters. The project area is a part of an interior drainage system having an extremely low gradient from east and west towards the centre. South of the project area, at Ondangwa, the plain reaches its lowest point draining south towards the Etosha Pan.

The annual rainfall ranges from 300 mm, in the south-eastern parts, to 600 mm in the north-eastern parts of Owambo; also see Annex 4: Maps and Charts. Since the top soil formations of nearly the whole Owambo basin are very fine, and often loamy sand, not much infiltration takes place. The rain-water collects in numerous shallow depressions, known as Oshanas. It is here that evaporation takes its toll, the average annual rates reaching to 2 500 mm. Even if the run-off is high, the floodwater cannot easily be used for recharging the ground water sources or be retained in reservoirs due to the flat terrain.

Like in most of the interior catchment areas, the ground water in the area is often found saline. Investigations of the occurrence and the quality of the ground water in the deeper formations are only few. Potential fresh water sources are expected to be found at the depth of 500 to 700 m. Sufficient scientific data does not, however, exist to confirm this theory, opposed by brines, identified at the depth of 750 m.

The shallow formations of perched ground water should give better chances to get good quality water. There is, however, a constant risk of these sources to dry up during extended dry periods. The shallow perched ground waters can also be saline due to excessive evapotranspiration.

The rural water supply situation in the area is generally deficient and the perennial availability of potable water at a moderate distance is very poor. The sanitation facilities are poor as well. There seems also to be a lack of people's understanding of the connection between the safe water and the improved health, which, combined with deteriorated water quality of the seasonal sources, may cause serious health risks. There is an evident need for health education in communities as well as for supporting the people to take the initiative to improve their water supply and sanitation services. The existing information channels need strengthening in order to facilitate an efficient mobilization of communities.

The present institutional structure of rural water development is weak and partly lacking. The regional administration is still being formed and the duties of the rural water supply and sanitation sector need still to be confirmed. The definition of the interministerial responsibilities is still under process and the duties remain to some content unclear.

The Government policy suggests at least a partial cost recovery of investments in the improved water supply. The recovery concerning the investments in the sanitation has not yet been defined. The present situation is that the people are responsible for their water supply and sanitary facilities and pay for the investments and recurrent costs in full.

1.2 Justification of the Project

The availability of water is likely to remain a limiting factor for the social and economic development in the whole country. This also applies to the project area, additionally burdened with people still returning from exile. It is obvious that measures has to be taken to improve the basic needs provision, in particular in the low income areas.

The water supply and sanitation is a new activity within the administration of rural development. There is no specific organization existing for improvement of rural water supply and sanitation services for the present. The establishment and development of such an organization is an absolute pre-condition for the successful development of these basic services in the area.

The devastating ecological development of deforestation has

to be stopped. Sustainability of the water supply and sanitation services also call for reforestation, that protects the water catchment areas against the wind and water erosion through stabilization of the soil. The Water Supply and Sanitation Project, in turn, supports the future implementation of the proposed Reforestation Project.

The scarce water sources of the project area are subject to a constant risk for contamination. The major reasons for this are the poor sanitation situation and the uncontrolled animal husbandry. Proper sanitation services and systems for the livestock watering are required for minimizing the risks of pollution.

The Water Supply and Sanitation Project strengthened with the Reforestation and the Primary Health Projects shall form a logical combination of support activities for a sustainable development in the area.

2. TARGET GROUPS, ENVIRONMENTAL SETTINGS AND INSTITUTIONAL FRAMEWORK

2.1 Target Groups

The need of water in the area is dominantly caused by domestic use and subsistence farming. In addition the livestock in the area, that consists mainly of cattle, goats, donkeys and horses, is a major user of water. It forms an important part of the economy of the indigenous people. There exists small scale industries in the area, such as brick and pottery making, and gardening. They are, however, presently rather limited. The water consumption of institutions serving the population, such as schools, hospitals, clinics, offices is also of great importance in improving living conditions of the population.

The economic activities, such as animal husbandry, farming and running industries, combined with social services, form the basement for development in the project area. The ultimate target group of the project is, however, obviously the population of the project area.

The main target group in institutional and human resources development shall be the Directorate of Rural Development, and MRWSU organization and personnel under it in particular. In some extent also the other involved ministries, like MHSS, shall form a target group.

Community involvement has the members of the communities as the actual target group, but within them, a special attention shall be paid to women. The women are responsible for water, hygiene and health issues in homes. They are therefore the a key group while organizing the services and the natural agents in transferring new knowledge to the communities. Consequently there is a need for training women in this aspect and utilize women as trainers.

The target group for the physical improvement of waster supply and sanitation, in addition to the users as such, shall be the local contractors and manufacturers of construction materials. People having even temporary job opportunities as well as people, initiating more permanent income generating activities, shall also form a target group of the project.

The Environmental Action Plan has all the population of the area as the target group. A sub-target-group is formed by people responsible for activities having a potential of risking the environment, such as waste disposal, sanitation of densely populated areas and animal husbandry. Finally

the health and forestry administration as well as the respective development projects form an important target group.

2.2 Environmental Settings

The environmental conditions in Owambo are delicate and need to be carefully considered when planning the project activities in the area. The decertification is encroaching the former arable land due to poor livestock management and inappropriate farming practices. The extensive use of wood as fuel and for building and fencing, without a systematic renewing the forests, also contributes the development towards deforestation. This can result in the worst case in an unfavorable change in the microclimate of the area. Water supply for the reforestation activities shall be given a high priority while improving the water supply services in the project area.

The improved water supply for the livestock may result in overgrazing. This can be avoided by developing the livestock management, but must also be considered when deciding on the type of the supply, whether for domestic use, livestock or irrigation.

There is a risk of depletion of the sources through excessive abstraction of water, which in turn can lead to intrusion of saline water into the fresh ground water sources. The safe yield of each individual aquifer has to be carefully studied in order to avoid sources running dry.

Floods cause soil erosion during the rainy season and the fine silt, deposited after the floods, can completely prevent the infiltration of the surface water to the aquifers. All precautions against this shall be taken.

2.3 Institutional Framework

The National Planning Commission (NPC) in Namibia and the Ministry for Foreign Affairs, through FINNIDA, in Finland shall represent the two governments in respect of the project. In matters pertaining to the substance of the project the competent Namibian authority shall be the Ministry of Agriculture, Water and Rural Development (MAWRD).

The project area covers a part of the proposed Marula region as well as parts of Oshakati and Ondangwa regions. The MRWSU shall be based in Ongwediva outside the project area. The Unit shall operate under MAWRD/DRD Regional Office, Ondangwa, which shall be the Namibian implementing agency. The scope of the project concludes activities that require coordination and collaboration with other ministries, the MHSS and MLRR in particular.

The duties of the MAWRD shall include, but not be limited to, the following:

Institutional and Human Resources Development

- to carry out the official administration process of establishing the MRWSU
- to assume full responsibility for the global management of funds, manpower, equipment and materials as well as the project implementation of MRWSU
- to prepare and execute plans for Human Resources Development of MRWSU
- to coordinate the training with the Namibian training institutes in order to ensure availability of trained personnel for development of the MRWSU
- to employ trainers for training the personnel of MRWSU
- to provide the MRWSU with training facilities and materials

Community Involvement

- to incorporate the community participation in the working procedures of the MAWRD at the various levels of administration
- to promote the mobilization of communities to participate in water supply and sanitation programmes through the community mobilization personnel of the MRWSU
- to inform the water/health committees on other projects, such as health and forestry projects
- to emphasize new and existing income-generating activities all through the process of improving the water supply and sanitation services
- to support development of the income generating activities through advice and revolving fund to be established

Water Supply and Sanitation Development Plans.

- to institute the cost sharing/recovery system for the implementation of water supply and sanitation projects through MRWSU

Physical Improvement of Water Supply and Sanitation

- to prepare and update long term and annual implementation plans
- to ensure the allocation of the Namibian contribution for the project and secure the timely release of funds

- to organize and execute the design, implementation and control of physical improvement of water supply and sanitation services as defined in the duties of MRWSU
- to adopt the developed community involvement systems and apply them in all activities of the physical improvement of the services

Logistics

- to establish and maintain a good coordination with the health and forestry projects
- to establish and maintain a good coordination with other relevant projects and programmes carried out in Namibia
- to report on the implementation of the project according to the approved national procedures on:
 - production of outputs with regard to output specifications
 - costs and use of project funds
 - status of the improved service with regard to approved indicators, such as coverage, service level and failures in provision of services
 - health situation in project area

The consultant shall be responsible for securing competent advisers to work in the project and maintain sufficient backup manpower for short-term calls in accordance with the approved schedules in the project document. The duties of the advisers are presented in detail in Annex B. The duties of the advisers shall include, but not be limited to, the following:

Institutional and Human Resources Development

- to assist and advise in the process of establishing the MRWSU
- to advise and assist in preparation and application of the management systems including the management procedures
- to advise in planning and management of the improved water supply and sanitation
- to approve by co-signing all purchase orders, payments, liabilities and financial reports of the MRWSU
- to follow up the performance of MRWSU and propose improvements when required
- to advise in the human resources development process
- to advise in establishing the training delivery system including the preparation of a cost-sharing formula for the training sector
- to support in the preparation of performance-oriented training materials

- to provide training according to the approved training programmes

Community Involvement

- to participate in preparation of the Community Working approach
- to participate in mobilization of the communities in connection to water supply and sanitation programmes of the MRWSU
- to participate in planning and giving the community training
- to advise in developing a sustainable community involvement system
- to carry out the Income Generation Study in cooperation with the MRWSU staff
- to plan and introduce feasible income-generation schemes

Water Supply and Sanitation Development Plans

- to provide expertise required for working out the cost recovery system
- to participate in the planning, introducing and developing the cost recovery system
- to advise and participate in working out the proposal for cost sharing in connection to improving water supply and sanitation services

Physical Improvement of Water Supply and Sanitation

- to participate and advise in planing, introducing and applying the field investigation, contracting, quality control procedures
- to co-sign the final approval certificates of improved water supply and sanitation services provided
- to propose, test and introduce new, appropriate design and construction methods

Logistics

- to advise and participate in coordination of activities with the health and forestry projects
- to advise in coordination of activities with other relevant projects and programmes carried out in Namibia
- to report to FINNIDA on the progress
- to advise in MRWSU reporting

The users shall participate in all stages of physical improvement of their water supply and sanitation services. The participation in the capital and recurrent costs shall take place according to the national policies and cost sharing system to be developed.

The improvement and use of the water supply and sanitation services of communities shall be managed by water/health committees representing the beneficiaries. The committees shall be in charge of:

- taking the initiative for improving the services
- organizing the mobilization of the communities for participation in the improvement of the services
- organizing the management, and in particular the operation and maintenance of the improved water supply and sanitation facilities
- organizing water funds, fund collection and reporting on the use of the funds
- informing the communities of income generating activities in connection to the water supply and sanitation development
- discussing the needs for livestock watering and irrigation as well as water supply in connection to income-generating activities
- passing the information on the health and the forestry projects to the users

3. OBJECTIVES OF THE PROJECT

3.1 Development Objectives

The long term objective of the project is to secure a safe and adequate water supply as well as a proper sanitation for the population of the project area in accordance with national policies of improving basic needs provision, health conditions and economic capacity for the rural population.

The indicators for achievement of the development objective are as follows:

- the progress towards the full coverage of the population of the project area by improved services takes place as defined in the national water supply and sanitation development plans
- follow-up of the health status of the population indicates a measurable improvement
- follow-up of the economic status of the population indicates a measurable improvement

3.2 Immediate objectives

The project is divided in five sub-projects. The immediate objectives and achievement indicators of the sub-projects are the following.

Sub-project 1. Institutional and Human Resources Development

Immediate objective:

- to establish and organize the MRWSU under Directorate of Rural Development for sustaining development of rural water supply and sanitation services
- to develop the MRWSU and prepare it for independent operation without external support
- to establish an active communication enabling an efficient information on project activities in the project area as well as at all levels of administration of the involved parties

Achievement Indicators:

- a national policy, describing the role and responsibilities of the administration of the rural water supply and sanitation, has been worked out and approved
- the institutional structure within DRD for rural water supply and sanitation has been defined and the organization of the MRWSU established
- management procedures for rural water supply and sanitation prepared, approved and applied
- Human Resources Development process takes place according to up-to-date organization development plan, manpower development plan and training programme
- performance evaluation confirms the MRWSU to be able to execute the rural water supply and sanitation development according to its defined organizational obligations
- the inputs of all involved parties take place planned and coordinated

Sub-project 2. Community Involvement**Immediate objective:**

- to mobilize the communities covered by the project in order to create an awareness of the necessity of community participation in the entire project cycle.
- to promote increased involvement in the planning, implementation and evaluation of the water supply and sanitation services with a strong emphasis on maintenance and the introduction of a cost-sharing system.
- to identify and support potential income generating activities with a strong community participation and involvement in connection with the water supply and sanitation development

Achievement indicators:

- approved procedures to involve the users into the development of water supply and sanitation are consolidated and interactive communication between beneficiaries and the administration takes place

- training of leaders for water/health committees proceeds in coordination with implementation of the water supply and sanitation development programmes
- the beneficiaries are carrying out the basic maintenance on their improved water points; a water/health committee is established and functioning; the communication system between committee members and responsible government officials is working
- 20 % of the communities are in a position to apply for a new water source (water/health committee established) and can organize themselves without outside assistance
- 90 % of the new installed and rehabilitated water points are kept in good working order
- community awareness to environmental degradation has improved
- need for contractor services, material production, etc. originating from water supply and sanitation development studied; advice and support given for starting new income generating activities in general
- permanent job opportunities created within the rural development context

Sub-project 3. Water Supply and Sanitation Development Plans

Immediate objective:

- to identify the system of covering the project area with feasible and sustainable water supply and sanitation services according to the relevant national policies
- to indicate the institutional and human resources development needs originating from planning, design, implementation as well as operation and maintenance of the improved water supply and sanitation systems
- to prepare development plans for water supply and sanitation, including cost estimates and implementation programmes

Achievement indicators:

- alternative solutions for sustainable water supply and sanitation worked out, the feasibility assessed from technical, environmental, socio-cultural and financial feasibility point of view and the proposal for selection of the development scheme made
- final plans, including implementation programmes, prepared for technical and institutional development of water supply and sanitation in the project area and approved by the relevant authorities
- environmental action plan prepared
- proposal for cost sharing worked out for approval
- the development of planning, investigations, design and implementation as well as operation and maintenance of the improved water supply and sanitation systems, including environmental protection, is incorporated into the institutional and human resources development process

Sub-project 4. Physical Improvement of Water Supply and Sanitation**Immediate objectives:**

- to increase the coverage of population by improving water supply and sanitation services
- to provide the high priority groups and institutions with improved water supply and sanitation services
- to indicate the institutional and human resources development needs originating from implementation of water supply and sanitation systems
- to carry out experimental implementation of water supply and sanitation facilities

Achievement indicators:

- improvement of water supply and sanitation services proceeds systematically according to feasible, up-to-date, development plans and programmes, based on assessed needs and approved targets
- implementation proceeds according to approved programmes for high priority groups and institutions

- community involvement procedures, including cost sharing, applied in all activities of physical improvement of the services
- use of services in implementation of water supply and sanitation systems is incorporated into the institutional and human resources development process
- appropriate technology choice supported by experiences gained from the experimental implementation component of the project; local materials used where feasible

Sub-project 5. Logistics

Immediate objective:

- to ensure the quick start of the actual project implementation
- to ensure all the support activities needed for successful operation of the MRWSU
- to ensure the efficient information on establishment of the project as well as the communication of involved parties

Achievement indicators:

- the MRWSU tentatively organized and temporary duties of the staff defined according to the actual needs in the very beginning of the project
- the requisite supporting activities established for a controlled launch of the project
- temporary procedures worked out to enable controlled financial management till establishment of the final financial management system
- proper administrative procedures, such as management, finance, procurement, employment and reporting, prepared and accepted
- strategy and system for informing the target groups of rural water supply and sanitation developed
- contact persons and forms for communication between involved organization agreed
- immediate three months workplan prepared and implemented

4. PROJECT STRATEGY

4.1 Overall Strategy

The long term objective of the project is to secure a safe and adequate water supply as well as a proper sanitation for the population of the project area in accordance with national policies of improving basic needs provision, health conditions and economic capacity for the rural population.

Strategy:

- strengthening the existing organization structure of DRD with a unit for rural water supply and sanitation
- supporting the unit through technical assistance by Finnida and reinforcing the capability of the organization to fulfill its responsibilities (as a part of human resources development process)
- preparing a system for involvement of the user groups in improving the water supply and sanitation in order to establish a community managed system
- improving the sustainability of the developed system through women's participation
- the cost recovery, starting as cost sharing, is considered as a major issue in improving the sustainability
- defining feasible water supply and sanitation systems in accordance with the national policies and based on an appropriate technology choice
- providing materials and equipment to support the development process
- developing the use of local services and providing support to the identification of new income generating activities

4.2 Strategies of Sub-Projects

Sub-project 1. Institutional and Human Resources Development

The overall objective of the sub-project is the operational performance of the MRWSU to serve the population according to the national policies and needs originating from the population.

Strategy:

- the institutional planning shall be based on responsibilities of the various Ministries, Departments and Directorates, defined in a way that complies with an approved national policy on development of rural water supply and sanitation services
- planning, training and management shall form the three interactive components of the human resources development. This shall guarantee the precisely defined, demand driven organization structure, manpower development and training.
- the process of human resources development shall be continuous and concentrate on development of the skills required for good performance of the individuals and the organization as a whole in serving the population
- the training methods shall be selected to support the performance oriented approach of human resources development. The emphasis shall be put on the preparation and use of training manuals and handbooks. Target groups need to be carefully prioritized in planning the training. Namibian training institutions shall be fully utilized, and those in Owambo in particular.
- collaboration between and within the ministries at their various levels shall take place in coordination and the communication be active in order to ensure the proper and timely decision making

Sub-project 2. Community Involvement

The overall objective of the sub-project is the sustainability of the services provided through a firm commitment of the users to the improvement process and management of their water supply and sanitation services.

Strategy:

- the community involvement has to be seen as a large concept concluding the participation of the community in the entire improvement process from the first beginning till the final end as well as the organized community management of the improved services through water/health committees
- all activities carried out to improve community water supply and sanitation services must be based on an approved, demand driven community involvement approach. Firm understanding of the importance of this issue within the staff of MRWSU and other involved organizations is vital.
- the gender aspect shall to be incorporated in the community involvement approach. The management of water supply and sanitation in communities shall strongly reflect the priorities and requirements of women.
- the water/health committee shall be the authority in charge of the development and management of the community owned water supply and sanitation facilities. The users participation in maintaining the services as well as in the cost sharing shall be discussed within the community.
- extension workers (trainers) for community mobilization shall be trained within the human resources development context of MRWSU. Training the members of water/health committees shall be given by the extension workers. The committees shall be in charge for organizing and giving training in the communities. A special consideration shall be given to women when selecting extension workers, preparing training programmes.
- the health education shall be channelled through the water/health committee. Women shall form the main target group for health education to be given because they are responsible for hygiene in families.
- the existing information channels, shall be utilized when approaching the communities. Good working relations with the churches and other organizations in the area shall be established. It shall facilitate the required communication and enable synchronizing the community involvement methods and practices of different organizations in order to avoid confusing the communities.
- The potential new income generating activities shall be studied, the beneficiaries informed on the processes

required to start new activities and support provided in form of advise and funds through the revolving funds. The income generating schemes shall be tailored in the women's favour, since the increased incomes of women would, most likely, mean better welfare to the families, too.

Sub-project 3. Water Supply and Sanitation Development Plans

The overall objective of the sub-project is to provide MRWSU with feasible up-to-date plans to follow in order to strengthen the sustainability of the improved water supply and sanitation services.

Strategy:

- the use of the perched ground water and shallow well technology shall be studied as the main alternative to supply the project area. The potential for groundwater recharge by catching runoff during floods shall be investigated as well. The system of covering the entire project area with water supply services may also require the utilization of other sources, not excluding the piped system already existing in the area.
- the socio-economic and health studies shall be an integral part of the plans and they shall form the a basic element in the evaluation of the achievement of the development objective of the project
- costs estimated shall be worked out for the various systems and types of facilities in order to facilitate the preparation of a realistic proposal for the cost-sharing system, based on the studied ability of the population to pay
- the monitoring system for the environmental development shall be established. The procedures guiding the actions for environmental control and elimination of contamination of sources as well as erosion through flooding, overgrazing and deforestation shall be developed.
- monitoring system for water withdrawal shall be instituted to avoid depletion of sources and deterioration of the water quality
- carefully selected technology shall be applied at the improvement of the services. Design of pilot schemes for improved water supply and sanitation facilities shall take place to facilitate the field test of different design and guarantee the appropriate technology choice

- priority groups for improved services shall be defined in a early stage. Health clinics, schools and other high priority groups shall be incorporated in the pilot scheme for technology choice and the improved facilities shall be used for demonstration purposes.
- the towns and densely populated centres shall be given a careful consideration when selecting of the various water and sanitation projects to be implemented
- should the supply remain limited, because of the scarce water sources, the priority shall be given to the domestic water use and livestock watering
- the existing design and investigation work shall form the basis for the water supply and sanitation development plans
- alternatives shall be worked out and studied in order to find the most feasible and sustainable solutions for covering the area with improved services
- the preparation of the plans proceeds through sub-studies to be discussed and thereafter compiled into final reports on technical and institutional development of the water supply and sanitation
- aspects of environmental protection shall be integrated into all the sub-projects

Sub-project 4. Physical Improvement of Water Supply and Sanitation

The overall objective of the sub-project is the programmed improvement of the coverage of the population with improved water supply and sanitation services according to approved development plans.

Strategy:

- the improvement of services shall take place following implementation programmes based on the water supply and sanitation development plans and the approved priorities of special target groups
- all the physical improvements shall be executed following strictly the community involvement procedures.
- cost sharing principle shall be applied, wherever the national policy allows, in order to ensure sustainable the services

- experimental pilot projects shall be used for enhancing the full utilization of existing water sources in the project area
- contracting procedures, such as preparation of tender documents, tender bidding, contract documents, quality control and payments to the contractor, shall be developed
- operation and maintenance manuals shall be prepared for each improved water supply to ensure the sustainability of the service. Proper documentation of all developed procedures shall enable the use of systematic working methods and practices.
- local construction capacity and resources shall be fully utilized in connection to development of simple low cost technology. This shall serve the new income generation and improve the employment rate in the area.

Sub-project 5. Logistics

The overall objective of the sub-project is to establish all required supporting services and structures enabling a successful operation of the MRWSU.

Strategy:

- the consultant's and government staff of Water Supply and Sanitation Project for Marula Region shall be organized in the beginning of the project to a temporary team with the only main tasks of supporting the process of establishing the MRWSU, work out the required supporting activities to run the project and institute contacts to involved and collaborating parties of the project
- the actual implementation of the project activities shall start when the establishment of the Implementation Unit allows. The project shall progress in the beginning slowly, without any large material or resources mobilization. The users shall be given a chance to gradually adopt the idea of the project.
- organizing the steering committee shall start immediately. The essential collaborating organizations shall be represented.

5. SUB-PROJECTS, COMPONENTS, OUTPUTS AND OUTPUT SPECIFICATIONS

5.1 SUB-PROJECT 1.

INSTITUTIONAL AND HUMAN RESOURCES DEVELOPMENT

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Rural Water Supply and Sanitation Policy	Proposal for Incorporating the Rural Water Supply and Sanitation in the Organization of MAWRD	<p>Present set-up for rural water supply and sanitation reviewed and revised</p> <p>Role of MAWRD and division of responsibilities between DRD and DWA as well as MHSS defined</p> <p>Proposal for reorganizing DRD with rural water supply incorporated prepared</p> <p>Coordination and forms of collaboration between involved parties at all levels of ministerial administration defined</p>
Human Resources Development	Organization Development	<p>The national human resources development strategy studied</p> <p>Operational policy and target service level defined</p> <p>Updated and revised organization chart based on task analyses prepared</p> <p>Performance oriented job descriptions worked out</p> <p>Personnel policy defined</p> <p>Evaluation system for the on-the-job performance created</p>

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Human Resources Development (Continues)	Manpower Development (Continued)	<p>Evaluation system of the resulting level of service established</p> <p>Continuous interactive feedback with manpower planning and training taking place</p> <p>Organization plan implemented as scheduled and revised where found necessary</p> <p>Coordination with other organizations taking place</p> <p>Manpower need assessed based on inventory of existing manpower and needs derived from the organization development plan</p> <p>Training requirements determined</p> <p>Inventory of training institutions and trainers carried out</p> <p>Financial feasibility checked</p> <p>Manpower development plan (MDP) prepared and implementation in process as scheduled. Revision done where found necessary</p> <p>Continuous interactive feedback with organizational performance and training taking place</p> <p>Coordination with other organizations ensured</p>
	Training	<p>Training needs for all job categories assessed according to MDP and to skill analyses carried out</p>

ComponentsOutputsOutput Specifications

Human Resources
Development
(Continues)

Training (continues)

Appropriate training
methods selected

Training policy
defined

Financial feasibility
checked and annual
training budget
prepared

Present training
courses available
reviewed and syllabi
for new courses
prepared

Annual training
programme prepared and
revised where found
necessary;

Training facilities
provided

Performance oriented
training materials
prepared

Training given
scheduled according to
the annual training
programme

Evaluation system for
training system and
resulting work
performance created

Continuous interactive
feedback with
organizational
performance and
manpower planning
taking place and
guiding the
development of
training system

Other Institutional
Development

Management Procedures

Coordination the
training of the water
and sanitation sector
with needs arising
from collaboration
with other
organizations

Existing management
procedures reviewed

Components

Other Institutional
Development
(Continues)

Outputs

Management Procedures

Connections to Other
Organizations and
Development Projects

Output Specifications

New management
procedures prepared,
recorded and approved

Project management
information system
prepared and taken in
use

Good cooperation
established with other
development projects
in the area

Information system
with other projects
and organizations
established

5.2 SUB-PROJECT 2:
COMMUNITY INVOLVEMENT

<u>Components</u>		<u>Outputs</u>		<u>Output specifications</u>
Organizing Involvement	Community	Appropriate Approach	Working	<p>Strategy, methodology and achievements of community involvement of other organizations analyzed</p> <p>Responsibilities of communities and involved organizations defined</p> <p>Cost-sharing principle adopted</p> <p>Coordination with involved organizations and other parties; committees for health, water and hygiene well integrated</p> <p>Procedures prepared for involving the communities in all stages of water and sanitation development</p> <p>Involvement of special target groups, such as women, in the process secured</p> <p>Community Involvement Manual prepared</p>
		Organizational Preparations		<p>Sufficient personnel for community involvement employed by regional MAWRD and MHSS</p>
Mobilization Communities	of	Awareness of Improved Water Supply and Sanitation Services		<p>People informed on procedures of and responsibilities for participation in improvement of the services</p> <p>Awareness of safe water and hygiene increasing</p>

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Mobilization of Communities (Continues)	Awareness of Improved Water Supply and Sanitation Services (Continues)	Initiating of new income generating activities encouraged and supported
	Communities Participating	Agreed responsibilities of community fulfilled as scheduled Approved procedures followed Communities managing their services Coordination of activities with health, forestry and other programmes strong Communication between communities and water and health administration established
	Training System Established	Community mobilization staff trained and fully aware of the project strategies, targets and community approach procedures (under sub-project 1) Community training material prepared and updated Community training coordinated with implementation and health programme
	Adequate Training Provided	Annual community training programmes prepared and training carried out accordingly Awareness of leaders, water committees and people in water, hygiene, health and income generation improving

<u>Components</u>		<u>Outputs</u>	<u>Output Specifications</u>
Community (Continues)	Training	Adequate Training Provided (Continues)	Water points are kept clean and in good condition Training procedures and extents revised according to feedback from field
Studies		Health Status Study	Present health status and hygiene habits studied
		Study on Income Generation	Inventory of existing activities Market survey carried out to identify potential new activities Income generating activities originating from WSDP and SDP identified Report identifying new potential income generating activities p r e p a r e d ; recommendation for further actions

5.3 SUB-PROJECT 3.

WATER SUPPLY AND
SANITATION DEVELOPMENT
PLANS

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Planning Procedures and Present Planning Situation of Water Supply and Sanitation	Design Criteria and Existing Plans	Report on legislation, valid guidelines, manuals and standards, relevant in preparation of Water Supply Development Plan (WSDP) and Sanitation Development Plan (SDP), worked out Report prepared on existing plans and design, relevant in preparation of Water Supply Development Plan and Sanitation Development Plan Design and feasibility criteria for development of water supply and sanitation agreed on Mapping situation studied and need for updating/additional mapping assessed
Water Supply Development Plan	Study on Present Use of Water	Regional Water Master Plan for the Owambo Region (RWMP) as well as other relevant plans and studies reviewed Statistics for present population, livestock, institutions and other user groups updated Unit consumption of user groups assessed Total water demand assessed Water use patterns defined

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Water Supply Development Plan (Continues)	Study on Present Water Use (Continues)	Type of sources studied and quantitative and qualitative characteristics assessed
		Extent of vending water and paid price of water studied
	Water Demand Forecast	Report on present water use prepared
		Relevant parts of RWMP as well as other existing plans and studies reviewed
		Growth estimates for population, livestock and other user groups worked out
		Growth rates of unit consumption of user groups estimated
		Water demand forecast calculated for the entire project area as well as for defined sub-areas
		Water demand forecast report prepared
	Hydrogeological Studies, Identification and Analysis of Potential Water Sources	Relevant parts of RWMP as well as other existing plans and studies reviewed
		Existing wells, boreholes, dams and other sources identified
		Yield and water quality of potential surface and ground water sources based on existing hydrogeological and hydrological data reviewed

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Water Supply Development Plan (Continues)	Hydrogeological Studies, Identification and Analysis of Potential Water Sources (Continues)	Hydrogeological investigation methods selected and necessary equipment procured Reporting and data processing proposed and taken in use Potential dam sites and capacities identified Possibilities to increase ground water recharge investigated Plan for further surface and ground water investigations prepared Report on potential water sources prepared Continuation of hydrogeological studies in connection to implementation planned
	Proposal for the Developed Water Supply	Development targets defined Alternative water supply systems to cover the project area defined Environmental impacts assessed for alternatives Alternatives compared from technical, financial, environmental and socio-economical point of view Best feasible alternative proposed for basis of preparation of WSDP
	Studies for Management of Water Supplies (Partly derived from Sub-projects 1 and 2)	Agreed division of responsibilities

Components

Water Supply
Development Plan
(Continues)

Outputs

Studies for Management
of Water Supplies
(Partly derived from
Sub-projects 1 and 2),
(Continues)

Output Specifications

Appropriate working
methods adopted

Priorities for
implementation of
improved water supply
services worked out in
collaboration with
target groups

High priority
consumers identified

Socio-economic study
carried out

Cost-sharing system
developed

Data collection and
retrieval system
worked out

Availability of local
private services,
skilled labour,
machinery, equipment
and construction
materials studied and
appropriateness
assessed

Need for regional
water laboratory
assessed

Environmental
Enhancement and Impact
of the Water Supply
(and Sanitation)
Project

Environmental data
base established

Existing environmental
data reviewed and
assessed

Environmental
monitoring system
established

Recommendation for
further environmental
studies proposed and
carried out

Environmental action
plan prepared and
approved

ComponentsOutputsOutput Specification

Water Supply
Development Plan
(Continues

Water Supply
Development Plan

The technical part of WSDP report describes the present situation, forecasts, design criteria, development targets and proposed improvements with cost calculations and implementation plan (development programme)

The institutional part of WSDP report describes the institutional arrangements, division of responsibilities, cost-sharing and data collection and retrieval system

Report been presented and discussed in a seminar held to involved agencies and approved for implementation by relevant authorities

Sanitation Development
Plan

Present Sanitation
Studied

Inventory of sanitation facilities carried out

Health impacts of sanitation (Health and Hygiene Study under Sub-project 4) assessed

Environmental impacts of sanitation assessed

Need for Improved
Sanitation Identified

Development targets defined

Sanitation requirements for various communities defined

Present situation compared with targets and requirements and development needs identified

ComponentsOutputsOutput Specifications

Sanitation Development
Plan (Continues)

Appropriate Technology
Ensured

Adequate on-site
technology identified
for each type of
community

Communities requiring
sewerage system and
treatment identified

Technical, financial
environmental and
socio-economic
feasibility of
proposed improved
sanitation checked

Revision and
complementation of
costed standard design
of sanitation
facilities carried out

Studies for Management
of Sanitation (Partly
derived from Sub-
projects 2 and 4)

Agreed division of
responsibilities

Appropriate working
methods adopted

Priorities for
implementation of
improved sanitation
worked out

Socio-economic study
carried out

Cost-sharing system
developed

Availability of local
private
services, skilled
labour, machinery,
equipment and
construction materials
studied and
appropriateness
assessed

Environmental
Enhancement and Impact
of the (Water Supply
and) Sanitation
Project

Environmental data
base established

Existing environmental
data reviewed and
assessed

Environmental
monitoring system
established

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Sanitation Development Plan (Continues)	Environmental Enhancement and Impact of the (Water Supply and) Sanitation Project (Continues)	<p>Recommendation for further environmental studies proposed and carried out</p> <p>Environmental action plan prepared and approved</p>
	Sanitation Development Plan Report	<p>The technical part of SDP report covers the present situation, development needs and targets, technology choice, recommendation for improvements of different type of communities as well as cost estimates of the implementation</p> <p>The institutional part of SDP report covers the institutional arrangements, division of responsibilities and cost-sharing issues</p> <p>Report been presented and discussed in a seminar held to involved agencies and approved for implementation by relevant authorities</p>

5.4 SUB-PROJECT 4.

PHYSICAL IMPROVEMENTS
OF WATER SUPPLY AND
SANITATIONComponentsWater Supply for High
Priority ConsumersOutputsImplementation
Programme

Community Involvement

Investigations and
Design of Water Supply
SystemsOutput SpecificationsPriority criteria
agreed upon between
involved partiesHigh priority
consumers identifiedImplementation
programme preparedCommunity
participation and
contribution
procedures definedManagement of W/S by
community organized
according to the
approved Community
Working ApproachCommunity
participating on
implementation and
cost-sharing according
to signed agreementCommunity activities
coordinated with the
health programmeAdditional necessary
field investigations
carried outDesign procedures
definedDetailed design
carried outFlood protection of
sources arrangedUser groups involved
in the designLocal materials
preferred where
available and
appropriate

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Water Supply for High Priority Consumers (Continues)	Material Support	Material support procedures defined
	Use of Local Contractors	Contracting procedures defined
		Tender documents prepared
		Contractor selected through bidding competition
		Contract prepared and signed
	Control Systems for Construction	Quality control carried out
		Quality control system developed and carried out
		Cost control developed and carried out
	Water Quality Control	Procedures worked out and methods defined for ongoing water quality control
	Operation and Maintenance	Operation and maintenance procedures developed; O&M manuals for each water supply system prepared
Development of O&M system as well as O&M training incorporated to Sub-projects 2 and 4, Human Resources Development and Community Involvement		
Production of Construction Materials for Water Supply	Availability of materials in Owambo area studied and need for new production assessed	
	Material production for construction of water supply systems (shallow wells) commenced	

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Other User Groups	Implementation of the Development Programme of WSDP	Implementation of approved annual work plans based on WSDP
Sanitation for Selected Sites	Sanitation for Selected Sites	<p>Priority criteria agreed upon between involved parties</p> <p>High priority institutions identified</p> <p>Implementation programme prepared</p>
	Community Involvement	<p>Community participation and contribution procedures defined</p> <p>Management of W/S by community organized according to the approved Community Working Approach ("user committees")</p> <p>Community participating on implementation and cost-sharing according to the signed agreement</p> <p>Community activities coordinated with the health programme</p>
	Design of Sanitation Systems	<p>Type of sanitation defined for each of the selected sites and detailed design carried out when required</p> <p>Protection of ground water from contamination designed</p> <p>Local materials preferred where available and appropriate</p>
	Material Support	Material support procedures defined

<u>Component</u>	<u>Outputs</u>	<u>Output Specifications</u>
Sanitation for Selected Sites (Continues)	Use of Local Contractors	Contracting procedures defined
		Tender documents prepared
		Contractor selected through bidding competition
		Contract signed
		Quality control carried out
	Control System for Construction	Quality control system developed and carried out
	Operation and Maintenance	Cost control developed and carried out
	Operation and maintenance procedures developed; O&M manuals for each type of sanitation system prepared	
	Development of O&M system as well as O&M training incorporated to Sub-projects 2 and 4, Human Resources Development and Community Involvement	
	Production of Construction Materials for Sanitation	Availability of materials in Owambo area studied and need for new production assessed
		Material production for construction of sanitation facilities (latrines) commenced
Sanitation for Other Target Groups	Implementation of the Development Programme of SDP	Implementation of approved annual work plans based on SDP

5.5 SUB-PROJECT 5.

LOGISTICS

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Establishment of the Project in Finland	Letter of Intent	Letter of intent issued by Finnida
	Final Project Document	Draft project document revised
	Contract Agreement	Contracts between Finnida and the Consultant signed
	Recruitment	Consultants staff recruited and prepared for the project
Facility Establishment in Namibia	Accommodation and Office	Accommodation and working facilities at disposal of the consultant's team and counterparts
	Other Facilities	Construction of additional/ final facilities under process
	Financial Management	Systems for financial management established
Establishment of Supporting Activities	Material Management	Systems for material management established
	Project Management Information System	Structure for MIS worked out
	Relations with Relevant Organizations	Relations with government administration at various levels as well as with other relevant organizations established
Coordination and Collaboration with Relevant Organizations	Communication System	Communication between all involved parties organized and contact persons defined
	Coordination of Finnish Input	Finnish input supervised, controlled and advised

<u>Components</u>	<u>Outputs</u>	<u>Output Specifications</u>
Coordination and Collaboration with Relevant Organizations (Continues)	Coordination of the Finnish Input (Continues)	Tasks and duties of consultants staff modified and adjusted according to actual needs The input of short term consultants coordinated The input of Finnida projects on water supply, health and forestry sectors coordinated and overlapping avoided
Preparation for Implementation of the Project	Namibian staff of the MRWSU MRWSU	Namibian key staff nominated MRWSU organized
Preparation of Implementation	Work Plan	Proposal for work plan prepared by the implementation unit

6. ACTIVITIES

Table 6.1 shows the tentative time schedule of activities necessary for reaching the outputs of the sub-projects. The activities are based of the following three subsequent phases:

- tentative organization of the MRWSU staff,
- organizational establishment and human resources development of the MRWSU and
- implementation of improved water supply and sanitation by the MRWSU in collaboration with the communities.

Proposals for the general action plan, and the master work plan for the project period shall be prepared by MRWSU, within one month from its first organization, and submitted for approval.

The annual work plan shall be prepared every year, in advance and submitted for approval. It shall include a concise written description of the working methods that are planned to be used, a procurement programme, a man power schedule, a cash flow estimate and a time schedule.

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES

Sub-project 1. Institutional and Human Resources Development			
Activity	1992	1993	1994
Rural water supply and sanitation policy			
- Definition of organizational tasks of MRWSU	---	-	-
- Division of interministerial responsibilities	---	-	-
Human resources development			
- Preparation of organization development plan for MRWSU	-----	-	-
- Preparation of manpower development plan for MRWSU	-----	-	-
- Preparation of training plan for MRWSU	- -----	-	-
- Establishment of training system	---		
- Implementation of the organization, manpower and training plans of MRWSU	-----	-----	-----
Other institutional development			
- Development of management procedures for MRWSU	-----	- - - - -	- - - - -
- Applying the procedures in project implementation	-----	-----	-----

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Sub-project 2.

Community Involvement

Activity	1992	1993	1994
Organizing community involvement			
- Preparation of the working approach for community involvement	-----		
- Employment of personnel for community involvement	--		
Mobilization of communities			
- Informing communities on improvement of services		-----	
- Organizing community participation		-----	
Community training			
- Establishment of training system		---	
- Provision of training		-----	
Studies			
- Health status study		-	
- Study on income generation		---	

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Sub-project 3.Water Supply and Sanitation
Development Plans

Activity	1992	1993	1994

Planning procedures and present planning situation of water supply and sanitation			
- Preparation of report on relevant standards, design manuals and guidelines	---		
- Review of planning situation	---		
Water supply development plan			
- Study on present situation	---		
- Study on water resources	-----		
- Preparation of forecasts	--		
- Working out alternatives for future water supply	---		
- Assessment of environmental impacts of alternatives		--	
- Socio-economic study	-----		
- Working out cost sharing principles	-----		
- Study on required management of water supply services		--	
- Criteria for comparing alternatives worked out		--	
- Preparation of technical water supply development plan, based on the selected alternative, consisting of proposed improvements, cost estimates and development programme		---	
- Preparation of institutional water supply development plan, based on the selected alternative, consisting of institutional arrangements, management, cost-sharing and development of MIS		---	

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Activity	1992	1993	1994
Sub-project 3.			
Water Supply and Sanitation Development Plans (Continues)			

Sanitation development plan			
- Study on present situation	---		
- Preparation of forecasts			
- Working out alternatives for future sanitation	--		
- Assessment of environmental impacts of alternatives		---	
- Working out cost sharing principles		-----	
- Study on required management of sanitation services		--	
- Criteria for comparing alternatives worked out		--	
- Preparation of technical sanitation development plan, based on the selected alternative, consisting of proposed improvements, cost estimates and development programme		---	
- Preparation of institutional water supply development plan, based on the selected alternative, consisting of institutional arrangements, management, cost-sharing and development of MIS		---	
Environmental action plan			
- preparation of the environmental action plan		---	

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Sub-project 4.

Physical Improvement of Water
Supply and Sanitation

Activity	1992	1993	1994
Implementation programmes			
- Preparation of programme for high priority consumers	----	---	---
- Preparation of programme for sanitation for selected sites	----	---	---
- Preparation of experimental implementation plan	--		
- Preparation of annual programmes for implementation of the water supply development plan	---	---	---
- Preparation of annual programmes for implementation of the sanitation development plan	---	---	---
Community involvement			
- coordination of community involvement with implementation	-----		
Investigations and design of water supply and sanitation systems			
- Carrying out field investigations and final design	-----		
Material support			
- Study on use and production of local construction materials	---		
- Purchasing materials	-----		
Production of construction materials for water supply and sanitation			
- Assessment of need		-----	
- Production of materials			-----

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Sub-project 4.

Physical Improvement of Water
Supply and Sanitation (Continues)

Activity	1992	1993	1994
Use of local contractors			
- Development of contracting procedures		-----	
- Implementation by contractors			-----
Control system for construction			
- development of control procedures		-----	
- carrying out control			-----
Water quality control			
- development of control procedures	-----		
- ongoing control			-----
Operation and maintenance			
- preparation of operation and maintenance manuals			-----
- coordinating training with construction	-----		
Experimental implementation of water supply and sanitation	-----		
Implementation of water supply systems for high priority consumers			-----
Implementation of sanitation for selected sites			-----
Implementation of the water supply and sanitation development plans			-----

Table 6.1

TIME SCHEDULE OF PROJECT ACTIVITIES (Continues)

Activity	1992	1993	1994
Sub-project 5. Logistics			
Establishment of the project in Finland			
- Letter of intent	-		
- Finalizing the project document	-		
- Consultancy agreement	-		
- Recruitment	--		
Establishment of the project in Namibia			
- Construction of accommodation and office	-----		
- Construction of other facilities	-----	2)	
Establishment of supporting activities			
- Organization of the financial management	---	1)	
- Organization of the material management	---	1)	
- Working out the structure for the project MIS	---	1)	
Coordination and collaboration with relevant organizations			
- Establishment of the relations with relevant organizations	---	1)	
- Drawing up the communication system	---		
- Coordination of the Finnish input	----	1)	
Preparation of implementation of the project			
- Nomination of the MRWSU staff	--		
- Organization of the MWRSU	----	1)	
- Preparation of the work plan	-1)		
1) Continues under Sub-project 1: Institutional and Human Resources Development			
2) Continues under Sub-project 5: Physical Improvement of Water Supply and Sanitation			

7. INPUTS

7.1 Inputs of the Government of Namibia

The general description of the Namibian inputs in the project is given in the Agreement of Development Cooperation between the Governments of Finland and Namibia.

The Government of Namibia shall meet 15 % of the total costs of the project, after exclusion of the costs of the technical advisory services as defined in the project budget; see Chapter 8 of this project document. Any custom and import duties or other taxes subjected to the project shall not be taken as a part of the input of the Namibian Government.

The Namibian Government shall employ a sufficient personnel to work within the MRWSU, to be established.

The Namibian Government shall provide the MRWSU with office facilities and a part of the staff of the MRWSU with housing facilities (i.e. consultants field staff with their counterparts).

7.2 Inputs of the Government of Finland

The general description of the Finnish inputs in the project is given in the Agreement of Development Cooperation between the Governments of Finland and Namibia.

The Government of Finland shall provide the personnel required for the technical advisory services and meet the respective costs as defined in the project budget; see Chapter 8 of this project document. Additionally the Government of Finland shall meet 85 % of all the other costs, only excluding custom and import duties or other taxes of the project.

The schedule for the long term personnel of the technical assistance of the project is presented in Table 7.1, next page.

7.3 Inputs from the Users

The users shall meet the costs of operation and maintenance as well as the investments of their water supply and sanitation schemes according to the approved community working approach and cost sharing system, based on the valid national policies.

Table 7.1 Schedule for Technical Assistance

DUTIES	1992	1993	1994
Project Coordinator (33 manmonths)			
Community Mobilization Adviser (33 manmonths)			
Human Resources Development and Training Adviser (22 manmonths)			
Water Supply and Sanitation Adviser (33 manmonths)			
Hydrogeologist (17 manmonths)			
Field Manager (12 manmonths)			

WATER SUPPLY AND SANITATION PROJECT IN MARULA REGION, PHASE I
28103701-8

PROJECT BUDGET (FIM 1000)

CONSULTANT'S STAFF	Code	1992	1993	1994	TOTAL
Long term Technical Assistance personnel					
- Project Coordinator	1	550	578	606	1.734
- HRD/Training Adviser	1	398	416		812
- Community Mobilization Adviser	1	396	416	437	1.248
- Hydrogeologist	1	418	239		657
- Water Supply Adviser	1	473	497	521	1.491
- Field Manager	1	160	252	88	500
Reservation for sub-consultancy	9	700	700	700	2.100
Project coordination in Finland	1	303	154	205	662
Project management support in Namibia	1	165	173	182	520
Reimbursable Technical Assistance costs					
- travels	2	170	100	160	430
TOTAL CONSULTANT STAFF		3.731	3.525	2.900	10.155

LOCAL STAFF	Code	1992	1993	1994	TOTAL
Counterpart personnel	5	500	700	700	1.900
Other personnel	5	300	300	300	900
TOTAL LOCAL STAFF		800	1.000	1.000	2.800

HUMAN RESOURCES DEVELOPMENT AND TRAINING	Code	1992	1993	1994	TOTAL
Training materials	4	400	300	300	1.000
Training courses	4	400	400	400	1.200
TOTAL HRD AND TRAINING		800	700	700	2.200

COMMUNITY INVOLVEMENT	Code	1992	1993	1994	TOTAL
Community participation costs	5	300	300	300	900
Revolving fund	6	500	600	700	1.800
TOTAL COMMUNITY INVOLVEMENT		800	900	1.000	2.700

WATER SUPPLY AND SANITATION DEVELOPMENT P Code		1992	1993	1994	TOTAL
Planning tools and material	3	200	200	150	550
Ground water investigation equipment	3	400			400
TOTAL W/S & S DEVELOPMENT PLANS		600	200	150	950

PHYSICAL IMPROVEMENTS	Code	1992	1993	1994	TOTAL
Trucks	3	700			700
Test bits (2 pcs) conductive meters etc.	3	200			200
Machines and tools for a casting yard	3	300			300
Construction materials	3	1.000	2.000	2.000	5.000
Casting yard	3	300	200		500
Freights	3	250	100	100	450
Funds for construction works/contracts	8	700	1.400	1.400	3.500
Spares for cars and machinery	4	300	300	300	900
Operation & maintenance costs	4	500	500	500	1.500
TOTAL PHYSICAL IMPROVEMENTS		4.250	4.500	4.300	13.050

LOGISTICS	Code	1992	1993	1994	TOTAL
Office equipment & materials	5	450	200	100	750
Project cars	5	750			750
Office running costs	5	320	150	150	620
Mobilization costs	9	450	50		500
Monitoring & evaluation	5	300	300	300	900
Personnel freights	2	80	40	70	190
Other personnel costs	2	240	240	240	720
Miscellaneous	9	350	350	350	1.050
TOTAL LOGISTICS		2.940	1.330	1.210	5.480

CONTINGENCIES	9	600	565	450	1.615
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	1992	1993	1994	TOTAL
GRAND TOTAL	14.521	12.720	11.710	38.950

Government of Namibia (15 % of MFIM 28.795) 4.320
Government of Finland (100 % TA personnel and 85 % of FIM 28.795) 34.630

	1992	1993	1994	TOTAL
Government of Namibia 15 %	1.620	1.380	1.320	4.320
Government of Finland 85 %	12.910	11.340	10.380	34.630

9. RISKS, ASSUMPTIONS AND EXTERNAL FACTORS

9.1 Environmental Aspects

The DRD shall promote in all possible ways the development of the proper livestock management as well as the extensive reforestation. All improvement of the water supply and sanitation, the livestock watering and irrigation included, must be strictly guided by the tolerance of the environment. Neglecting the environmental protection would write a most unfortunate scenario of the development of the area.

9.2 Institutional Aspects

The project can operate only after the organization of the MRWSU has been established and the required personnel has been employed or hired. The DRD has the full responsibility for facilitating and carrying out the establishment process in a rapid pace just in the beginning of the project.

The personnel of the MRWSU needs to have a sufficient basic education in order to be trained for the future tasks. The basic idea of the project is that the operational responsibility stays with the MAWRD right from the beginning of the project. A personnel policy should be adopted to maintain the trained staff in the sector.

The coordination of the activities of the collaborating projects of forestry and primary health calls for an active role of the Namibian administration, because the projects shall not operate under the same organization than the water supply and sanitation project. This coordination missing, endangers all the community mobilization activities and the institutional sustainability of the project. To emphasize the continuity, the relations to NGOs shall not only be established at a personal level, but at an organizational level as well.

The number of the technical assistance staff and the duration of their posts shall be as defined in Chapters 7 and 8 in this project document. As soon as qualified local personnel is found to take over the full responsibility, the tasks of the technical assistance staff shall be reorganized according to the changed situation.

9.3 Financial Aspects

The financial input for the project, except the costs for Technical Assistance (Consultants Staff), shall be channelled

through the DRD and MRWSU. It is of utmost importance that the financial decision making shall be given a special emphasis in order to facilitate the inputs to arrive timely and to enable the smooth monetary operations of the project.

The financial sustainability of the improved services shall be the absolute pre-condition for all physical improvement activities of the project. The element of cost recovery or cost sharing shall therefore be incorporated into the project. Providing water free of charge shall be strictly avoided. The users shall own, manage and operate their improved systems. Creation of new, even temporary job opportunities in connection to the physical improvement of the water supply and sanitation form a vital part of improving the financial sustainability of the services. The income generating activities of the project shall be pointed to the users of the services and the private sector. The administration must not be exaggerated at the cost of the private sector.

9.4 Technical Aspects

The ground water investigations are necessary to eliminate the risk of dry holes or saline sources. The MRWSU retaining only to the shallow water investigations, and buying the services for the deep ground water investigations, should be carefully considered in order to avoid overloading the organization.

The construction of houses for accommodation of the MRWSU staff, as well as the offices shall be carried out by the DRD as soon as possible. The availability of these facilities being delayed, effect on reaching the project targets.

10. PROJECT ORGANIZATION

10.1 Organization

The executing agency of the project shall be the MAWRD. The Annual Consultative Meeting shall be the highest decision making body with the responsibility for the overall supervision of the project at the policy level.

The Steering Committee shall control the financial and substantial progress of the project and submit the annual work plans and budgets for approval of the ACM. The Steering Committee shall be an advisory body with competence for decision making within the approved annual budgets and work plans.

The MRWSU shall be responsible for producing the outputs as stated in the project document. Figure 10.1 shows the proposed organization structure.

No separate project organization shall be formed but the technical assistance staff shall work within the MRWSU, integrated to the organization of the MAWRD. A project home office in Finland is, however, required for the coordination of the project activities.

The core Namibian staff of the MRWSU shall be as follows (the potential organization providing the person within parentheses):

- | | | |
|----|--------------------------------|---------------------------------|
| 1. | Project Manager | (MAWRD) |
| 2. | Community Mobilization Officer | (DRD, MHSS, ME, Churches, NGOs) |
| 3. | Training Officer | (DRD, MHSS, ME, Churches, NGOs) |
| 4. | Water and Sanitation Engineer | (DWA) |
| 5. | Ground Water Engineer | (DWA) |
| 6. | Field Manager/Administrator | (DWA, DRD, Churches) |

The MAWRD shall nominate the Project Director operating from the DRD, Windhoek. The Project Director represents the Ministry and has as his main duty to promote all administrative processes and decision making necessary for the successful implementation of the project as well as to facilitate the contacts to the involved ministries and organizations.

The Project Director calls together with the Project Coordinator a meeting of the Steering Committee four times a year or when special need arises.

The Project Coordinator and the Namibian Project Manager shall share the responsibility for the project management. They shall report on the financial and technical progress of the project. The expatriate Project Coordinator shall be in charge of the use of the Finnish input and shall approve by co-signing all purchase orders, payments, liabilities and financial reports of the MRWSU.

10.2 The Annual Consultative Meeting

The ACM shall be responsible for the overall supervision of the project at the policy level. The main duties of the ACM are to:

- approve the annual operative plans of the project
- approve the annual budget of the project
- revise the substance and financial frame of the project document
- ensure the timely allocation of funds of the involved parties required for producing the planned outputs of the project

10.3 Steering Committee

The main duties of the Steering Committee shall include the following:

- to meet at least four times a year
- to control the fulfillment of the project document and inspect the project area with regular intervals (at least once a year in connection with the meetings) in order to assess the progress made
- to oversee the management and the reported progress of the project and propose actions to be taken
- to submit proposals for annual operative plans and budget for approval by the ACM
- to approve the quarterly workplans and budgets within the frame of the annual operative plans and budgets approved by the ACM
- to oversee the use of the revolving funds
- to consult other interest groups on matters concerning the project
- to discuss policy matters and make proposals for the ACM
- to solve problems, not settled within the MRWSU
- to organize sub-committees if found necessary for implementing or monitoring the project

The members of the Steering Committee shall be as follows:

1. Chief Regional Administrator (Chairman)
2. Project Coordinator/Manager (Secretary)
3. Project Director, DRD, Windhoek
4. Regional Director/Representative of DRD
5. Regional Director/Representative of DWA
6. Liaison Officer, MHSS
7. Liaison Officer, ME
8. Representative of the Embassy of Finland

The Committee shall call also the representatives of the proposed Health Sector and Forestry Sector Projects to participate the meetings as members.

10.4 Internal Coordination and Contacts with Other Interest Groups

The project consists of sub-projects, closely linked together. In order to facilitate the work of the MRWSU, internal coordination meetings and planning workshops shall be organized regularly. A project Management Group, consisting of the staff of the MRWSU, shall meet monthly to monitor the progress of the project. The sub-projects shall have weekly their own planning meetings where other advisors do participate when needed.

Workshops and seminars shall be held for operational planning, budgeting included. These occasions shall be participated by the involved governmental organizations.

Planning and Coordination Workshops with church, NGOs and all other parties involved will be organized according to the detailed action plans.

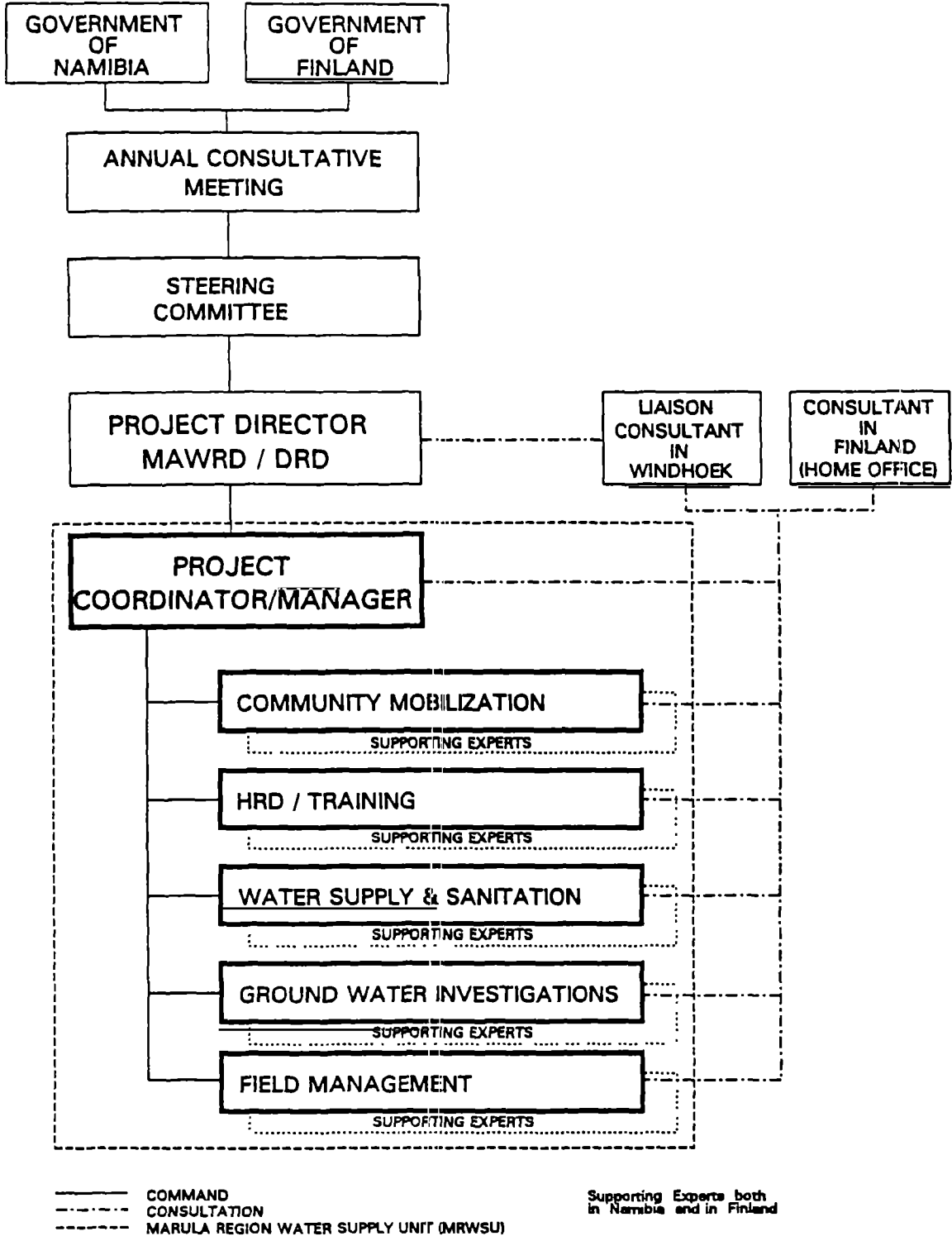


Figure 10.1 Organization Structure

11. REPORTING, MONITORING AND EVALUATION

11.1 Briefs and Reports

The project reporting must fulfill the requirements of all the parties: The MAWRD/DRD, FINNIDA and MRWSU. The new project budgeting and reporting procedures for FINNIDA, to be approved at the beginning of 1992, shall form the basis for the reporting.

Annual Work Plan and budget shall be prepared every year and approved by the ACM. Quarterly work plans and budgets, within the annual frames approved by ACM, are subject to the approval by the Steering Committee. All deviations from these plans and budgets shall be indicated in the Monthly Progress Reports.

Quarterly Financial Reports and Quarterly Progress Report shall follow the Annual Work Plan. The information shall be shown in form of figures, curves and diagrams completed by a short but informative explanatory written text. All reports shall have a short overall summary explaining the main activities, deviations from approved targets and reasons for them.

Monthly Progress Reports will present only the main activities during the report month and a description of activities to be carried out during the next report month. The emphasis shall be laid on the deviations from the Work Plan.

All reports and work plans will be delivered for approval to Namibian authorities, FINNIDA as well as for information of other organizations concerned.

11.2 Planning Reports

A list of reports to be produced during the project phase is presented in annex 5.

11.3 Reviews and Evaluation

The Project shall be subject to periodic reviews and evaluations as agreed upon by MAWRD and FINNIDA during the project phase.



SOCIO-CULTURAL ANALYSIS

1. Introduction

1.1 Background

Owamboland, stretching from the Etosha Pan in the South to the border with Angola in the North, Kaokoland in the West and Kavango in the East is composed of eight social formations: Uukwanyama, Ondonga, Uukwambi, Ongandera, Uukwaludhi, Ombalantu, Uunkolonkadhi and Eunda. According to one source the cultures and languages of these formations are basically the same, a subject which when explained, gives rise to treatises treating Owamboland in monolithic terms.

This study - undertaken to raise problems and issues which would be taken into account during the planning and implementation of the proposed water supply and sanitation project - has limited itself to members of the Uukwanyama social formation. The reason for this lies in the fact that it is the members of the Uukwanyama social formation that inhabit the proposed project area.

While care has been taken to consider opinions and comments on the Project Brief and other relevant sources, gaps to future enlarged descriptions are not closed. A project that seeks to intervene rationally can only be encouraged to undertake on-going socio-cultural analyses as long as a project lives.

1.2 The Social Organization in the Uukwanyama social formation

The unit around which the social and economic life revolves is the eumbo (homestead) headed by omwene gwegumbo (in most cases, a male). Private ownership of land is non-existent even if the usual practice is that the family head "purchases" land from the chief. Land is the property of the chief in so far as he is distributor.

The pattern of dwellings is that of individual kraals within which a cluster of huts are found. Cultivated lands surround the kraal. Though observers have seen in this "scatter" an absence of any evident geographical groupings (Project Brief 1990:10), the neatness of these dwellings lie in their functioning wholes as umkukndas. Seen in this way, the specifications of an Owambo village proper begins to emerge: A widely dispersed homestead whose total inhabitants are in the region of 600 - 900 inhabitants assuming the size of a single family to be 10 - 15 people.

1.3 Representative Bodies

In the history of the Owambo social formations, in particular the Uukwanyama, Ondonga, Uukwambi, Ongandjera and Uukwaludhi, chiefs are known to have held strong positions. How far this is true today, owing to interventions from years of colonial rule, is difficult to say.

In the new dispensation Regional Commissioners have been appointed for both Ondangwa and Oshakati. What changes might come after regional elections are held is difficult to say. During the field mission a tribal office was noticed which may suggest that tribal leadership may still be retained.

While questionnaire results were limited to a few people in the project area, they indicate the nature of community organization and role outside the government structures. Such involved (a) religious organizations (b) political parties and (c) local bodies such as village boards. Issues of interest in these organizations range from community mobilization and participation, matters of economic development and education to the role of women. In view of what has already been said about social cultural features generally and non-governmental organizations in particular, two features need special mention for the sake of the proposed project:

- a) the role of headmen, and
- b) the role of the church.

1.31 The Headmen

Omalengas occupy influential positions in the eumbo (homestead). In a typical chain of command existing within the formation under consideration, omalengas are either in a senior or junior position in a hierarchical structure headed by the chief/king. They transmit messages that relate to a community and are known to have been positioned historically to fulfil such jobs better than anybody.

1.32 The Church

Owamboland as a whole is a church going community (with close to 90% being members of the Lutheran Evangelical Church). The church in Owamboland has not all along been limited to matters of spiritual leadership alone. With the war affecting Owamboland during the days of liberation, the church proved itself as an embodiment of collective will for freedom and did so in the provision of education, health facilities and worldwide calls for the isolation of South Africa. A substantial amount of respect for the church seems to have been borne out during this period to make it heard among the people.

Informal but adequately indicative of the role of the headmen and the churches is locally portrayed in the slogan "if you want anything done go through the churches and the headmen".

1.4 Population

Long before Namibia got independence, the country's total population figure was alluded to with doubts. The UN pre-independence census seems not to have accomplished the task. A new census is being planned by the government and until such figures are released, all that can be said about population is based on estimates.

Ovamboland's total population was put at 295,507 in 1970. According to sources, that excluded a number of 52,034 residing elsewhere. In 1978, estimates put the population of the area at 415,237. Table 1 below gives projections to the year 2000 on the basis of estimates of a 3 % annual growth rate.

Table 1. Population projections for Ovamboland

Year	Growth	Total
1970	3.0	347 541
1980	3.0	470 066
1990	3.0	630 698
2000	3.0	843 678

Assuming the project area's total population figure to be currently 100 000 and growing at the same rate, the figure for the year 2000 is something in the region of 134 000.

In terms of rural and urban population spread, it has been estimated that by 1990 and the year of 2000, the population distribution in Ovamboland will be 80.4 % and 76.0 % rural and 19.6 % and 24.0 % urban (even if sources indicate that none of the region's 23 "growth centers" could be called towns).

Confusion regarding the exact number of the population spread replicates itself in both the sex ratio and age sex distribution. Table 3 gives the estimated age structure of black Namibians. As the information shows, the population structure is dominated by a younger age group of between 1- 45 years.

It could also be mentioned that in considering population trends, the number of Namibians that had just returned from exile is important to bear in mind. Similarly, even if refugees into the northern areas might have stopped coming, those that appeared on the scene prior to independence might not have returned to their countries of origin.

1.5 Education

While there is nothing much to say about education per se in the project area, something in the way of an exploration should be made as a prelude to an assessment of man-power requirements and resources. Education was seen as an impediment to socio-economic development by our respondents - a fact which requires that the issue be dealt with at some length.

Table 4 (A, B, C and D) depicts the basic trend in Black education, breakdown of school aged population, educational standards of black teachers and advanced secondary training institute for the whole of Ovamboland. While the statistics are fairly old (16 - 18 years) it is reasonable to assume that they give a fairly good picture of the situation since no major structural changes have taken place within that period.

A quick perusal of the data therein gathered show the following:

- Extremely high pupil/teacher ratio
- Low average qualifications for black teachers
- Low investment of public funds in black schools as can be seen in the fact that up to 1973 the whole of Ovamboland could boast of only one training institute. The situation has not changed.
- An absence of technical training which should mean negatively in terms of an assessment of what the region can offer for the proposed water supply and sanitation project.

And as for the project area, if one remembers that the war was concentrated here (to the extent that the Odibo secondary school in the area was closed for many years) one can appreciate the fact that in as far as education is concerned, the area might be in a desperate state. What is rural development under such situations?

Bearing in mind the problems of the area, from water scarcity, lack of health facilities to over-population and deforestation, Table 2 tries to bring together a program plan that could be considered together with the proposed water supply and sanitation project.

Table 2. Development programmes in education and environment.

Programmes	Nature Of Education
General education	Adult education in a rural setting with emphasis on: - functional literacy - community development e m p h a s i z i n g participation and motivation
Environment	- hygiene - nature conservation
Special education	- on the job training of: a) apprenticeships b) managerial training - income generation especially for women - family planning

Notes:

1. These suggestions are put in respect of possible scenarios that may result with the implementation stage.
 - a) The extreme possibility that the availability of the much needed water gives the community no reason to participate with a view to self-management of facilities at the handing over stage,
 - b) The high expenses of education and training reduces the pressure on the part of the donors and government to activate the community with a view to acquiring the expertise to run the facilities at the handing-over stage.
 - c) The need for water engineering students currently under training to pay particular attention to operation and maintenance matters - thereby reducing the education and training needs of the community for self-management of resources at the handing over stage.
 - d) The highly important need to place priority over community staffing of the project at the handing over stage.

1.6 Socio-economic Characteristics

1.61 Background

This report on socio-economic characteristics is given subject to the following observations:

a) Often it is thought that rural community economies have a rationality of their own. This is as much true as it is wrong. Certain relations do exist between rural or peasant economies and what is generally referred to as modern economies. To put it bluntly, while for analytical reasons this report gives an impression of peasant economies in the area as being distinct, it should also be pointed out that the economy exists in articulation to the modern economy in the central region or what was formerly the Police Zone. The incidence of the institutionalized contract labour system whereby in the pre-independence days men were required to go and work in the mines in the south of the country is a case in point. As such, a great deal of mobility between the area under consideration and the southern part of the country does exist. Time constraints during the field mission made it difficult to research on wage labour relations and patterns of mobility in and between the area and the south.

b) Similarly, the distribution of wealth among the population of the area including that between the sexes is not covered. Questionnaire results of the monthly incomes of between R600 - R2000 should be read with care (Annex).

1.62 Major Features of the Economy

Crops (mostly the drought resistant pearl millet) and a variety of animals are at the center of the production system. Orally supplied reports indicate (as in the case of animals) the following statistics for the whole of Ovamboland:

Livestock	Number
Cattle	350 000
Sheep	12 000
Goats	360 000
Horses	4 000
Donkeys	120 000
Pigs	2 000
Poultry	20 000
Dogs	16 000

Separate figures for the project area are not available. One could assume that the incidence of increased erosion may be aggravated by more animals on the land than elsewhere.

Employment opportunities are very limited save for the mines that are predominantly in the south of the country. Pre-independence days in the area, in as far as employment was concerned, were marked by military related job opportunities supplied by the South African army. Self employment that exists outside the ownership of animals and the cultivation of millet may lie in entrepreneurial activities around the region's growth centres even if it can not be said just how much this sector absorbs.

Unconfirmed reports that are circulating indicate that the government is planning a network of agricultural projects in the region as a whole. How this will be met given the dry conditions in these areas, over-population, deforestation and erosion is difficult to say. Needless to say though that self-employment opportunities need to be created to alleviate strains on available incomes from subsistence agriculture and dangers of malnutrition and disease. The availability of water at convenient points might be necessary to free available labour for income generation activities.

1.7 Women

Target groups in the project area are primarily women and children. That this report did not benefit from questionnaires distributed in Windhoek to women representatives is regrettable. We are left to stress problems that relate to women in development aid packages in order to be wary of likely possibilities if the women question is given but scanty attention.

First of all it is common knowledge that men dominate issues of development. Whether this is out of an assumption that women automatically benefit from efforts at development, it is difficult to say. What is clear is that a failure to understand that women in the Third World are in a particularly disadvantageous position, leads strictly to double discrimination. This should be linked to the common tendency for per capita incomes to fall down thus leading to widespread poverty, destitution, child mortality and inequalities.

Documentation exists worldwide to demonstrate how women in the Third World are worse off even when they are assumed to be doing most of the work of securing extra crops for consumption and export to buy luxury goods.

To avoid misgivings, the present water supply and sanitation project should be mindful of the following:

a) Women in the project area should be trained in maintenance work and that in conjunction with the Health project, hygiene

education be provided to avoid pollution at water points or of household containers.

b) Women and children are the carriers of water. As such, their opinions (especially in respect of women as a group) should be considered in the choice of water points.

c) With the incidence of male out-migration to the urban centers in the search for employment, it is realistic to assume that women and children are the majority in the rural areas. In income generating activities and all suggested programme plans for development, women should receive priority status.

d) Women should be represented on all committees established for the project. Given the acutely strong male leadership care should be exercised in seeing to it that women are fairly represented.

e) As a priority group, consideration should be given to including a woman expert on the expatriate team to see to it that the interests of women are properly taken into consideration.

Table 3. Estimated age structure of black Namibians.

Age distribution Years	Total People	Percentage of Population
0 - 1	18 865	3.4
1 - 4	67 430	12.3
5 - 9	80 575	14.7
10 - 14	71 830	13.1
15 - 19	56 485	10.3
20 - 24	46 310	8.4
25 - 34	73 205	13.3
35 - 44	54 890	10.0
45 - 54	38 280	7.0
55 - 64	22 330	4.1
65 -	19 800	3.6
Total Population	550 000	100.0

(Based on 1977 total of 950,000 of which Ovambos accounted for 415,237.)

Table 4 A. Basic trend in black education

	1960	1966	1970	1973	1975	1977
Pupils	43624	78295	112006	138890	159105	175000
Teachers	1310	2071	2713	3453	-	-
Pupils/teacher	33.3	37.8	41.3	40.2	-	-
Schools	313	415	526	592	-	-
Population	452540	564100	671601	734000	777000	822000

Table 4 B. Breakdown of school-aged population (1977).

Age Group Years	Number of People
5 - 9	128 095
10 - 14	112 180
15 - 19	88 405
Total school-aged	328 680

Table 4 C. Educational standards of black teachers (1975)

Standard	Number of Teachers	Percentage
University degree	12	0.4
Matriculation	51	1.7
J.C. or equivalent	304	10.2
Std. 6 (8 years school)	1606	54.0
Technical or other vocational	-	-
No technical, professional or other qualification	1004	33.7
Total	2977	100.0

Table 4 D. Advanced secondary training institute for Ovamboland (1973)

Training Institutes	Number of Students	Number of Staff	Hostel Accommodation
Ovambo Ongwediva T.I.	658	35	650 -

1.8 Questionnaire results

Some of the findings have been used in the compilation of the socio-cultural analysis, much of the questionnaire could not be used owing to lack of time to have it widely distributed during the trip and very scant responses.

Respondents: 2 males aged
1 female aged
The Engela Parish

Opinions in the questionnaire from the Engela Parish was filled in cooperation with the nursing staff of the local hospital. Their opinions, handwritten by themselves, put stress on water and the need to rehabilitate existing sanitary facilities for the hospital as well as establishing pit latrines for out-patients. Matters also mentioned include showers (cold and warm for both patients and staff) and water-related income generating activities such as vegetables. Concern for common diseases around the area such as diarrhoea is reflected in the suggestion that pit latrines be made available at market places as much as they should be made available at schools. These suggestions are a firm reflection of popular opinions in the area as the same messages were aired by the project area's representatives in the workshop in Windhoek.

ECONOMIC AND FINANCIAL ANALYSIS**1.1 Overview of the Namibian Economy**

The post-independence Namibian Government inherited an economy of sharp contrasts. From many viewpoints Namibia is a prosperous middle-income country. Its per capita income is about USD 1,200, which makes it one of the richest in Sub-Saharan Africa, its physical infrastructure is one of the best in the region, its telecommunications system one of the most efficient, and its public administration one of the most highly developed. At the same time, Namibia has one of the most skewed income distributions, with a tiny minority enjoying incomes and health and education services at levels comparable to those of a Western European country, while a vast majority live in conditions that are barely above subsistence and suffer from highly inadequate public services. In addition, the Government inherited a stagnating economy whose unemployment rate is estimated at 30 percent.

The Namibian Government faces three main economic challenges: To reactivate the economy, reduce income disparities, and restrain and redirect public expenditures. The Namibian economy has had a lackluster performance for the past 20 years. After expanding rapidly at 9 percent per year during the sixties, its growth rate fell to nil during the seventies. In the early 1980s, the economy fell into a recession that lasted five years and that brought GDP down by 6.8 percent. Owing to continued population growth, per capita GDP declined without interruption during the past decade and at independence it was 23 percent lower than in 1980. Independence, the cessation of hostilities, and the suspension of sanctions against Namibia, are likely to fuel expectations that the Government will be under great pressure to fulfil.

The Government plans to rely on the private sector to reactivate growth and, to this end, it is committed to providing an enabling environment for private sector activity. Such an environment will be necessary to stimulate much needed investment. Both private and public investment declined precipitously during the first half of the last decade, the former at an average rate of nearly 19 percent per year, the latter at nearly 15 percent per year.

In summary, after two decades of economic stagnation, the lifting of sanctions and the newly internalized income from fishing activities are likely to give the Namibian economy a boost. GNP growth rates will depend on Namibia's ability to capture income from fisheries. By the mid-1990s growth might also stem from the establishment and eventual production of fish-processing industrial activities, and higher productivity of communal farming.

1.2 Water Sector Financing

The actual expenditure in the Department of Water Affairs during the last five years are shown in table 1. The total expenditure of the Department of Water Affairs increased from R 66 760 million in 1985/86 to R 89 052 million in 1989/90 at an average rate of 5,9% per annum.

Table 1. Water Affairs Expenditure in million rand.

Main Division	Financial Year				
	85/86	86/87	87/88	88/89	89/90
Administrative	2,470	3,291	2,860	3,580	9,252
Training	0,082	0,679	1,014	1,110	1,146
Investigations at National Level	6,664	4,690	7,119	6,906	6,735
Civil Works	1,174	*	1,275	1,413	1,581
Establishing State Water Works	30,804	34,292	35,615	36,565	37,187
Operation of State Water Works	22,792	19,146	25,784	8,091	31,733
Mechanical and Electrical Works	2,054	1,690	3,945	3,659	1,423
Total	66,760	63,789	77,612	81,324	89,057

* The figure for Civil Works was incorporated with the Establishment of State Water Works.

Yet, expressed in real terms, the value of capital work carried out annually has shown a steady decline since 1978 (Figure 1).

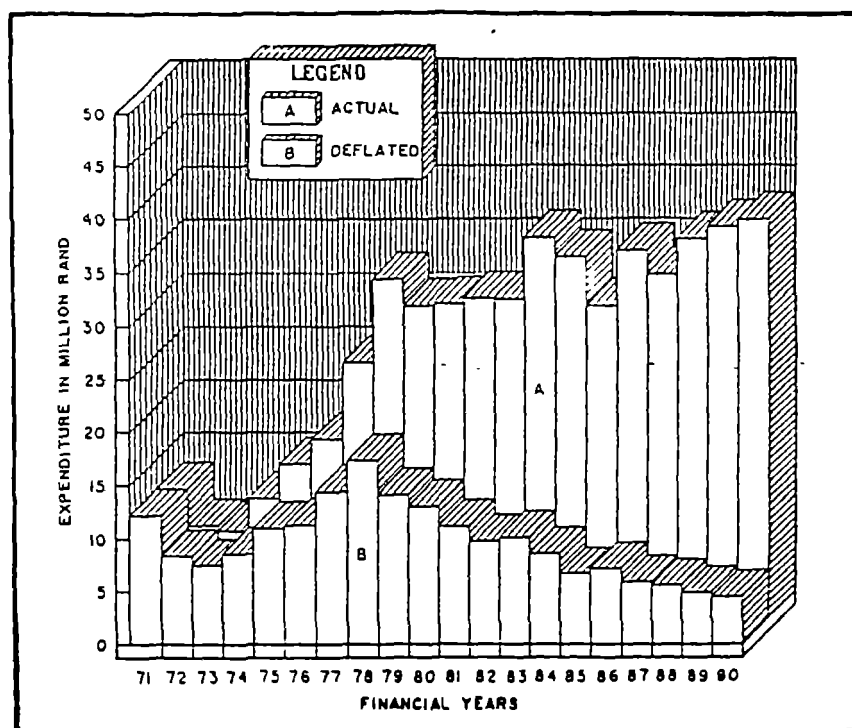


Figure 1. Capital expenditure on water supply from 1971 to 1990.

The Department has developed an improved computerized cost information base which makes it possible to allocate specific costs for water supply to the various water schemes. Water tariffs are calculated accordingly for each scheme and the system differentiates between a capital cost component and running cost component of the total water cost. The running costs are subdivided into operating, maintenance and overhead costs.

The direct running costs of water supply services during 1990 amounted to R31,7 million and represents an overall unit cost of 36,7 cents per cubic meter of water supplied, irrigation water included. The largest single expenditure i.e. R13,5 million was in respect of energy (fuel and electricity for the transportation of water), whilst R11,6 million was for remuneration. Table 2 shows more information on the running cost of state water schemes and income from water sales in the country during the past five financial years.

Table 2. Expenditure on and income from water sales.

Item	Financial Year				
	85/86	86/87	87/88	88/89	89/90
Potable water sold (Mm ³)	39,944	44,750	52,083	50,173	55,091
Running cost (R)	21,825	26,126	30,928	33,356	36,348
Unit Cost (c/m ³)	55	58	59	66	66
Income (Mill R)	19,726	21,359	27,846	27,345	29,843
Unit Income (c/m ³)	49	48	53	54	54
Deficit (c/m ³)	-6	-10	-6	-12	-12

The total investment in the water supply infrastructure is more than R400 million and the replacement value is estimated to be at least Rand 500 million in 1990 values.

1.3 Principles of Cost Recovery and Water Pricing

Lack of adequate cost recovery is one of the key constraints on water supply both in the developed and developing world. A number of developing countries have since achieving independence had the policy of supplying water totally, or almost, free of charge to rural and urban fringe consumers. This policy has been considered a solution for the equity objective but many other objectives of water pricing, such as efficiency, financial, public health and environmental requirements have been disregarded. For instance, in Tanzania water supply has been implemented largely through external support while the Government has been in charge of operation and maintenance. This has led to a situation where most of the systems are inoperative: The government cannot afford this system. Thus the free service is given only to a few but not the poorest consumers.

Cost recovery contains four key elements: Benefits and costs, predictability of consumer contributions, water tariffs, and fee collection and financial management.

Traditionally it has been considered that a household can spend a maximum of five percent of its income for water. This criterion is a broad guideline and it is often very difficult to get real income data. Indicators on housing standards and the ownership of items like radio, bicycle etc. are much more relevant. The widespread practices of water reselling (owner of the water connection sells water to customers who come and fetch it) and vending (selling water as a hawker or peddler) demonstrate consumers' actual behaviour and their willingness and ability to pay for operative service. These practices have for long been ignored by water utilities, who should try to learn from these activities and improve their own services. Besides, the results of vending and reselling surveys are beneficial in improving water tariffs. Many of the vending and reselling surveys show that the poor consumers in developing countries already pay substantial amounts of money for operative service.

In many developing countries water tariffs have declined in real terms over the years. The tariffs are geographically uniform and have to be decided at the Cabinet level. With this arrangement, tariffs can only seldom be adjusted, and then without adequate consideration of inflation and cost increases. Both the equity and efficiency criteria can be met through progressive tariffs: cross-subsidized minimum block consumption and increasing block rates for higher consumption. These should be lower for small water users. Yet, water should not be free for any consumer group except in emergency cases.

If metering is not feasible due to intermittent service, alternative tariffication systems can be used. On the whole, imagination should be used in design of water tariffs and collection methods. Charges could vary from on the spot payments to seasonal ones. The latter are especially valid for rural areas. Consumers contributions can be also in-kind. The principle should be that "Everyone should contribute to the cost, but not necessarily in the same proportion, in the same way or at the same time". In the long run it will become absolutely necessary to introduce wastewater charges. This is very crucial since it means that water bills would more than double, if priced properly.

1.4 Water Pricing Policy and Tariffs in Namibia

The objective of the bulk water supply tariff policy is that domestic consumers with a piped water supply should pay for their water at a tariff that at least equals the running cost component where possible. Regarding larger centres such as Windhoek and Swakopmund, this objective has already been achieved. In smaller towns and settlements the annual running cost is still partly subsidized by the State. As an average

users pay about 0.60 R/m³ compared with the operating costs of 0.70 R/m³. For those people who cannot afford to pay for water, the water is supplied free of charge and is therefore fully subsidized by the State. Yet, there is evidence that people have demonstrated an ability and willingness to pay for water.

In the case of commercial undertakings such as mines an economic tariff which covers the full capital and running cost is levied. The tariff policy is generally directed towards bringing home to the consumer the value of water as a scarce commodity in an arid country. The water tariffs are subject to annual revision and periodic adjustment according to the economic situation in the country.

In terms of water supply strategy in relation to cost recovery, the whole commercial sector may need to be examined in the near future within the context of the economic viability of the Eastern National Water Carrier (which may be used to augment mine supplies) and the degree to which community water supplies for low-income groups need to be subsidized and from which source of income. Incremental costs of extending the Eastern National Water Carrier will have to be apportioned with some of the capital costs borne by the state and some by the commercial users.

Regarding the municipalities and the small towns, the unit cost of water supplied in bulk by the Department of Water Affairs is less than the cost to the consumer. Tariffs for the bulk water supply are again calculated by the Department of Water Affairs and published annually in the Official Gazette. The municipalities and other water retailers calculate their costs of operating and maintaining the reticulation systems (including revenue collection) and they are allowed a 10 per cent adjustment for fluctuations in cost.

The administration of the communal areas is reported to be deficient in terms of collection of revenues and operation of the reticulation systems. Given the need to expand community water supplies extensively in these areas, the sale of water should aim at covering the operating costs at least. This may be difficult in view of the low income of the resident population but the subsidies should be from government to district authority direct and not through the Department of Water Affairs.

1.5 Evidence on Affordability and Willingness to Pay in the Project Area

Even the short field mission revealed that in case of non-supplied areas water is transported by cars etc. to a large extent. In several church-supported projects, (also UNICEF) consumers pay for well rings and pumps. Consumers' willingness to pay for water was also confirmed through the questionnaires and interviews. Thus there is real potential for revolving funds to enable further construction. As a part of the project a further study will be needed on these issues.

Water is fetched from distant sources e.g. the herringbone pipeline, transported on lorries, pickup even on oxen drawn carts (see photo 1) for domestic use as well as for vending. This further underlines the innovativeness of the people and the willingness to pay for the scarce resource - water.

GENERAL JOB DESCRIPTIONS

Final job descriptions are to be prepared personally by the nominated personnel of MRWSU in the beginning of the project.

1. Project Coordinator**Duties:**

- to be responsible for the use of the Finnish input to the project
- to support the Project Manager in all activities of the project
- to advise and assist in institution and organization development as well as management issues of the project
- to countersign all purchase orders, payments, liabilities and financial reports of the MRWSU
- to report to FINNIDA on the use of the Finnish input to the project and on institutional development of the project
- to assist and advise in the process of establishing the MRWSU
- to advise and assist in preparation and application of the management systems including the management procedures
- to assist in incorporating the aspects of organization development and management the manpower development plan and the training programme
- to give training in organization development and management according to the Training Programme
- to advise the MRWSU personnel in the operational planning
- to advise in coordination of activities with other organizations, projects and programmes
- to act as administrative project coordinator of the expatriate staff team.

Qualifications:

Civil engineer (M.Sc.) with more than five years of experience in at least one of the following fields:

- management of water supply systems in the capacity of Plant (System) Manager
- construction of W/S in the capacity of Project Manager
- Construction Manager or Project Engineer of an international construction contract
- supervision of W/S implementation in the capacity of Resident Engineer (Supervisor) of an international contract
- other experience providing theoretical knowledge of and practical skills to apply up-to-date management methods.

2. Community Mobilization Adviser

Duties:

- to advise and assist the staff of MRWSU and other relevant organizations as well as the communities in issues of community involvement
- to participate in the implementation of community involvement activities according to the approved working approach
- to assist in organizing the health education for communities
- to participate in preparation of the Community Working Approach
- to oversee that agreements between the communities and the MRWSU are properly made and documented as well as operations are taking place according to the approved working approach
- to assist in incorporating the aspects of community involvement into the manpower development plan and the training programme
- to assist in the preparation of the studies on socio-economy, ability to pay, cost-structure, cost-sharing systems and income generation
- to assist in the preparation of the health status study
- to give training in community involvement according to the training programme
- to report on community involvement of the project

Qualifications:

B.A. or M.A. degree in sociology or other related field and several years of experience in community participation work. Experience in mobilization of women in water supply and sanitation shall be an asset.

3. Human Resources Development and Training Adviser

Duties:

- to advise in the human resources development process of MRWSU
- to advise in establishing the training delivery system for MRWSU including the preparation of a cost-sharing formula for the training sector
- to participate in the preparation of the organization development plan for the MRWSU
- to participate in the preparation of the manpower development plan for the MRWSU
- to develop, in collaboration with the relevant MAWRD personnel, a proposal for a sustainable training delivery system for MRWSU

- to prepare, in cooperation with the relevant MAWRD personnel and other advisers, a training programme for the MRWSU
- to support in the preparation of performance-oriented training materials
- to advise on arrangement of training courses
- to cooperate with relevant Namibian training institutes in order to strengthen the vocational training for rural water supply and sanitation
- to prepare with the relevant MAWRD personnel and other advisers a performance evaluation system for the results of training
- to give training in human resources development according to the training programme
- to report on human resources development of the project

Qualifications:

Degree (M.A. or B.M.) or other equivalent field related to human resources development and good experience in arranging courses for adult training.

4. Water Supply and Sanitation Adviser

Duties:

- to advise and assist the staff of MRWSU and the communities in technical issues of improving the water supply and sanitation services
- to propose, test and introduce new, appropriate design and construction methods
- to participate in developing the cost recovery system
- to participate and advise in planning, introducing and applying the field investigation, contracting, quality control methods and procedures
- to co-sign the final approval certificates of improved water supply and sanitation services provided
- to advise relevant MAWRD personnel in project preparation including technical and economic feasibility studies and on the design of water supply and sanitation facilities
- to interpret data from water studies etc. and advise the MAWRD authorities accordingly
- to advise the MRWSU in implementation of water supply and sanitation systems
- to advise in water quality control
- to assist in incorporating the aspects of water supply and sanitation technology into the manpower development plan and the training programme
- to give training in matters of technical improvement of the water supply and sanitation services according to the training programme
- to oversee the Environmental Impact Assessment (EIA) study.

- to supervise the construction of staff houses

Qualifications:

Water supply engineer (M.Sc. or B.Sc.) with minimum of five years of experience in the design of W/S systems, some experience in the supervision of W/S and sanitation implementation and good familiarity with international project preparation and design methods, standards, standard specifications and codes of practice in the W/S and sanitation field.

5. Ground Water Specialist/Geophysicist
(possibly short term consultant)

Duties:

- to advise in ground water development
- to review the existing data on the availability of ground water for water supply systems in the project area
- to prepare a ground water investigation programme
- to advise in the carrying out of studies on hydrometeorology, hydrogeology and geophysics, of alternative water sources and construction methods, as well as in the analyzing and application of their results
- to assist in incorporating the aspects of ground water development into the manpower development plan and the training programme
- to give training in ground water technology according to the training programme
- to report on ground water development

Qualifications:

B. Sc. or M.Sc. in hydrology or hydrogeology with experience in the field.

6. Field Manager/ Project Administrator

Duties:

- to advise the construction supervisors of the MAWRD regions in the construction and in the supervision of the construction of the water supply and sanitation structures
- to review and revise or prepare standard specifications for water supply and sanitation structures of the project.
- to prepare written instructions for construction supervision.
- to assist in incorporating the aspects of construction into the manpower development plan and the training

- programme
- to give training in construction of the water supply and sanitation services according to the training programme
 - to monitor and advise in materials management
 - to assess the need for production of construction materials by the project and, if unavoidable, establish such activities
 - to report on construction and materials management

Qualifications:

Construction engineer (B.Sc.) or technician gained experience from similar projects elsewhere

MAPS, FIGURES AND CHARTS

1. Map of the Project Area

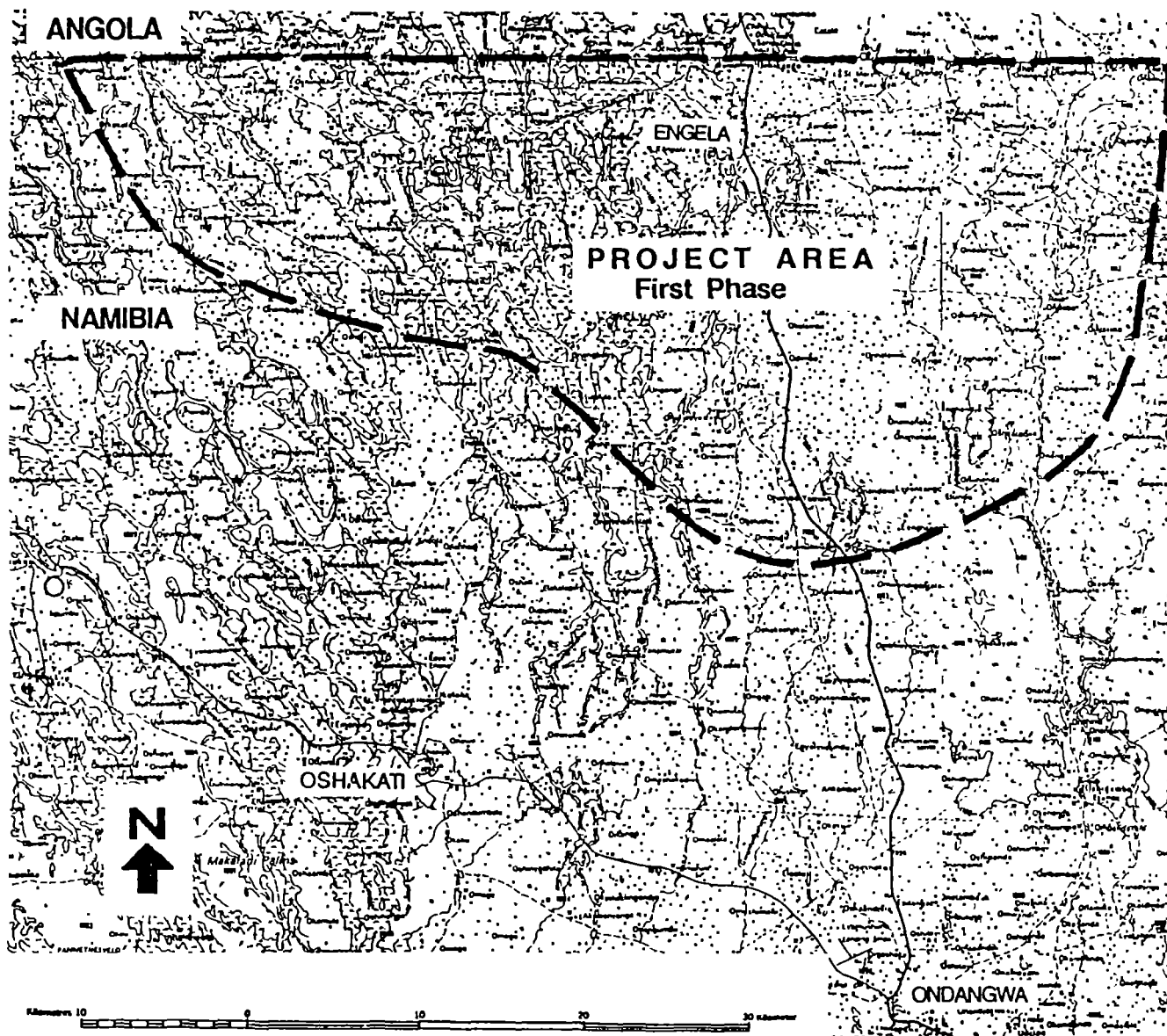
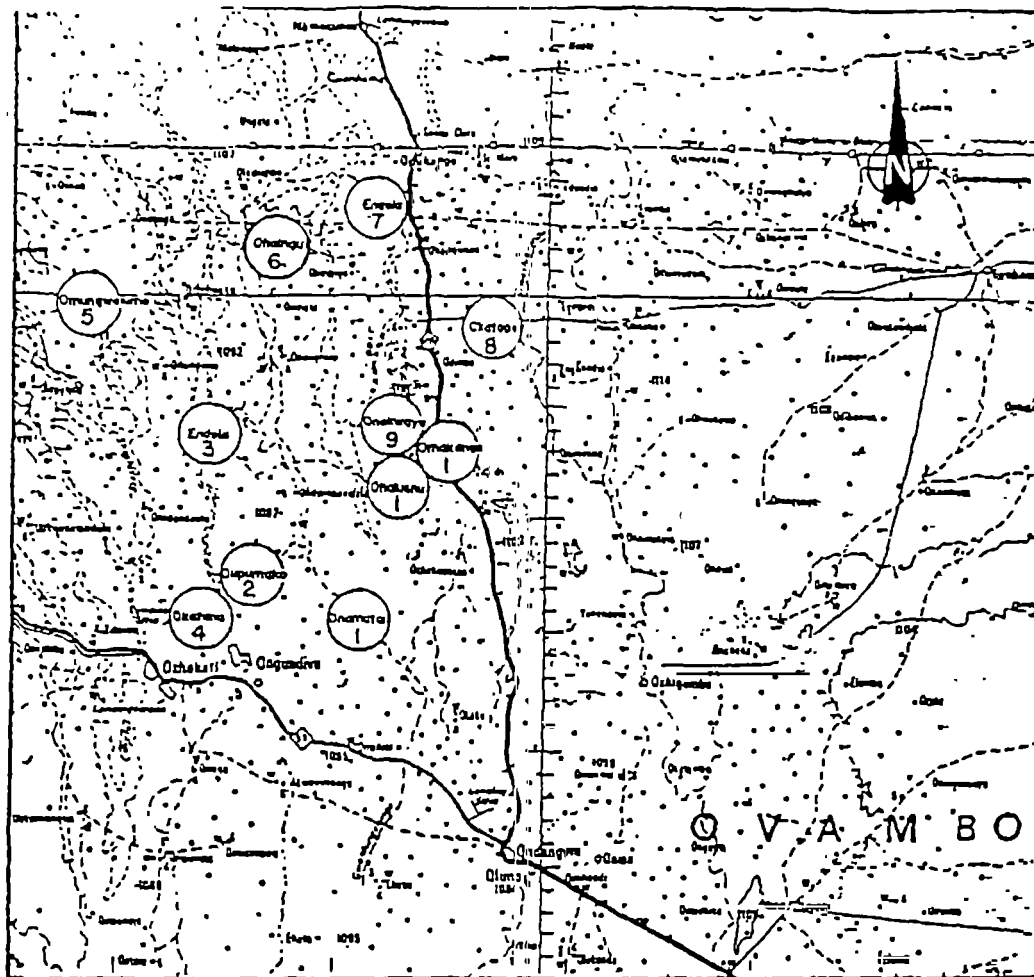


Figure D1 Map of the Project Area (phase I)

MAPS, FIGURES AND CHARTS

2. Population Census



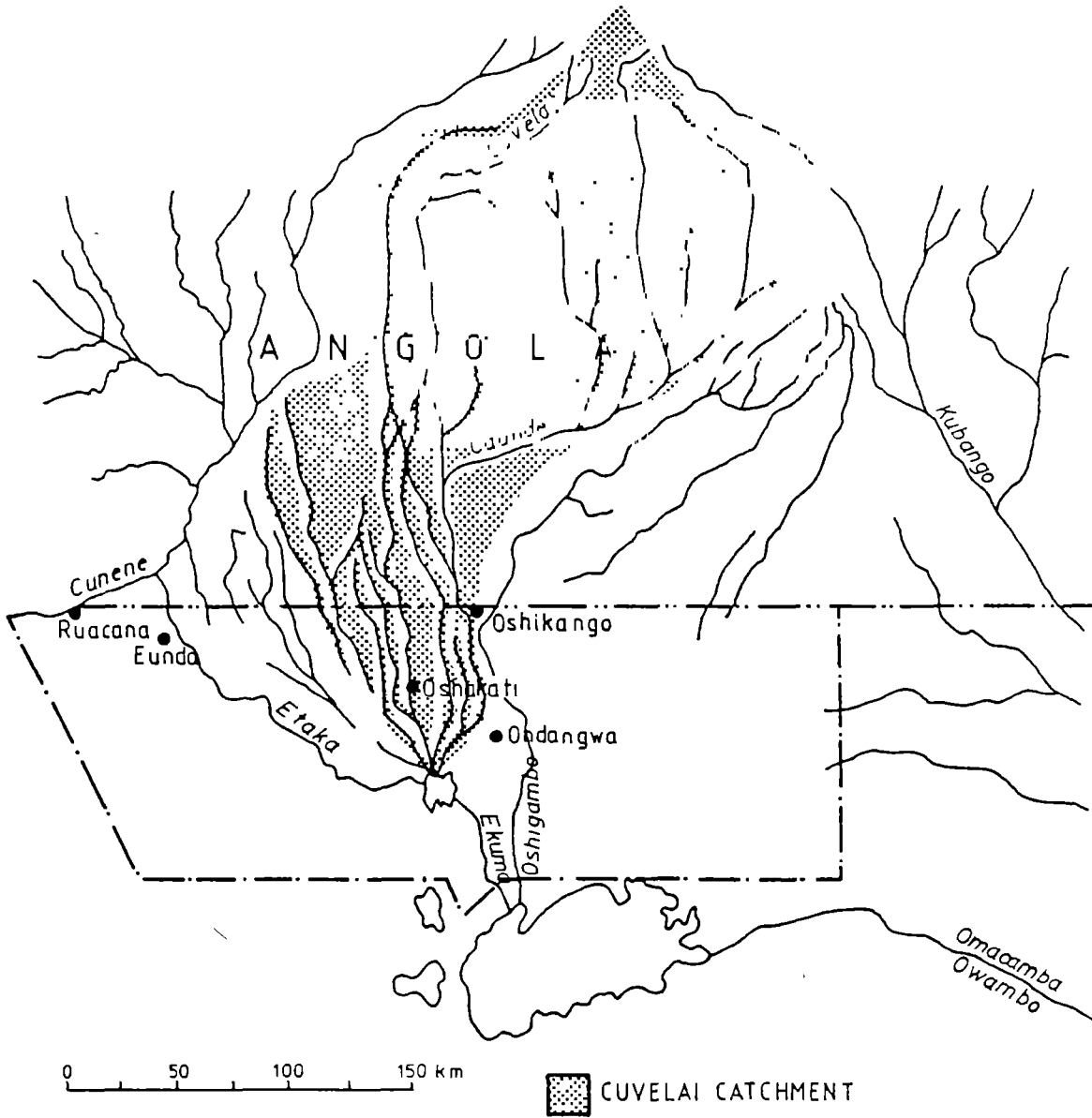
SCALE 1 : 500 000

POPULATION DISTRIBUTION
ACCORDING TO CHURCH CENSUS

OMAKANGO OHAMUTAI OHALLUSHU	(1)	± 11,000	
OUPUMAKO	(2)	± 3,000	
ENGOLA	(3)	± 4,000	
OKATANA	(4)	± 3,000	
OMUNGWELUME	(5)	± 6,000	
OHANGU	(6)	± 4,000	
ENGELA	(7)	± 10,000	
OKATOPE	(8)	± 6,000	
ONEKWATA	(9)	± 5,000	± 52 000 TOTAL

Figure D2 Population Distribution According to Church census

3. Effect of Flooding from Angola



CATCHMENT FOR CENTRAL OSHANAS

Figure D3 Flood Catchment for Central Oshanas

MAPS, FIGURES AND CHARTS

4. Rainfall distribution in some selected centres in the project area

Average rainfall in mm			
Month	Ondangwa	Oniipa	Oshigambo
Jan	102	95	91
Feb	121	115	113
Mar	88	80	96
Apr	34	31	36
May	3	3	5
Jun	0	0	0
Jul	0	0	0
Aug	0	0	0
Sep	2	1	1
Oct	13	11	13
Nov	44	39	40
Dec	87	82	77
Annual average	495	456	472

LIST OF REPORTS

1. **Mobilization, Preparation for Implementation and establishment of Supporting Activities of the Project**
 - o Final Project Document
 - o Work Plan
 - o Administration System

2. **Institutional and Human Resources Development**
 - o Organization Development Plan
 - o Manpower Development Plan
 - o Training System and Programme
 - o Management Information System

3. **Water Supply and Sanitation Development Plans**
 - o Report on Relevant Standards, Design Manuals and Guidelines
 - o Planning Situation Review
 - o Water Use Study
 - o Water Demand Forecast
 - o Hydrogeological Study
 - o Water Quality Study
 - o Socio-Economic Study
 - o Study on Cost Recovery and Cost Sharing
 - o Health and Hygiene Study
 - o Environmental Impact Study
 - o Report on Management of W/S&S
 - o Water Supply Development Plan Report
 - o Sanitation Development Plan Report
 - o Environmental Action Plan

4. **Community Involvement**
 - o Study on Community Working Approach
 - o Community Involvement Manual
 - o Community Mobilization and Information Plan
 - o Community Participation Plan
 - o Study on Income Generating Activities
 - o Community Training Programme
 - o Health Status Study

5. **Physical Improvements of Water Supply and Sanitation**
 - o Implementation Plans
 - o Design Manuals
 - o Study on Use and Production of Local Construction Materials
 - o Quality Control System
 - o Cost Control System
 - o Operation and Maintenance Manuals for each Water Supply and Sanitation System
 - o Design on Sanitation Systems





