ANNEX B INSTITUTIONAL

B.6 Summary of LPSC/Community Meetings held since April 1997

B.6.1 Meetings held between April and July 1997

Thirty LPSC meetings have been held since late March 1997. In general the meetings have dealt with:

- Discussion and approval of the technical options presented by the JICA Team.
- The formation and operation of the PSCs
- Problems associated with water supply and suggestions to improve it
- Questions relating to the implementation of the pilot projects
- The appointment of the main contractor and PSC roles and responsibilities relative to the contractor
- Initiation of the business planning process in each of the PSCs
- Mobilisation of planning task teams

Overall, the meetings have been positive and constructive, with initiative being taken by the various PSCs. For example, the Kameelboom PSC has explored ways to fund additional boreholes, the Ga Rasai PSC (with the LWC) has an ongoing dialogue with the community regarding cost recovery, and the Seghokgo PSC has convened community meetings to discuss the most suitable technical options for Seghokgo/Semohlase.

The table summarises the key points from the various meetings.

Community	Date	Key Discussion Points
Kameelboom	2 April 1997	* First meeting between PSC and JICA team * Mr Kapelus expressed satisfaction with cooperation between PSC and drilling contractors * PSC accepted the development proposals made by EVN, and agreed to support the project * PSC agreed to look at a business plan for the school area, and possibly to approach the Japanese Embassy for small project funding
Kameelboom	15 April 1997	* Meeting followed up discussions regarding extra boreholes. The PSC proposal is to sink a new borehole between Highlands North and Mountainview sections. This will serve schools and the planned adult centre * Mr Moitsiwa agreed to follow up stakeholder interest in this proposal * Pump at Ramoshibitsoane is not working following testing. Mr Moitsiwa to contact EVN

Community	Date	Key Discussion Points
Kameelboom	2 May 1997	* LPSC operating without major problems * PSC will contact the Community Development Centre in Rustenburg regarding support for an additional borehole
Kameelboom	13 May 1997	* Feedback on results of borehole testing * Discussion on the selection of a contractor for the pilot projects * Application for funds from Embassy of Japan Grassroots programme. Funds to be used for school borehole * Discussion of the roles and responsibilities of the local PSC
Kameelboom	21 May 1997	* Further discussion of Japanese funding application * Costing estimates for the proposed school water scheme * Discussion of roles and responsibilities around the school water project
Kameelboom	2 June 1997	* PSC report-back on evaluation of existing water management in Kameelboom * Discussion of evaluation criteria for pilot projects * Status of Japanese funding application * Discussion of cost recovery strategies
Kameelboom	4 July 1997	* Report back - task team to develop operation and maintenance plan * Report back - task team on cost recovery and tariff structure * Election of task team on training needs * Election of community liaison officer
Kameelboom	8 July 1997	* Issues on labour desk * Progress of construction work * Issue on payment and work hours
Kameelboom	11 July 1997	* Report back - task team on training needs and strategies * Election of task team on communication and institutional linkages plan
Kameelboom	15 July 1997	* Report back on training strategy * Refinement of operation and maintenance plans * Refinement of cost recovery

Community	Date	Key Discussion Points
Ga Rasai	2 April 1997	* Prepaid metering discussed and the system accepted as an option for GaRasai * JICA study team mandated to seek budget to go ahead with the proposed prepayment infrastructure * Public discussion on tariffs to be held until these have been carefully calculated
Ga Rasai	18 April 1997	* MW and the JICA Study Team to develop closer working relationships with the community * Interpretation of water quality test results requested * Prepaid metering system had been enthusiastically endorsed at a community meeting * Existing payment system discussed. Non payment a problem. Also, flat rates do not reflect consumption or the real cost of water * MW to take responsibility for maintenance of purification plant and pump * It was suggested that a test meter be set up in the community before full installation * The possible effect of the prepayment system on later yard connections was discussed * The need to form a stronger relationship with EDC was highlighted
GaRasai	13 May 1997	* Discussion of water testing results * In-depth discussion of the Bambamanzi prepaid metering system * Discussion of selection and management of contractors * Planning of trip to Modderspruit prepayment scheme
GaRasai	20 May 1997	* Discussion of ways to resolve problems with the existing RDP water scheme * Report back of the trip to Modderspruit * Confirmation of support for the Bambamanzi prepayment system * Detailed discussion of the roles and responsibilities of the PSC
GaRasai	30 May 1997	* Resolution of misunderstandings between the Local Water Committee and the PSC

Community	Date	Key Discussion Points
GaRasai	26 June 1997	* Continuation of discussion - relationship between water committee and LPSC * Determination of deadlines for tasks * Task teams to develop terms of reference for water management plan and training needs * Building relationships with MW and EDC
GaRasai	3 July 1997	* Discussion on selection of community liaison officer * Election of task team - development of communication strategies
GaRasai	10 July 1997	* Discussion of initiation of contract work in GaRasai * Finalisation of selection of community liaison officer * Feedback on terms of reference for water management planning task team * Feedback on terms of reference for training needs task team * Election of task team to develop TOR for operations and maintenance plan
GaRasai	17 July 1997	* Report back - communication strategy task team * Election of task team to develop water management plan * Etection of task team to develop training needs
Seghokgo	3 April 1997	* Water supply options have been presented at well attended meetings in Loding, Seghokgo/Moletjie and Semohlase * All agree with the Semohlase option (option 2) * PSC asked: whether members of the PSC would be trained to manage the water supply system; whether local contractors would be appointed; whether the PSC would participate in such appointment * Training input was confirmed. Details regarding the appointment of contractors will be available in May

Community	Date	Key Discussion Points
Seghokgo	12 April 1997	* Community meeting with 42 participants * Approval of option 2 was confirmed * Role of the PSC after completion of the project? Members might play a role in issues such as operations and maintenance and cost recovery
Semohlase	12 April 1997	* Community meeting with 38 participants * Approval of option 2 was confirmed * PSC and community members asked about the proposed booster pump, and the cost of running this to the community. A concern about affordability was recorded.
Seghokgo/ Semohlase	30 April 1997	* Changes in membership of the PSC were discussed, and the Executive Committee was restructured * Communication between the PSC and the JICA Study Team were discussed, and improvements suggested * It was suggested that minutes be prepared in English and Setswana * The PSC said that members of the community were expecting to get jobs as a result of the implementation of the project * The need to deal with expectations was stressed
Seghokgo/ Semohlase	16 May 1997	* Discussion of process to appoint contractor * Discussion of the role of the PSC during construction * Resolution of issues relating to the involvement and commitment of PSC members
Seghokgo/ Semohlase	22 May 1997	* Briefing on the development of a business plan * Awareness building and arrangements for a planning workshop * Issues around the development of linkages with other water sector institutions * Discussion of a community communication strategy * Review of contractor appointment
Seghokgo/ Semohlase	29 May 1997	* Further discussion of the roles and responsibilities of the PSC * Discussion on the development of strategies for cost recovery, O&M and capacity building * Discussion of evaluation criteria for the pilot project

Community	Date	Key Discussion Points
Seghokgo/ Semohlase	10 June 1997	* Discussion of progress * Discussion of water management roles relative to the proposed water scheme - detailed discussion of infrastructure plan
Seghokgo/ Semolhlase	4 July 1997	* Discussion around selection of contractor - skills and support system * Participation of LPSC * Labour desk issues * Work programme for construction * Appointment of community liaison officer * Discussion on management plan. * Report back - meeting between JICA and Mbibane TLC * Report on project progress to the Semohlase community
Seghokgo/ Semohlase	9 July 1997	* Construction progress * Report back by water management planning task team * Deadline for management plan - 23 July 1997
Seghokgo/ Semohlase	15 July 1997	* Progress of task teams for the development of a management plan * Progress of construction work * Issues around labour desk

This summary of meetings does not include PSC/community workshops, nor Study Team meetings involving PSC members. Examples of such meetings are the Project Execution Group meetings held on 5 March, 6 May, 3 June and 1 July. PSC members were also involved in a meeting with the Study Team to be briefed on the selection of a contractor, and PSCs made presentations on their experiences to the Project Execution Forum on 24 June.

ANNEX B INSTITUTIONAL

B.6 Summary of LPSC / Community Meetings held since April 1997

B.6.2 Meetings held between August and October 1997

Community	Date	Key Discussion Points
Kameelboom	06 Aug 97	• Contractor's activities and the programme. • **Labour matters on construction** work. • Progress of the construction work.
	03 Sept 97	• Discussion with the Embassy of Japan about the funding. • Signing of funding contract between the Water Committee and the Embassy of Japan. • School Water Scheme site inspection by the Embassy.
	10 Sept 97	• Management plan discussion including school water supply implementation. • Progress of the pilot project. • Labour matters.
	25 Sept 97	• Finalisation of the management plan for Kameelboom and Ramoshibitswana. • Finalisation on training programme and identify trainees. • Arrangement of community awareness campaign.
GA-RASAI	07 Aug 97	• Reportback on terms of reference on operation and maintenance plan. • Elect task team responsible for developing the operation and maintenance plan. • Report on progress of pilot project.

	21 Aug 97	• Update on contractor's activities. • Report-back on selection of administration clerk and assistant • Finalise salary of administration clerk. • Report-back on training needs.
	28 Aug 97	• Arrangement of cost recovery workshop. • Report-back on selection of trainees. • Progress of contractor's activities. • Labour matters.
	04 Sept 97	• Update on contractor's activities. • Discussion about the tariff calculations. • Discussion about the cost of the pre-paid coupons. • Discussion about the water supply
	11 Sept 97	• Report-back about Bambamanzi training programme and installation of the computer
	18 Sept 97	• Update on training of administrative clerk and assistant. • Report on progress of registration. • Report on water supply. • Report on community's response to prepayment system. • Report on finances.
	16 Oct 97	• Update on contractor's activities. • Report on progress of registration • Report on water supply • Report on progress of prepayment system. • Report on communication with other parties.
SEHOKHO	04 Aug 97	• Contractual matters. • Labour matters. • Discussion about fences removal. • Progress on pilot project. • Discussion about safety.
	15 Aug 97	• Report-back on terms of references for management plan. • Report-back on terms of references for operation and maintenance plan. • Discussion about cost recovery.

	22 Aug 97	• Discussion about linkage strategies. • Discussion about communication strategies. • Discussion about roles and responsibilities of the LPSC in terms of project implementation. • Discussions about the roles and responsibilities of the local authorities.
	05 Sept 97	• Discussion about the compensation on properties owned by the community. • Contractual agreement between contractor and property owners. • Progress of the pilot project. • Labour matters.
	12 Sept 97	• Relationship between local authority and the community. • Presentation of the management by the local PSC. Report on the progress of the pilot project.
	22 Sept 97	• Report-back on management proposals by the local authority. • Discussion about tariff calculations. • Discussion about water supply crisis in Sehokho/Loding area. • Report-back on the roles and the responsibilities of DWAF and Highveldt D.C.
	15 Oct 97	• Discussion about Semohlase management plan. • Discussion about BSL consultant's proposal on water supply in Loding area.

ANNEX B INSTITUTIONAL

B.7 Management Plan for Water

B.7.1 Kameelboom

1. INTRODUCTION

1.1. Purpose of the Management Plan

The purpose of this Management Plan is to provide Rustenburg District Council, Magalies Water Board and the Kameelboom Water Committee with a document detailing the management of water resources in Kameelboom. This Management Plan is to undergo examination by the Rustenburg District Council, the water authority, and if it is feasible to be approved. The Management Plan is not for an RDP project that requires a plan before the project is approved. This management plan is for the *future* operation and maintenance of water in Kameelboom.

1.2. The JICA Project

The development of water resources in Kameelboom has been under the auspices of the Japan International Co-operation Agency (JICA). JICA is an international funding organisation controlled by the Japanese Government. In 1995 JICA agreed to provide assistance to the South African government by undertaking a feasibility study of the Extension of Magalies Water Board. Part of the overall project was the funding of water development projects in rural settlements, of which Kameelboom is one settlement.

The Japanese Embassy Project

The Japanese Embassy funded the installation of an overhead tank and reticulation system for the school area in Kameelboom. The JICA project team guided the process and the same project engineers and contractors have been used in the project. The water committee in Kameelboom will undertake the management of the system.

1.3. Approval by the Project Steering Committee

At the start of the project a Project Steering Committee was established in Kameelboom. The PSC was set up to participate in the design of the project, establish a "labour desk" to provide labour to the main contractor in the project and to develop future management plans for the new infrastructure. The PSC was represented by a number of interests in Kameelboom and through a process of consultation with the residents of Kameelboom, the PSC approved the design and construction of the water infrastructure.

2. PROJECT DESCRIPTION

2.1. Aims and Objectives

The aim of the project is to provide sufficient ground water for domestic consumption to three areas in Kameelboom. The project is guided by minimum RDP standards, namely stand pipes at 200m intervals and the provision of 30l per capita per day. The objectives of the JICA project are the following:

- To design a ground water scheme in Kameelboom that satisfies the needs of the Kameelboom residents and the project funders within the financial, physical and technical constraints of the project.

- To develop the institutional capacity in Kameelboom to manage the future water resources in conjunction with the service authority and service provider.
- To design and implement a cost recovery and management system that deals effectively with the particular situation in Kameelboom.
- To develop the awareness of the PSC and WC regarding water management and O&M.

2.2. Location

Kameelboom is located 90km north of Rustenburg in the North Mankwe District of the Rustenburg District Council.

2.3. Present Situation

2.3.1. Population Figures

Kameelboom is made up of a number of sections. The sections and population figures of the sections are indicated in the table below.

Section	Population Estimate
First Gate	To be confirmed
Mponyoke North	To be confirmed
Mponyoke South	To be confirmed
Mountain View	To be confirmed
Highlands North	To be confirmed
TOTAL	To be confirmed

Kameelboom is an agricultural community with an emphasis on maize, sunflower and cattle farming. Individuals own the land and possess title deeds. However there are many absent landlords in the settlement and as a result a high level of tenancy.

2.3.2. Present Management Arrangements

Kameelboom is governed by the local government system (local councillor, village level committee) as well as the Kameelboom Community Authority. The Reconstruction and Development Committee (RDC) also forms part of the management of Kameelboom. The RDC has a number of sub-committees, dealing with water, health, education, and agriculture.

The Kameelboom Community Authority has a number of functions relating to the management of Kameelboom:

- Administration, collection of revenue, payment for services rendered to the community.
- Decision making concerning development programmes and activities.
- Conflict resolution

Councillor Ntswagong and Mr Radebe, a member of the village level committee, represent the Rustenburg District Council in Kameelboom The local government is the authority for all development, services and administration. In this regard the Rustenburg District Council is the authority for approval of the Management Plan.

2.3.3. Present Level of Community Awareness and Development

There is a high level of awareness of the need for development and the associated costs of development. An important resource in Kameelboom is the proven ability of the community structures to secure and manage development. This has been demonstrated by various initiatives where members of the community have contributed to projects. The building of the community hall, the construction of the post office and the clinic has all been managed and funded by the community.

2.3.4. Present Level of Involvement of Women

Women are represented in the RDP committees. In the management of water women have assumed the roles of treasurer and cost recovery administration. In the current Management Plan women have functions in the cost recovery and administration aspects of water management.

2.3.5. Present Water Source

The following community boreholes are in operation in Kameelboom:

- First Gate — Diesel pump and overhead tank
- Mountain View — Hand pump

There are a number of private boreholes in Kameelboom situated within private properties.

2.3.6. Present Water Infrastructure

The only water infrastructure in Kameelboom is overhead tanks with a stand pipe at the base of the tank. There is no reticulation system. This is located at the community centre.

2.3.7. Present State of Water Management

Cost recovery and O & M management strategies have focussed on single boreholes. The current system is fairly fragmented and uncoordinated due to the nature of the infrastructure and spatial separation of the various sections of Kameelboom. Different practices have emerged around different water sources. In Kameelboom settlement is dispersed and infrastructure is to be installed in different locations. Against this background it has been important to develop a management system that recognises the distinct operating circumstances of each system, whilst ensuring an integrated and accountable cost recovery system and coordinated operations and maintenance system. The proposed Business Plan integrates the different sections into one water management system.

2.3.8. Comment on Present Maintenance Problems

The spatial isolation and lack of reliable communication facilities has made the establishment of sustainable external technical and institutional support difficult to achieve.

2.3.9. Other Development Projects and Rustenburg District Council Plans

The other major development in Kameelboom is the construction of the school. This has been funded by the RDP.

Scope of Work and Details

2.3.10. Planning

Planning the JICA water scheme took place from January 1997 to October 1997. EVN was contracted to undertake the planning. The PSC participated in the planning of the scheme and the eventual approval of the scheme.

Planning has been undertaken with the PSC taking into account all sections of the community. However, the JICA project funds has not been sufficient to provide all areas of the community with a reticulated water system Highlands North and Mountain View have not been supplied by JICA. Mountain View has received support from the Japanese Embassy Grant Aid. As a result of Highlands North not obtaining a water system the residents have decided not to participate in the overall scheme. The tariff build up reflects this accordingly. Ramoshibitswana is not considered in this management plan as a separate administration system is in place. A separate management plan has been developed for Ramoshibitswana.

2.3.11. Water Demand and Water Source Sufficiency

JICA's calculations indicate the following:

Population	=	1024
100% RDP service level	=	30720 l/day

A number of boreholes have been tested to determine the water source sufficiency for the Kameelboom. The testing results of the borehole are presented below which provides an indication of the extent of the water resource.

Mponyoke south	2.0l per second
Mponyoke north	2.0l per second
First Gate	1.6l per second

From the above it is clear that the ground water resource is sufficient to supply water to the Kameelboom residents at RDP level. The resource also has the potential to be upgraded at a later stage to yard connections.

2.3.12. Technical – New Infrastructure

The infrastructure development is presented in the table below.

Section	Infrastructure
First Gate	A borehole (06-65866) will be used at a rate of 1.5l/sec on an 8 hour per day pump cycle. This borehole will also be used for Mountain View (school system). An overhead tank is situated at Grobelaar. A reticulation system has been installed with stand pipes at 200m intervals.
Mponyoke South	A borehole (06-65651) will be utilised at a yield rate of 2.0l/sec. An overhead tank is installed to feed water to a reticulation system. The reticulation system comprises of 200m standpipes.

Section	Infrastructure
Mponyoke North	A borehole with a yield of 2.0l/sec will be utilised. An overhead tank will store water for the 200m standpipe reticulation system.
Mountain View	This scheme is part of the Japanese Embassy Poject. An overhead tank situated at will obtain water from the borehole situated at Grobelaar (the same borehole that First Gate will use). The tank will be filled at night and will feed a reticulation system to the school.

2.3.13. Identification of Future Operating Authority and Provider

Water Authority: The Rustenburg District Council is the Operating Authority and all the Business Plan requires authorisation by the Rustenburg District Council.

Water Provider: The Water Provider will be a combination of Magalies Water Board, the Rustenburg District Council and the Water Committee. The Water Committee will provide personnel for the operation of the boreholes and where feasible for maintenance of the pumps and reticulation system. The Water Committee will also be responsible for cost recovery and administration of funds, ordering of spare parts, requesting assistance from Magalies Water and payment to suppliers. The administration of water in Kameelboom will become part and parcel of the overall community administration. Currently the Department of Traditional Affairs, through the Mogwase Administrators office handles the community funds and general administration. A clerk has been assigned to Kameelboom Authority for this purpose. However this arrangement is under transition and should be handed over to the Rustenburg District Council. In this regard RDC, through the administration role will act partly as a service provider.

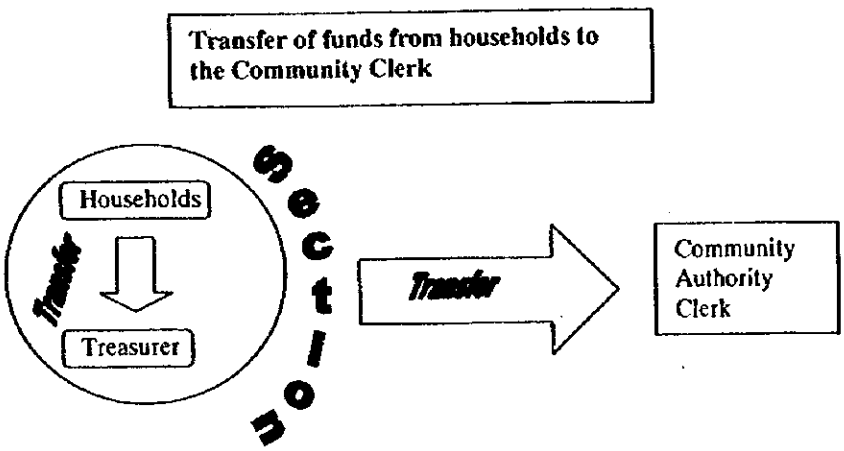
Water Authority:
Rustenburg District Council
Constitutional responsibility for the delivery of water at the local level

Water Provider:
Principal provider - Kameelboom Water Committee – *to administer, operate, maintain and recover costs*
Secondary provider - Magalies Water – *to provide technical support to the Water Committee when required within an agreed scope of work.*
Secondary provider - Rustenburg District Council – *to maintain the administration link between the Community Authority and Administrators Office.*

2.3.14. Establishment of Tariff Administration and O&M Management Structure

Tariff Administration: Cost recovery will be administered centrally by the **Community Authority Clerk.** In each section a **treasurer** has been appointed to collect tariffs from each household and to deposit the money at the community clerk. Each section will operate as a single financial entity and will be required to recover sufficient costs in order to obtain diesel, spare parts, maintenance and to pay the pump operators and security personnel. The community clerk will maintain financial records of each section and these records will determine whether the clerk can order parts or services for the section.

In the Mountain View area a tariff has been set for children attending the schools from outide Kameelboom. The tariff is R3.00 per child. This will be collected by the school treasurer and handed to the section treasurer.



Operation and Maintenance: Each section has an appointed **pump operator.** The pump operator will be responsible for the sections pump and reticulation system. In some sections the pump operator will also undertake **maintenance** whilst in other sections there is an assigned maintenance person. The pump operator will be responsible for obtaining diesel by obtaining a requisition from the section treasurer, who gives it to the community clerk for authorisation of the provision of diesel from the central diesel stock. It will be the responsibility of the maintenance personnel to repair damage to he pump and reticulation system, and if the assistance of Magalies Water is required, to obtain a requisition from the section treasurer. The requisition is then handed to the community clerk for authorisation. Authorisation will only be granted if there is sufficient funds in the sections account.

Diesel stocks: Diesel will be purchased on bulk and stored in a 2200l diesel tank at the Community Authority offices. An assigned person, known as the **diesel controller** will manage the distribution of diesel to the sections pump operators. Provision of diesel to section pump operators will only take place once approved by the community clerk. The diesel controller will keep a check on the stocks through a gauge and a flow meter on the pipe. The diesel controller will inform the community clerk of sales and when it is necessary to order diesel.

Security: The Water Committee will have security personnel to work at night. The security personnel will be placed at particularly vulnerable areas in the village that requires guarding. The security personnel will be financed through the tariff.

2.4. Tariff Build – Up

Kameelboom Pilot Project Tariff Build-Up		
Tariff Components	**Cost/Month**	**Unit Cost/kl**
• **Energy Costs**: includes diesel and oil consumption (3 pumps @ R407/pump/month)	R1,222	R1.60
• **Maintenance, service and repairs**: (3 pumps/R251/pump/month	R753	R0.99
♦ **Operating costs**: Operating personnel (3 operators plus security @ R200/month each)	R600	R0.79
• **Administration**: fee for tariff collection, handling and financial management.	R150	R0.20
Sub-total	**R2,725**	**R3.58**
• **Add**: Replacement cost plus contingency (10% of sub-total)	R272	R0.35
Total monthly cost/tariff	**R2,997**	**R3.93**
Monthly Charge/Tariff at 100% payment (159 households)	R19/month	
Monthly Charge/Tariff at 80% payment (127 households)	R24./month	

Monthly cost/tariff is based on 3 boreholes.
Kameelboom has 159 households @ 6.4 persons per household.
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.4 x 25 x 30 days = 4,800 liters/1000 = 4.8 kl
Monthly consumption for all households: 159 x 4.8 = 763.2 kl
Cost/kl = R2,997/763.2 kl = R3.93 kl
Monthly cost/tariff/household = 4.8 kl x R3.93 = R18.86, rounded to R19.00

Tariff Components

- **Energy Costs:** based on 3 diesel pumps operating 6-8 hours/day and using about one litre of diesel/hour. Cost of diesel is R2.16/liter x 6 litres/day = R12.96 pump/day x 3 pumps = R38.88 per day. Monthly cost for three pumps = 30 days x R38.88 = R1,166. Plus 4 pints of oil @ R4.65/pint per pump per month = R18.60. Monthly cost for 3 pumps = 3 x R18.60 = R55.80. Total energy cost/month is R1,166+R55.80 = R1,222.

- **Maintenance, service and repairs:** includes major engine repair (R135/month/pump x 3 = R405); labour cost (R88/pump/month x 3 = R264); consumables (R28/pump/month x 3 = R84). Total estimated maintenance cost = R405+R264+R84 = R753.

- **Operating** costs: 3 operators including security @ R200/month each to operate diesel pumps.

- **Raw water charge:** Raw water is provided free.

- **Purification Costs:** no purification cost;

- **Administration:** cost of administrator to maintain office, financial management reconciliation, etc.;

- **Replacement:** covers cost of spares, replacement of components and contingencies.

2.5. Training, Education and Capacity Building

Training will be required in financial management, administration as it relates to the management of water, and technical aspects of the water system. There has been on-the-job practical training, however further training will be required.

The JICA project has provided capacity building in the form of awareness building of the PSC and Water Committee. This awareness building has concentrated on overall water management systems, development of institutional linkages with outside support and development of internal relationships and linkages. The training programmes implemented in Kameelboom fitted in with the institutional arrangements developed through the JICA project which are outlined in this management plan.

2.6. Transfer of Scheme to Local Authority

The scheme has been managed by the PSC with the assistance of JICA. It will be necessary for the scheme to be handed over to the Rustenburg District Council and for the Business Plan to be approved.

3. CONCLUSION

This document has provided the Management Plan for the management of water in Kameelboom. The scheme has been supplied and funded by JICA. The Management Plan requires approval by the water authority, namely the Rustenburg District Council and requires full acceptance by the residents of Kameelboom.

Signatories

Chairperson: Water Committee	Chairperson: RDP
Village Level Committee	Magalies Water
Chairperson: Kameelboom Community Authority	RDC Councillor

ANNEX B INSTITUTIONAL

B.7 Management Plan for Water Management

B.7.2 Ramoshibitswana

1. INTRODUCTION

1.1. Purpose of the Management Plan

The purpose of this Management Plan is to provide Rustenburg District Council, Magalies Water Board and the Ramoshibitswana Water Committee with a document detailing the management of future water resources in Ramoshibitswana. This Management Plan is to undergo examination by the Rustenburg District Council, the water authority, and if it is feasible to be approved. The Management Plan is not for an RDP project that requires a plan before the project is approved. This management plan is for the *future* operation and maintenance of water in Ramoshibitswana.

1.2. The JICA Project

The development of water resources in Ramoshibitswana has been under the auspices of the Japan International Co-operation Agency (JICA). JICA is an international funding organisation controlled by the Japanese Government. In 1995 JICA agreed to provide assistance to the South African government by undertaking a feasibility study of the Extension of Magalies Water Board. Part of the overall project was the funding of water development projects in rural settlements, of which Ramoshibitswana is one settlement.

1.3. Approval by the Project Steering Committee

At the start of the project a joint Project Steering Committee was established in Ramoshibitswana and Kameelboom. The PSC was set up to participate in the design of the project, establish a "labour desk" to provide labour to the main contractor in the project and to develop future management plans for the new infrastructure. The PSC was represented by a number of interests in Kameelboom and Ramoshibitswana and through a process of consultation with the residents of Kameelboom and Ramoshibitswana, the PSC approved the design and construction of the water infrastructure.

2. PROJECT DESCRIPTION

2.1. Aims and Objectives

The aim of the project is to provide sufficient ground water for domestic consumption to four areas in Ramoshibitswana. The project is guided by minimum RDP standards, namely stand pipes at 200m intervals and the provision of 30l per capita per day. The objectives of the JICA project are the following:

- To design a ground water scheme in Ramoshibitswana that satisfies the needs of the Ramoshibitswana residents and the project funders within the financial, physical and technical constraints of the project.
- To develop the institutional capacity in Ramoshibitswana to manage the future water resources in conjunction with the service authority and service provider.
- To design and implement a cost recovery and management system that deals effectively with the particular situation in Ramoshibitswana .
- To develop the awareness of the PSC and WC regarding water management and O&M.
- To make use of local labour whenever possible.

2.2. Location

Ramoshibitswana is located 90km north of Rustenburg in the Mankwe District of the Rustenburg District Council.

2.3. Present Situation

2.3.1. Population Figures

Ramoshibitswana is made up of a one section. The population of Ramoshibitswana is indicated in the table below.

Section	Population Estimate
Ramoshibitswana	To be confirmed
TOTAL	To be confirmed

2.3.2. Present Management Arrangements

Ramoshibitswana is governed by the local government system (local councillor, village level committee) as well as the Ramoshibitswana Community Authority. The Reconstruction and Development Committee (RDC) also forms part of the management of Ramoshibitswana . The RDC has a number of sub-committees, dealing with water, health, education, and agriculture.

The Ramoshibitswana Community Authority has a number of functions relating to the management of Ramoshibitswana :

- Administration, collection of revenue, payment for services rendered to the community.
- Decision making concerning development programmes and activities.
- Conflict resolution

The Rustenburg District Council is represented in Ramoshibitswana by Councillor Ntswagong. as well as Mr Radebe, a member of the village level committee. The Rustenburg District Council is the authority for all development, services and administration. In this regard the Rustenburg District Council is the authority for approval of the Management Plan.

Ramoshibitswana is closely connected to Kameelboom. Kameelboom Community Authority make joint decisions with the Ramoshibitswana community. However as it forms part of a different administration it has not been included in the Kameelboom management plan for water

2.3.3. Present Level of Community Awareness and Development

There is a high level of awareness of the need for development and the associated costs of development. An important resource in Ramoshibitswana is the proven ability of the community structures to secure and manage development.

2.3.4. Present Level of Involvement of Women

Women are represented in the RDP committees. In the management of water women have assumed the roles of treasurer and cost recovery administration. In the current Management Plan women have functions in the cost recovery and administration aspects of water management.

2.3.5. Present Water Source

The following community borehole is in operation in Ramoshibitswana :

- Ramoshibitswana Diesel pump and overhead tank

There are a also number of private boreholes in Ramoshibitswana situated within private properties.

2.3.6. Present Water Infrastructure

The only water infrastructure in Ramoshibitswana is overhead tanks with a stand pipe at the base of the tank. There is no reticulation system.

2.3.7. Present State of Water Management

The Water Committee is Ramoshibitswana has been operating the borehole. As a result of lack of security, the diesel pump has to be taken out to the borehole whenever the borehole is used.

2.3.8. Comment on Present Maintenance Problems

The spatial isolation and lack of reliable communication facilities has made the establishment of sustainable external technical and institutional support difficult to achieve.

2.3.9. Other Development Projects and Local Government Plans

The other major development in Ramoshibitswana is the construction of the school. This has been funded by the RDP.

2.4. Scope of Work and Details

2.4.1. Planning

Planning the water scheme took place from January 1997 to October 1997. EVN was contracted to undertake the planning. The PSC participated in the planning of the scheme and the eventual approval of the scheme.

2.4.2. Water Demand and Water Source Sufficiency

Calculation done by JICA indicate the following:

Population	=	224
100% RDP service level	=	6720l/day

The present borehole was tested to determine the water source sufficiency for the Ramoshibitswana . The results of the borehole testing is presented below which provides an indication of the extent of the water resource.

Ramoshibitswana	1.5l/second

From the above it is clear that the ground water resource is sufficient to supply water to the Ramoshibitswana residents at RDP level. The resource also has the potential to be upgraded at a later stage to yard connections.

2.4.3. Technical – New Infrastructure

The infrastructure development is presented in the table below.

Section	Infrastructure
Ramoshibitswana	Present borehole – capacity of 1.5l/sec New pump Overhead tank Reticulation system – 200m stand pipes

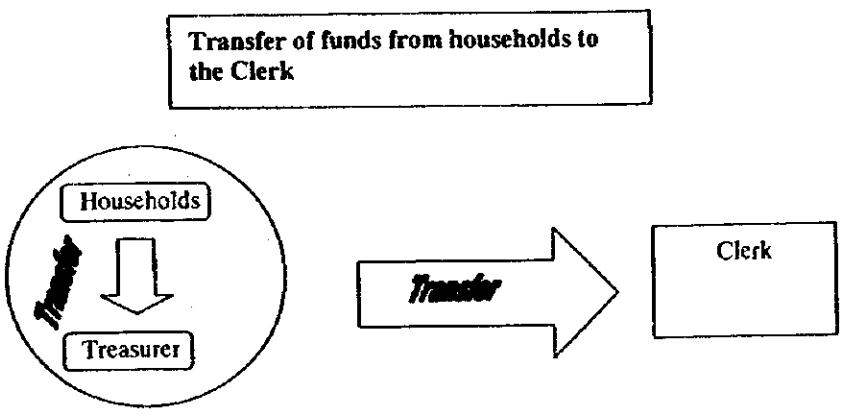
2.4.4. Identification of Future Operating Authority and Provider

Water Authority: The Rustenburg District Council is the Operating Authority and all the Business Plan requires authorisation by the Rustenburg District Council.

Water Provider: The Water Provider will be a combination of Magalies Water Board and the Water Committee. The Water Committee will provide personnel for the operation of the boreholes and where feasible for maintenance of the pumps and reticulation system. The Water Committee will also be responsible for cost recovery and administration of funds, ordering of spare parts, requesting assistance from Magalies Water and payment to suppliers. Although the RDC is the Water Authority they are responsible, through the Community Authority, for the administration of the community funds.

2.4.5. Establishment of Tariff Administration and O&M Management Structure

Tariff Administration: Cost recovery will be administered centrally by a clerk at the Zonal Office. A **treasurer** has been appointed to collect tariffs from each household and to deposit the money at the community clerk. Ramoshibitswana will be required to recover sufficient costs in order to obtain diesel, spare parts, maintenance and to pay the pump operators and security personnel. The clerk will maintain financial records of each section and these records will determine whether the clerk can order parts or services for the section.



Operation and Maintenance: Ramoshibitswana has an appointed **pump operator.** The pump operator will be responsible for the sections pump and reticulation system. Ramoshibitswana also has **maintenance** personnel. The pump operator will be responsible for acquiring diesel by obtaining a requisition from the treasurer, who gives it to the clerk for authorising the provision of diesel. It will be the responsibility of the maintenance personnel to repair damage to he pump and reticulation system, and if the assistance of Magalies Water is required, to obtain a requisition from the section treasurer. The requisition is then handed to the clerk for authorisation. Authorisation will only be granted if there is sufficient funds in the Ramoshibitswana account.

Security: The Water Committee will have security personnel to work at night. The security personnel will be placed at particularly vulnerable areas in the village that requires guarding. The security personnel will be financed through the tariff.

Water Authority:
Rustenburg District Council
Constitutional responsibility for the delivery of water at the local level

Water Provider:
Principal provider - Ramosgibitswana Water Committee – *to administer, operate, maintain and recover costs*
Secondary provider - Magalies Water – *to provide technical support to the Water Committee when required within an agreed scope of work.*
Secondary provider - Rustenburg District Council – *to maintain the administration link between the Water Committee and Zonal Council.*

3. TARIFF BUILD – UP

Ramashibiswana Pilot Project

Tariff Build-Up

Tariff Components	Cost/Month	Unit Cost/kl
• **Energy Costs:** includes diesel and oil consumption (one pump @ R407/pump/month)	407	R2.42
• **Maintenance, service and repairs:** (one pump/R220/pump/month	251	R1.49
♦ **Operating costs:** Operating personnel (1 operators plus security @ R100/month each)	R75	R0.44
• **Administration:** fee for tariff collection, handling and financial management.	R50	R0.30
Sub-total	**R783**	**R4.65**
• **Add:** Replacement cost plus contingency (5% of sub-total)	R39	R0.23
Total monthly cost/tariff	**R822**	**R4.88**
Monthly Charge/Tariff at 100% payment (35 households)	R23/month	
Monthly Charge/Tariff at 80% payment (28 households)	R29./month	

Monthly cost/tariff is based on one borehole.
Ramashibiswana has 35 households @ 6.4 persons per household.
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.4 x 25 x 30 days = 4,800 liters/1000 = 4.8 kl
Monthly consumption for all households: 35 x 4.8 = 168 kl
Cost/kl = R822/168 kl = R4.88 kl
Monthly cost/tariff/household = 4.8kl x R4.88 = 23.42, rounded to R23.00

Tariff Components

- **Energy Costs:** based on one diesel pump operating 6-8 hours/day and using about one liter of diesel/hour. Cost of diesel is R2.16/liter x 6 liters/day = R12.96. Monthly cost = 30 days x R12.96 = R389. Plus 4 pints of oil @ R4.65/pint per pump per month = R18.60. Total energy cost/month is R389+R18.60 = R408.

- **Maintenance, service and repairs:** includes major engine repair (R135/month/pump); labor cost (R88/pump/month); and consumables (R28/pump/month). Total estimated maintenance cost = R135+R88+R28 = R251.

- **Operating** costs: one operator including security @ R50/month to operate diesel pump.

- **Raw water charge**: Raw water is provided free.

- **Purification Costs:** no purification cost;

- **Administration:** cost of administrator to maintain office, financial management reconciliation, etc.;

- **Replacement:** covers cost of spares, replacement of components and contingencies.

4. TRAINING, EDUCATION AND CAPACITY BUILDING

Training will be required in financial management, administration as it relates to the management of water, and technical aspects of the water system. There has been on-the-job practical training, however further training will be required.

The JICA project has provided capacity building in the form of awareness building of the PSC and Water Committee. This awareness building has concentrated on overall water management systems, development of institutional linkages with outside support and development of internal relationships and linkages.

5. Transfer of Scheme to Local Authority

The scheme has been managed by the PSC with the assistance of JICA. It will be necessary for the scheme to be handed over to the Rustenburg District Council and for the Management Plan to be approved.

6. CONCLUSION

This document has provided the Management Plan for the management of water in Ramoshibitswana. The scheme has been supplied and funded by JICA. The Management Plan requires approval by the water authority, namely the Rustenburg District Council and requires full acceptance by the residents of Ramoshibitswana..

Signatories

Chairperson: Water Committee	Chairperson: RDP
Village Level Committee	RDC Councillor
Chairperson: Ramoshibitswana Community Authority	

ANNEX B INSTITUTIONAL

B.7 Management Plan for Water

B.7.3 Ga-Rasai

1 Introduction

1.1 Purpose of the Management Plan

The purpose of this plan is to set out a strategy for water management for the community of Ga-Rasai which will incorporate the roles of the community, the Eastern District Council, and Magalies Water. This strategy will facilitate the smooth provision of water to the community of Ga-Rasai with the minimum use of time and resources.

1.2 The JICA Project

The development of water resource in Ga-Rasai has been under the auspices of the Japan International Co-operation Agency (JICA). JICA is an international funding organisation managed by the Japanese government. In 1995 JICA agreed to provide assistance to the South African government by undertaking a feasibility study of the Extension of Magalies Water Board. Part of the overall project was the funding of water development projects in rural settlements, of which Ga-Rasai is one settlement.

1.3 Approval by the Eastern District Council, the Water Committee and the Local Project Steering Committee

	Name	Signature	Organisation	Position
1.	Mr R. D. Tlale		LPSC	Chairperson
2.	Ms Christina Madalane		LPSC	Vice Chairperson
3.	Ms Sannie Ndebele		LPSC	Secretary
4.	Mr John Madalane		LPSC	Committee member
5.	Mr Oriah Manamela		Water Committee	Chairperson
6.	Mr Jacob Monaisa		Water Committee	Vice-Chairperson
7.	Ms Cecilia Mohaule		Water Committee	Secretary
8.	Ms Miriam Sebati		Water Committee	Treasurer
9.	Ms Salamina Setshedi		Water Committee	Committee member
10.	Ms Martha Sebatjane		Water Committee	Committee member
11.	Mr Douglas Maimane		Eastern District Council	
12.	Mr Roelf Strydom		Magalies Water	

2 Present situation

2.1 Location

Ga-Rasai is located approximately 70 km from Brits, in the Klipvoor area of the Eastern District Council.

2.2 Population and number of households

The population of Ga-Rasai is estimated at approximately 600 people. The official population stands at over 1000 people but many of these people do not actually reside in Ga-Rasai. There are approximately 165 households in Ga-Rasai.

2.3 Present community management arrangements

Ga-Rasai falls under the authority of the Eastern District Council. Within the village there exists a Community Authority, which was created under the old Bophuthatswana government. The Community Authority deals with many aspects of administration of the community including

Basic village administration
Dispute resolution
Liaison with government
Management of commercial hunting on village land

The Community Authority meets once or twice a month, or whenever matters arise that require its attention.

A number of committees fall under the Community Authority, including the Water Committee and the LPSC.

2.4 Community awareness

The level of community awareness of issues relating to the reticulated water system and the prepayment system in Ga-Rasai is still fairly low. Several meetings have taken place in order to inform the community about the need for paying for services but the Water Committee must continue to build community awareness in order to ensure that the system receives the support of the community.

2.5 Social composition of water management structures

The Water Committee, the LPSC and the administration and operation staff are representative of the community. Members are all Tswana-speaking, as the village is ethnically largely homogenous, and gender composition is fairly balanced. Many of the staff members and the members of the committees are retired people but a number of younger people are included in the management structures.

3 Water Management Structure

3.1 Water Committee

The Water Committee is made up of up to10 positions:
The Chairperson
The Vice-Chairperson
The Secretary
The Treasurer
Up to six committee members

The Water Committee is responsible for overseeing the management of water at the community level, although the authority for water management lies with the Eastern District Council (EDC).

3.2 Employees (Pump Operator, Plant Operator and Administration Clerk)

The operators and the administrative clerk, who are employees of the Eastern District Council, will be responsible for the day-to-day management of water.

Each employee has an assistant who will be expected to assist the employee in his/her duties on a regular basis. If the employee is unable to fulfil his/her responsibilities the assistant will be expected to take over.

The employees and their assistants are responsible for the operation and maintenance of the water system and administrative matters relating to water provision.

Initially the operators and the administrative clerk, as well as their assistants, will be selected by the Water Committee and the PSC, subject to approval by the EDC and the Community Authority. When the PSC is disbanded the Water Committee will be responsible for their selection and replacement, subject to approval by the EDC and the Community Authority.

3.3 Local Authority (Eastern District Council)

The local authority for Ga-Rasai is the Eastern District Council. The Eastern District Council is ultimately responsible for ensuring that the community of Ga-Rasai has a clean and reliable water supply, and that the running costs of this supply are covered by the community.

4 Water supply

4.1 Water demand

For an estimated population of 600 people, at the RDP standard of 25 litres per person per day, Ga-Rasai requires 15 000 litres of water per day.

4.2 Water supply in Ga-Rasai prior to 1996

Over the past few years, households have secured their supply of water from a range of sources. Some of these ways of accessing water have become more or less significant over time, as the water situation has changed. These diverse ways of securing a water supply will continue to influence the usage of the reticulated water system.

4.2.1 Hand-pump operated boreholes

Under the authority of the Bophuthatswana government, a number of boreholes were sunk in Ga-Rasai and hand pumps were installed. This system was maintained by the Bophuthatswana government and came to constitute the principal source of water for residents of Ga-Rasai.

Unfortunately the boreholes do not adequately meet the needs of the village. There are not enough boreholes in the village and drawing water is a laborious task. In addition tests have shown that the water from one of the boreholes contains an unacceptably high level of nitrates, according to RDP standards.

4.2.2 Purchases of river water

Some residents of Ga-Rasai supplemented their household water supply with purchases of river water. This water was collected by other residents who used donkey darts to transport the containers from the Moretele River to the village.

Generally, residents did not use river water for consumption as it was well-known in the village that the quality of this water was poor. Residents did however use the water for activities such as washing clothes which required relatively large amounts of water.

4.2.3 Rain water collection

Due to the shortage of water and the relatively great amounts of labour required to obtain water, many people have designed systems for collecting rain water. In most cases, run-off from corrugated iron roofs is channelled into containers.

As the roofs are not clean, water collected through this method is not considered to be fit for human consumption.

4.3 The implementation of a reticulated water system in Ga-Rasai

In 1996 a reticulated water system was designed and implemented in Ga-Rasai under the RDP by the Department of Water Affairs. This system drew water from the Moretele River, about two kilometres from the village. It was piped to a filtration plant (supplied by Aquatech) near the village, and then reticulated to twenty one standpipes in the village. The construction was carried out using the community's labour and took place during the winter of 1996.

4.3.1 Initial problems with the reticulation system

4.3.1.1 Technical problems

In the months following the installation of the new system, a number of technical problems became apparent:

- When the taps closer to the filtration plant were being used, those further down would not work.
- The diesel pump was prone to occasional breakdown, which would interrupt the water supply.
- The plant operator had not been given sufficient training. As a result there were occasional problems with the plant and questions were raised regarding the quality of the water supply.

These problems were compounded by relative isolation of the village and the difficulties involved in accessing proper support.

4.3.1.2 Cost recovery

In order to recover the running costs of supplying water, each household was required to contribute a set amount of R5 per month to pay for water. Very few households actually paid for water, however. Various different formulae for payment were tested but the problems remained the same – the quality and reliability of the water supply were disputed and it was not possible to enforce payment.

4.3.2 Solutions to the problems of the reticulation system

In February 1997 JICA, in consultation with Magalies Water, selected the village of Ga-Rasai as a pilot project for its broader programme of expanding the capacity of Magalies Water. A JICA study team helped the community to set up a Local Project Steering Committee to address the problems with the water supply. The LPSC, together with the Water Committee and the JICA study team, developed a number of solutions to the above problems.

4.3.2.1 Improving the quality and reliability of service

Institutional linkages:

A great deal of effort was spent by the community, JICA and Magalies Water on improving the communication between the community and Magalies Water. Magalies Water is now much more familiar the problems faced by the community, and the community is better able to contact Magalies Water when problems arise.

Similar efforts have been made to improve linkages between the community and the Eastern District Council. The Council is now more familiar with the problems faced by Ga-Rasai. Both parties intend to improve the communication between them as the Eastern District Council's capacity continues to grow.

Capacity building:

The pump operators, the filtration plant operators and the administrative personnel have received training in order to help them carry out their responsibilities more effectively. This is further detailed below.

Improving management systems:

With the help of the JICA study team the community has begun to develop management systems to further improve the efficiency of water supply. This has included formalising operation and maintenance procedures, adopting appropriate financial procedures, and selecting appropriate personnel. This is an ongoing process of improvement whereby systems are continually reviewed and discussed in order to cope with the changing requirements of the water system and the needs of the community.

4.3.2.2 Prepayment system

In consultation with the JICA study team, the Project Steering Committee and the Water Committee elected to implement a prepayment system in order to ensure payment for water. The prepayment scheme selected was supplied by Bambamanzi. This scheme is based on a computerised system of tokens which are programmed by an administrative clerk at a central office. Meters on the standpipes throughout the village record the amount of water used and adjust the prepayment recorded on the tokens accordingly.

The prepayment system was installed in September and October 1997

5 Responsibilities of water management staff

5.1.1 Operation and Maintenance

Employee	Tasks
Administration Clerk (with assistance of Plant/Pump Operator)	Operation and maintenance of the prepayment meters: Replacing batteries Minor repairs Bleeding air from the system Operation and maintenance of the computer Working times: Mondays, Wednesdays and Fridays from 8 am to 4 pm, and Sundays between 8 am and 9 am.
Plant Operator	Operation and maintenance of the filtration plant: Daily purification of water Back washing plant Administration of chemicals Assist Administration Clerk with operation and maintenance of meters Working times: When necessary – to follow those of the Pump Operator
Pump Operator	Operation and maintenance of pump: Transporting pump daily between the storage facility and the river Pumping water daily Servicing and minor repairs to pump when necessary Assist Administration Clerk with operation and maintenance of meters Working times: 3½ hours in morning (including ½ hour's break), 1½ hours in afternoon, 7 days a week

5.1.2 Administration

The Administration Clerk is responsible for all day to day administrative matters. These include:

Finances
- Registration of new users
- Receiving money and updating coupons
- Making payments
- Documentation of daily finances
- Banking
- Completion of month-end finances (cash book and bank reconciliation)

Prepayment meters
- Recording usage

Operation and Maintenance Issues
- Ordering supplies from Magalies Water
- Recording usage of diesel

The Treasurer, Secretary and Chairperson of the Water Committee are responsible for authorising payments.

The Treasurer of the Water Committee is responsible for reviewing the financial statements and presenting them to the Water Committee at the beginning of each month.

6 Responsibility for the provision of water

6.1 The service authority and service providers

The service authority for Ga-Rasai is the Eastern District Council. Service is provided, at present, by a partnership between Magalies Water and the community. As the Eastern District Council develops its capacity to engage in provision of services, it is anticipated that it will join this partnership and extend its role in the provision of water to Ga-Rasai.

Service agreements have still to be finalised between the community and Bambamanzi in order to ensure its service beyond its one year guarantee period.

6.2 Transfer of scheme to local authority

The institutional and infrastructural changes made with the help of the JICA study team should be complete by the end of October 1997, when the JICA study team withdraws. At this time the responsibility for the scheme will once again lie with the Eastern District Council. The JICA study team will be on hand to make the transfer as smooth as possible.

7 Training, education and capacity building

Employees and members of the Water Committee have received training in a number of areas in order to equip them to carry out their tasks. The training received is outlined in the following table:

Type of training	Trainees	Trainers
Pump operation and maintenance	Pump operator and other members of the community	SA Lister
Plant operation and maintenance	Plant operator and assistant	Aquatech
Prepaid meter operation and maintenance	Administrative clerk and assistant	Bambamanzi
Computer operation and maintenance	Administrative clerk and assistant	Bambamanzi
Administration of consumer details	Administrative clerk and assistant	Bambamanzi
Financial administration	Administrative clerk and assistant, Chairperson, Secretary and Treasurer of the Water Committee	JICA study team

In addition the paid employees provide training to their assistants on an ongoing basis This ensures that there are always at least two people at any given time who are competent to carry out the tasks necessary for the reliable provision of water to Ga-Rasai.

Institutional capacity building has been central to the activities of the JICA study team. It has helped the Water Committee and the Project Steering Committee to develop effective skills, systems and procedures for the continuing management of the water reticulation and prepayment system.

8 Management of water supply

8.1 Financial management

8.1.1 Tariff

The tariff is set at R2.44 per kiloliter. This is detailed in the attached breakdown. The tariff was developed by the JICA study team, in consultation with the community, and approved by the Eastern District Council. This tariff is subject to review as the costs of operation under the new system become more apparent, and as they change over time.

8.1.2 Collection and administration of funds

Payment will be collected and administered by the administrative clerk, under the supervision of the Treasurer of the Water Committee. The administrative clerk is expected to keep accurate records of all transactions and to produce monthly accounts which will account for all money spent and received by the Water Committee.

8.1.3 Procedure for paying for community water expenses

The community is responsible for paying for all running costs for water. Presently the community has its own bank account and chequebook. Ultimately payment will take place through the Eastern District Council.

8.1.4 Salaries

Water committee members are not paid for their committee activities.

The pump operator, the plant operator and the administration clerk are each paid R200 per month. The pump operator is paid an additional R30 per month for the use of his donkeys which are required to transport the pump. Salaries are determined by the Water Committee and must be agreed to by the EDC and the community.

When an assistant carries out the functions of one of the paid employees it is the responsibility of the employee to remunerate him/her accordingly. The assistants are not compensated for assisting the employees when they are working.

Salary payments are made on the last Friday of every month.

8.1.5 Reporting

The administration clerk is required to produce the following at the end of every month:

- A cashbook, showing all payments and receipts for the month
- A bank reconciliation showing that the money in the bank and the cash on hand equals the amounts shown in the cashbook
- A petty cash report detailing all petty cash payments and receipts for the month

8.2 Management of coupons

8.2.1 Coupon charges

At the initiation of the new system the coupons will be sold for R25 each. This will include a R10 coupon charge and R15 of water. Only one coupon will be sold to each household (or public facility) at this price. Thereafter people will be charged full price for the coupons (R30 for a coupon with no credit for water).

8.2.2 Public facilities

Public facilities such as the school and the crèche will have to buy coupons and pay for their water like private individuals.

8.3 Management of hardware

Item of hardware	Responsible person	Access	Location	Security
Computer equipment and administration supplies	Administration Clerk	Clerk, Assistant	Administration Office	Restricted access to room, security door, bars on window
Standpipe spares and maintenance coupons	As above	As above	As above	As above
Keys to boreholes	As above	As above	As above	As above
Standpipes	Administration Clerk	Community	Outdoors	Reinforced housing
Filtration plant and supplies	Plant Operator	Operator, Assistant	Outdoors	Locked door to machinery room
Diesel pump and diesel	Pump Operator	Pump Operator, Assistant, Plant Operator (storage)	Plant operator's garage	Locked garage door
Trailer and spares	As above	As above	As above	As above

9 Appendices

9.1 Maps

9.2 Breakdown of tariff

ANNEX B INSTITUTIONAL

B.7 Management Plan for Water

B.7.4 Semohlase

1. INTRODUCTION

1.1. Purpose of the Management Plan

This Management Plan provides the Mbibane Transitional Local Council (TLC) and the Loding, Sehokho and Semohlase Project Steering Committee (PSC) with a document detailing the management of water resources in Semohlase. This Management Plan is to undergo examination by the Mbibane TLC, and if it is feasible to be approved. The Management Plan contains guidelines for the future operation and maintenance of water in Semohlase.

1.2. The JICA Project

The development of water resource in Semohlase has been under the auspices of the Japan International Co-operation Agency (JICA). JICA is an international funding organisation controlled by the Japansese government. In 1995 JICA agreed to provide assistance to the South African government by undertaking a feasibility study of the Extension of Magalies Water Board. Part of the overall project was the funding of water development projects in rural settlements, of which Semohlase is one settlement.

The technical components of the Semohlase water project include a pump station, pipe link, a pressure tank, reticulation and street taps without pre-paid metering. The PSC was established to develop a Management Plan for the water supply system. The JICA study team, with the assistance of contractors, engineers and social experts, guided the process.

1.3. Approval by the Project Steering Committee

At the start of the project a PSC was established. This PSC constituted of members from Loding, Sehokho and Semohlase. The PSC was set up to participate in the design of the project. It was also believed that the PSC would establish a "labour desk" to provide labour to the main contractor in the project and to develop future management plans for the new water infrastructure. Through a process of consultation with residents in Loding, Sehokho and Semohlase, the PSC approved the design and construction of water infrastructure.

2. PROJECT DESCRIPTION

2.1. Aims and Objectives

The aim of the project is provide sufficient reticulated water for domestic consumption to Semohlase. The project is guided by minimum RDP standards, namely stand pipes at 200 m intervals and the provision of 25 l per capita per day. The objectives of the JICA project are the following:

- To design a reticulated water scheme in Semohlase that satisfies the needs of the Semohlase residents and the project funders within the financial, physical and technical constraints of the project.
- To develop the institutional capacity in Loding, Sehokho and Semohlase to manage the future water resources in conjunction with the service authority and service provider.

- To develop and implement a cost recovery and management system that deals effectively with the particular situation in Semohlase.

2.2. Location

Semohlase is situated in Moretele 2, on the northern fringe of the former KwaNdebele. Its neighbouring villages are Loding and Sehokho. Moretele 2 was formerly a part of Bophuthatswana. Semohlase now falls under Mbibane TLC.

2.3. Present Situation

2.3.1. Population Figures

At present there are approximately 67 households in Semohlase. With an average household size of 6 people, there are approximately 402 people in Semohlase.

2.3.2. Present Management Arrangements

Semohlase is under the tribal authority and new local government systems. Semohlase is a small community, with little organisational diversity. The management of existing development in Semohlase is presently the responsibility of the local headman/ foreman. As Semohlase is still underdeveloped, the management responsibilities of the headman are minor. With the new political transition in South Africa, and associated development initiatives, the influence of the local government in Semohlase has become considerable. Semohlase is part of ward 9 in the Mbibane TLC. In this ward, the management of development, services and administration is the responsibility ward councilor, Mr Thubane. Approval of the Management Plan can be obtained from the local government.

2.3.3. Present Level of Community Awareness and Development

The level of awareness of the need for development in Semohlase is high. Due to lack of reference points, it was difficult to establish perceptions of costs associated with development.

2.3.4. Present level of Involvement of Women

Women did not participate in the management of old water infrastructure in Semohlase. It was mainly men who carried out the operation, maintenance and cost recovery related the bore-hole water supply system. With the introduction of JICA project, a woman represents Semohlase in the Project Steering Committee. A total of 70% members of the PSC are women.

2.3.5. Present Water Source

Semohlase community obtains water from three boreholes. Sometimes people collect water from the nearby river. The government supplies water into the relief tank.

2.3.6. Present Water Infrastructure

Water infrastructure consists of a diesel engine and 2 hand pumps. Through the engine, water is pumped into 2 storage tanks. At the base of one storage tank, there is a standpipe. Another standpipe is located in the yard of the local school. The government provided the community with the relief tank.

2.3.7. Present State of Water Management

Local men apply O & M management and cost recovery strategies on the borehole using diesel engine. The operation of the water supply system includes the transportation of the engine between the headman's house and the borehole. A wheelbarrow is used to transport the engine. It also involves the use of the engine to pump water into the storage tanks. The operation of the system circulates among local men. There are few responsibilities relating to the maintenance of the water supply system. Each household contributes R20 per annum for the running costs of the system. Local men manage these contributions. The influence of the tribal authority system to the management of these contributions is considerable.

2.3.8. Comment on Present Operation and Maintenance Problems

The exclusion of women in the operation of the supply system seems to be the major constraint. The participation of males in the operation of the system is largely driven by the use of water for livestock drinking. In households without livestock, few men take part in the operation of the system. With the availability of water in rivulets, the operation of the system becomes more irregular. Women are the main victims of the irregular water supply as they cannot carry out the washing of clothes and cooking in absence of water supply. Since the Semohlase water supply system consists of simple technology, maintenance problems are minor.

2.3.9. Other Development Projects and Mbibane TLC Plans

In the development arena of Semohlase, this JICA project introduced the Mbibane TLC. The Local Government has the following plans for the Highveld District that will influence the development of Semohlase:

- The interim implementation of a tariff structure with undifferentiated water service charge.
- The establishment of water board for the Highveld District.

2.4. Scope of Work and Details

2.4.1. Planning

Planning the JICA water scheme took place from January 1997 to October 1997. EVN was contracted to undertake the planning. EVN developed three design options. These design options were discussed with the PSC. The PSC, in consultation with the affected communities, selected the Semohlase Water Supply option. The selection of this option took into consideration lack of access to water supply in Semohlase and budget constraints. As the pipeline supplying water Semohlase was going to be connected to the main pipe between the borders of Loding and Semohlase, the composition of the PSC was retained.

2.4.2. Water Demand and Water Source Sufficiency

EVN provides two water demand figures for Semohlase.

-
- Rural low annual average daily demand per capita: 46.6 l/c/d
- Rural medium annual average daily demand per capita: 82.8 l/c/d

The JICA water scheme will receive water from the Bloedfontein to Loding supply. At present this supply is erratic. The general upgrading of the supply can help to reduce supply difficulties.

2.4.3. Technical – New Infrastructure

The infrastructure development of the Semohlase water supply system is presented in the table below.

Works	Unit Price	Cost
Pump station	2,0 l/s, 2 kW	R35 000
Power supply		R15 000
Semohlase pipe connection	R5374 x 92	R494 408
Semohlase pressure tank		R80 000
Reticulation to Semohlase	456 x 79 1 088 x 71	R36 024 R77 248
Street taps without prepaid metering	8 x 1 900	R15 200
Total		R752 880
Grand Total		R858 283 (+VAT)

2.4.4. Identification of Future Operating Authority and Provider

Water Authority	• The Mbibane TLC is the operating authority and the Management Plan requires its authorisation. The TLC has a constitutional responsibility for the delivery of water at the local level.
Water Provider	• The PSC intended to change its identity into a water provider. In particular, the reformed PSC would carry out the operation, maintenance and cost recovery relating to the water system. • In the Semohlase water scheme, the role of the Mbibane TLC has not yet been defined. • The process of establishing a new board is in progress. It is expected that the new board will provide technical, administrative and training assistance to the reformed PSC and Mbibane TLC.

2.4.5. Establishment of O&M Management Structure and Tariff Administration

The development of this O & M management structure and tariff administration took place in the context a fluid institutional environment. The Mbibane TLC seems to be not ready to manage local water supply system. The situation is exacerbated by the present of insufficient water resources in the district. It is expected new management systems will be in place with the establishment of water board. Key contents of the Management Plan are presented in the table below. Job descriptions of members of the management are provided in Appendix 4.1.

Tasks and Facilities	Management Team
• **Operation & Maintenance:** pump station; security service; security shelter, purchase of spare parts; replacement of broken parts; bicycle; storeroom and administration	• Operation & maintenance monitor • Technical Administrator • 2 security officer
• **Cost Recovery:** collection of services charges; administration of finance; payment of personnel; service office; and security and cleaning service	• Financial Administrator • 2 security officers • Cleaner

2.5. Tariff

The tariff was set at R20 per month, based upon a unit cost of R4.15 per kiloliter. This is detailed in the attached breakdown.

2.6. Training, Education and Capacity Building

In light of the composition and responsibilities of the management, training will be required in financial and technical management and administration. Members of the PSC acquired skills through on-the-job training, however further training is required.

The JICA project has provided capacity building in the form of awareness building of the PSC. This awareness building has concentrated on overall water management systems, development of institutional linkages with outside support and development of internal relationships and linkages.

2.7. Transfer of Scheme to Local Authority

The scheme has been managed by the PSC with the assistance of JICA. Discussions about the approval of the Management Plan and handing over of the scheme are in progress. At this stage, the responsibility is resting with the PSC and Mbibane TLC.

3. CONCLUSION

This document has provided the Management Plan for the management of water in Semohlase. The scheme has been supplied and funded by JICA. The Management Plan requires approval by the water authority, namely the Mbibane TLC, and requires full acceptance by the residents of Semohlase.

4. APPENDICES

4.1 Job descriptions

Personnel	Tasks/Facilities
Financial Administrator	• To maintain office and perform treasury functions • Treasury functions: collects service charges from households; issue receipts with an official stamp; compile a register with all household identifications; issue electricity coupons; develop daily balance statement; authorisation of statement; sending the money to the TLC for banking; document the amount of monies send to the TLC; debt collection; pay salaries to staff; develop monthly financial statements • Working hours: 08H00 – 17H00 (inclusive of 30 minutes tea-time and 1hour lunch) • Service office: to be provided with necessary equipment
Technical Administrator	• He/she will be part of the operation and maintenance team. • Administration/ management of technical components of the scheme: This will include routine inspection of the electric pump and reticulation; ensuring that replacement components are always available; requesting external maintenance support; development monthly statements in terms of cost of repairs, spares and replacement components; working closely with the financial administrator and the operation and maintenance officer; inform community about technical problems relating with the scheme. • Working Hours: 08H00 – 17H00 • Storeroom : to keep spare parts
O & M Officer	• Routine inspection of the reticulation; operation of the electric pump; replacement of broken/ old parts/ pipes; working closely with the technical administrator • Working Hours: 08H0 –17H00 – the hours will be flexible to allow for emergencies • He/ she should be provided with a bicycle to monitor the scheme.
4 Security Officers	• 2 officers to work at the pump station. A shift system be adopted to allow for a day and night watch. Watching the pump station; they should be provided with a security shelter to protect them against bad weather conditions. • 2 officers to watch the service office. • 12 working hours.

4.2 Tariff breakdown

4.3 Maps

ANNEX C
FINANCIAL

PILOT PROJECTS

ANNEX C : FINANCIAL

C.1 Kameelboom Pilot Project: Tariff Build-UP

Kameelboom Pilot Project Tariff Build-Up		
Tariff Components	**Cost/Month**	**Unit Cost/kl**
• **Energy Costs:** includes diesel and oil consumption (3 pumps @ R407/pump/month)	R1,222	R1.60
• **Maintenance, service and repairs:** (3 pumps/R251/pump/month	R753	R0.99
♦ **Operating costs:** Operating personnel (3 operators plus security @ R200/month each)	R600	R0.79
• **Administration:** fee for tariff collection, handling and financial management.	R150	R0.20
Sub-total	**R2,725**	**R3.58**
• **Add:** Replacement cost plus contingency (10% of sub-total)	R272	R0.35
Total monthly cost/tariff	**R2,997**	**R3.93**
Monthly Charge/Tariff at 100% payment (159 households)	R19/month	
Monthly Charge/Tariff at 80% payment (127 households)	R24./month	

Monthly cost/tariff is based on 3 boreholes.
Kameelboom has 159 households @ 6.4 persons per household.
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.4 x 25 x 30 days = 4,800 liters/1000 = 4.8 kl
Monthly consumption for all households: 159 x 4.8 = 763.2 kl
Cost/kl = R2,997/763.2 kl = R3.93 kl
Monthly cost/tariff/household = 4.8 kl x R3.93 = R18.86, rounded to R19.00

Tariff Components

Kameelboom Pilot Project

- **Energy Costs:** based on 3 diesel pumps operating 6-8 hours/day and using about one liter of diesel/hour. Cost of diesel is R2.16/liter x 6 liters/day = R12.96 pump/day x 3 pumps = R38.88 per day. Monthly cost for three pumps = 30 days x R38.88 = R1,166. Plus 4 pints of oil @ R4.65/pint per pump per month = R18.60. Monthly cost for 3 pumps = 3 x R18.60 = R55.80. Total energy cost/month is R1,166+R55.80 = R1,222.

- **Maintenance, service and repairs:** includes major engine repair (R135/month/pump x 3 = R405); labor cost (R88/pump/month x 3 = R264); consumables (R28/pump/month x 3 = R84). Total estimated maintenance cost = R405+R264+R84 = R753.

- **Operating** costs: 3 operators including security @ R200/month each to operate diesel pumps.

- **Raw water charge**: Raw water is provided free.

- **Purification Costs:** no purification cost;

- **Administration:** cost of administrator to maintain office, financial management reconciliation, etc.;

- **Replacement:** covers cost of spares, replacement of components and contingencies.

Accountability and Cost Recovery

Demand Management

The collection of fees for using water is important both to ensure the financial sustainability of the water supply systems and to ration the withdrawal of scarce borehole water in the Kameelboom pilot project area. Cost recovery should be sufficient to pay both for operations and maintenance (O&M) and for a small amount to cover the cost of replacing spare parts and contingencies. Tariff levels in the pilot project areas are either non existent or have not been enough to ration the use of scarce borehole water efficiently. Furthermore, demand management has not been a priority because of reluctance by local government institutions and Local Water Committees (LWCs) to collect sufficient fees to recover costs. Hence it is paramount that the quality of service provided to the Kameelboom community should be directly linked with the ability to collect user fees. Successful collection of fees from water users should also be linked to improved communication and community participation in the operation of the Kameelboom pilot project.

Operations and Maintenance

The physical sustainability of the borehole water supply system in Kameelboom have been hampered by poor maintenance. O&M has been unsatisfactory because of weak administrative controls, insufficient or no cost recovery, and weak financial management and planning. Lack of administrative capacity, poor institutional arrangements and lack of political will to introduce tariffs and encourage payment for services have also contributed to poor performance. Proper maintenance and reliable water delivery are critical for full cost recovery. In many instances local government control of cost recovery and O&M often lead to poor service. It is therefore pivotal that community (user) participation in the water management of the Kameelboom pilot project take place. Best practices in other countries have shown that when community groups and associations were given responsibility for water management and O&M, the rates of cost recovery were excellent. Similarly, private sector incentives may also improve maintenance.

Tariff Setting

Setting the tariff at the right level is not enough; prices need to be paid if they are to recover costs and enhance efficient management of the pilot project. The record of non-payment and non-collection of fees for water in Kameelboom reflects two problems: weak incentives to collect and limited willingness to pay because services are poor and unreliable. Not only have tariffs been neglected in the pilot project areas, but so also has cost recovery. Failure to recover costs through a reliable and sustainable tariff system leads to a vicious cycle whereby water services decline with collections as spare parts and essential materials run out and consumers become less willing to pay for the poor-quality services provided.

To this end, the JICA Study Team has been working very closely with the Kameelboom PSC and LWCs towards establishing a flat monthly tariff and a single cost recovery system integrating the entire area of Kameelboom. The tariff is based on 100% cost recovery despite only 50% cost recovery achievement currently in some areas. The goal of the Study Team was to conduct the tariff exercise jointly with the PSC, not for them. The Financial Team assessed the proposed tariff components and tariff structure to determine whether costs associated with each component was fair and equitable.

A flat monthly rate of R19.00 per household was proposed assuming all households would contribute to the cost of operating and maintaining the system. As shown in Table 1, the tariff includes energy

costs (diesel and oil to run the diesel pumps); maintenance, service and repairs (including major engine repairs, labor cost and materials); cost of operating personnel; cost of administering the tariff system including billing and collection of fees; and a capital replacement fee of 10% of total cost. The replacement fee is meant to cover the cost of replacing a motor or major spare part. The proposed tariff was discussed with members of the community to obtain agreement on the accuracy and commitment by all to pay for the water supply services. More details on tariff components are provided in the appendix.

C.2 Ramashibiswana Pilot Project: Tariff Build-UP

Ramashibiswana Pilot Project Tariff Build-Up		
Tariff Components	**Cost/Month**	**Unit Cost/kl**
• **Energy Costs:** includes diesel and oil consumption (one pump @ R407/pump/month)	407	R2.42
• **Maintenance, service and repairs:** (one pump/R220/pump/month	251	R1.49
♦ **Operating costs:** Operating personnel (1 operators plus security @ R100/month each)	R75	R0.44
• **Administration:** fee for tariff collection, handling and financial management.	R50	R0.30
Sub-total	**R783**	**R4.65**
• **Add:** Replacement cost plus contingency (5% of sub-total)	R39	R0.23
Total monthly cost/tariff	**R822**	**R4.88**
Monthly Charge/Tariff at 100% payment (35 households)	R23/month	
Monthly Charge/Tariff at 80% payment (28 households)	R29./month	

Monthly cost/tariff is based on one borehole.
Ramashibiswana has 35 households @ 6.4 persons per household.
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.4 x 25 x 30 days = 4,800 liters/1000 = 4.8 kl
Monthly consumption for all households: 35 x 4.8 = 168 kl
Cost/kl = R822/168 kl = R4.88 kl
Monthly cost/tariff/household = 4.8kl x R4.88 = 23.42, rounded to R23.00

Tariff Components

Ramashibiswana Pilot Project

- **Energy Costs:** based on one diesel pump operating 6-8 hours/day and using about one liter of diesel/hour. Cost of diesel is R2.16/liter x 6 liters/day = R12.96. Monthly cost = 30 days x R12.96 = R389. Plus 4 pints of oil @ R4.65/pint per pump per month = R18.60. Total energy cost/month is R389+R18.60 = R408.

- **Maintenance, service and repairs:** includes major engine repair (R135/month/pump); labor cost (R88/pump/month); and consumables (R28/pump/month). Total estimated maintenance cost = R135+R88+R28 = R251.

- **Operating** costs: one operator including security @ R50/month to operate diesel pump.

- **Raw water charge**: Raw water is provided free.

- **Purification Costs:** no purification cost;

- **Administration:** cost of administrator to maintain office, financial management reconciliation, etc.;

- **Replacement:** covers cost of spares, replacement of components and contingencies.

Accountability and Cost Recovery

Demand Management

The collection of fees for using water is important both to ensure the financial sustainability of the water supply systems and to ration the withdrawal of scarce borehole water in the Ramashibiswana pilot project area. Cost recovery should be sufficient to pay both for operations and maintenance (O&M) and for a small amount to cover the cost of replacing spare parts and contingencies. Tariff levels in the pilot project areas are either non existent or have not been enough to ration the use of scarce borehole water efficiently. Furthermore, demand management has not been a priority because of reluctance by local government institutions and Local Water Committees (LWCs) to collect sufficient fees to recover costs. Hence it is paramount that the quality of service provided to the Ramashibiswana community should be directly linked with the ability to collect user fees. Successful collection of fees from water users should also be linked to improved communication and community participation in the operation of the Ramashibiswana pilot project.

Operations and Maintenance

The physical sustainability of the borehole water supply system in Ramashibiswana have been hampered by poor maintenance. O&M has been unsatisfactory because of weak administrative controls, insufficient or no cost recovery, and weak financial management and planning. Lack of administrative capacity, poor institutional arrangements and lack of political will to introduce tariffs and encourage payment for services have also contributed to poor performance. Proper maintenance and reliable water delivery are critical for full cost recovery. In many instances local government control of cost recovery and O&M often lead to poor service. It is therefore pivotal that community (user) participation in the water management of the Ramashibiswana pilot project take place. Best practices in other countries have shown that when community groups and associations were given responsibility for water management and O&M, the rates of cost recovery were excellent. Similarly, private sector incentives may also improve maintenance.

Tariff Setting

Setting the tariff at the right level is not enough; prices need to be paid if they are to recover costs and enhance efficient management of the pilot project. The record of non-payment and non-collection of fees for water in Ramashibiswana reflects two problems: weak incentives to collect and limited willingness to pay because services are poor and unreliable. Not only have tariffs been neglected in the pilot project areas, but so also has cost recovery. Failure to recover costs through a reliable and sustainable tariff system leads to a vicious cycle whereby water services decline with collections as spare parts and essential materials run out and consumers become less willing to pay for the poor-quality services provided.

To this end, the JICA Study Team has been working very closely with the Ramashibiswana PSC and LWCs towards establishing a flat monthly tariff and a single cost recovery system integrating the entire area of Ramashibiswana. The tariff is based on 100% cost recovery despite less than 25% cost recovery achievement currently in some areas. The goal of the Study Team was to conduct the tariff exercise jointly with the PSC, not for them. The Financial Team assessed the proposed tariff components and tariff structure to determine whether costs associated with each component was fair and equitable.

A flat monthly rate of R23.00 per household was proposed assuming all households would contribute to the cost of operating and maintaining the system. As shown in Table 1, the tariff includes energy costs (diesel and oil to run the diesel pumps); maintenance, service and repairs (including major engine repairs, labor cost and materials); cost of operating personnel; cost of administering the tariff system including billing and collection of fees; and a capital replacement fee of 5% of total cost. The replacement fee is meant to cover the cost of replacing a motor or major spare part. The proposed tariff was discussed with members of the community to obtain agreement on the accuracy and commitment by all to pay for the water supply services. More details on tariff components are provided in the appendix.

C.3 Ga-Rasai Pilot Project: Tariff Build-UP

Ga-Rasai Pilot Project Tariff Build-Up		
Tariff Components	**Cost/Month**	**Unit Cost/kl**
• **Energy Costs:** (diesel and oil consumption for one pump)	R220	R0.26
• **Maintenance, service and repairs:** (treatment plant, pump and pre-paid meter system)	R543	R0.64
• **Operating costs:** Operating personnel (1operator @ R250/month, one operator plus security @ R300/month	R550	R0.65
• **Purification costs:** (chemicals, etc.)	R150	R0.18
• **Administration:** (administrator to maintain office, financial management and sale of coupons)	R350	R0.41
Sub-total	**R1,790**	**R2.12**
• **Add:** Replacement cost (15% of sub-total)	R268	R0.32
Total monthly cost/tariff	**R2,058**	**R2.44**
Monthly Charge/Tariff at 100% payment (165 households)	R13/month	
Monthly Charge/Tariff at 80% payment (132 households)	R16/month	

Ga-Rasai has about 165 households @ 6.8 persons/household
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.8 x 25 x 30 days = 5,100 liters/1000 = 5.1 kl
Monthly consumption for all households: 165 x 5.1 = 841.5 kl
Cost/kl = R2,058/841.5 kl = R2.44 kl
Monthly cost/tariff/household = 5.1 kl x R2.44 = R12.44; rounding to R13/household/month

Tariff Components

Ga-Rasai Pilot Project

- **Energy Costs:** based on one diesel pump operating 8 hours/day and using about 3 liters of diesel/day; cost of diesel is R2.16/liter x 3 liters/day x 30 days/month = R194.40; plus 4 pints oil @ R4.65/pint = R18.60. Total diesel plus oil = R220/month.

- **Maintenance, service and repairs:** includes treatment package plant, diesel pump and pre-paid metering system. Maintenance on treatment plant is estimated at R250/month; pump servicing is approximately R50/month; and pre-paid metering system is R220/month including cost of charging, maintaining and replacement of batteries.

- **Operating Costs:** includes one operator for treatment plant (R300/month including pump security and storage) and one operator for pumps (R250/month).

- **Raw water charge:** Raw water is provided free from Crocodile River;

- **Purification Costs:** cost of chemicals including sodium hydrochloride, soda ash, pool acid and pakamine chloride)

- **Administration:** cost of administrator to maintain office, financial management reconciliation, and sale of coupons and operating computer.

- **Replacement:** covers cost of spares, replacement of components and contingencies.

Accountability and Cost Recovery

Demand Management

The collection of fees for using water is important both to ensure the financial sustainability of the water supply systems and to ration the withdrawal of scarce water in the Ga-Rasai pilot project area. Cost recovery should be sufficient to pay both for operations and maintenance (O&M) and for a small amount to cover the cost of replacing spare parts and contingencies. In many cases tariff levels in Ga-Rasai have either been non existent or have not been enough to ration the use of scarce water efficiently. Furthermore, demand management has not been a priority because of reluctance by local government institutions and Local Water Committees (LWCs) to collect sufficient fees to recover costs. Hence it is paramount that the quality of service provided to the Ga-Rasai community should be directly linked with the ability to collect user fees. Successful collection of fees from water users should also be linked to improved communication and community participation in operation of the water supply system in Ga-Rasai.

Operations and Maintenance

The physical sustainability of the packaged water treatment plant and the pre-paid payment system in Ga-Rasai will for the most part depend on a regular and well-planned maintenance system. Operation of the package plant has been unsatisfactory due to lack of trained community-based operators, weak administrative controls, insufficient or no cost recovery, and weak financial management and planning. Lack of administrative capacity, poor institutional arrangements and lack of political will to introduce tariffs and encourage payment for services have also contributed to poor performance of the plant. Proper maintenance and reliable water delivery are critical for full cost recovery. In many instances local government (example, District Council) control of cost recovery and O&M often lead to poor service. It is therefore pivotal that community (user) participation in the water management of Ga-Rasai takes place. Best practices in other countries have shown that when community groups and associations were given responsibility for water management and O&M, the rates of cost recovery were excellent. Similarly, private sector incentives may also improve maintenance.

Tariff Setting

Setting the tariff at the right level is not enough; prices need to be paid if they are to recover costs and enhance efficient management of the pilot project. The record of non-payment and non-collection of fees for water in Ga-Rasai reflects two problems: weak incentives to collect and limited willingness to pay because services are poor and unreliable. Not only have tariffs been neglected in the Ga-Rasai area, but also so has cost recovery. Failure to recover costs through a reliable and sustainable tariff system leads to a vicious cycle whereby water services decline with collections as spare parts and essential materials run out and consumers become less willing to pay for the poor-quality services provided.

To this end, the Study Team has been working very closely with the PSC and Local Water Committee of Ga-Rasai towards establishing a flat monthly tariff and a single cost recovery system integrating the entire area of Ga-Rasai. The tariff is based on 100% cost recovery despite less than 40% cost recovery achievement currently in some areas. The goal of the Study Team was to conduct the tariff exercise jointly with the PSC, not for them. The Financial Team assessed the proposed tariff components and tariff structure to determine that costs associated with each component was fair and equitable.

A flat monthly rate of R13.00 per household is being proposed assuming all households would contribute to the cost of operating and maintaining the water supply system. As shown in Table 1, the tariff includes energy costs (diesel and oil to run the diesel pump); maintenance, service and repairs (including servicing of the package plant and pre-paid payment system); the cost of operating personnel; purification costs; the cost of administering the issuance of coupons and collection of fees/tariffs; and a capital replacement fee of 15% of total costs. The replacement fee is meant to cover the cost of replacing critical parts of the package treatment plant and the pump. The proposed tariff was discussed with members of the community to get agreement on accuracy and commitment by all to pay for the water supply services. More details on tariff components are provided in the appendix.

C.4 Sohokho-Simohlase Pilot Project: Tariff Build-UP

Sohokho-Simohlase Pilot Project Tariff Build-Up		
Tariff Components	**Cost/Month**	**Unit Cost/kl**
• **Energy Costs:** (basic monthly fee plus energy charges for electric pump)	R155	R0.48
• **Maintenance, service and repairs:** (on pump and standpipes)	R100	R0.31
• **Operating costs:** Pump operating personnel (2 operators @ R200/month each)	R400	R1.24
• **Bulk water purchases/charges:** (from Weltevreden WTW @ proposed DWAF tariff of R0.80/kl; total monthly consumption per household is 386 kl)	R309	R0.96
• **Administration:** (administrator to maintain office, treasury functions)	R250	R0.78
Sub-total	**R1,214**	**R3.77**
• **Add:** Replacement cost (10% of sub-total)	R121	R0.38
Total monthly cost/tariff	**R1,335**	**R4.15**
Monthly Charge/Tariff at 100% payment (67 households)	R20/month	
Monthly Charge/Tariff at 80% payment (54 households)	R25/month	

Simohlase has about 67 households @ 6.4 persons/household
Water consumption is based on RDP standard of 25 liters lcd.
Average monthly consumption/household: 6.4 x 25 x 30 days = 4,800 liters/1000 = 4.8 kl
Monthly consumption for all households: 67 x 4.8 = 321.6 kl
Cost/kl = R1,335/321.6 kl = R4.15 kl
Monthly cost/tariff/household = 4.8 kl x R4.15 = R19.92; rounding to R20

Tariff Components

Sohokho-Simohlase Pilot Project

- **Energy Costs:** based on estimates from Eskom office in Pietersburg. For a 4.0 kw electric pump operating two hours per day, costs include:

  (i) Monthly basic fee of R69.90 + 14% VAT = R79.69;
  (ii) Energy cost based on Eskom Land Tariff of 27.46 cents per kw; 4.0 kw x 2 hours/day x 30 days = 240 kw x 27.46 cents/kw = R65.90 + 14% VAT = R75.13
  (iii) Once-off connection fee of R1,540 for pump with 3-phase electric motor (to be paid by JICA);
  (iv) Once-off deposit fee of R980.00 (to be paid by JICA);
  (v) Total monthly cost is: R79.69+R75.13 = R154.82.

- **Maintenance, service and repairs:** on pump and standpipes;

- **Operating costs:** includes two operators @ R200/month each to watch pump during operations;

- **Bulk water charge from Weltevreden WTW:** proposed DWAF tariff is R0.80/kl. Monthly consumption per household is based on 25 lcd, but bulk water charge is based on 30 lcd to allow for leakage.

- **Administration:** cost of one administrator/accounts clerk to maintain office and perform treasury functions;

- **Replacement fee:** 10% of total cost to cover cost of repairs, spares, and replacement of components as well as contingencies.

Accountability and Cost Recovery

Demand Management

The collection of fees for using water is important both to ensure the financial sustainability of the water supply systems and to ration the withdrawal of scarce water in Simohlase. Cost recovery should be sufficient to pay both for operations and maintenance (O&M) and for a small amount to cover the cost of replacing spare parts and contingencies. The pilot project in Simohlase will be providing water to the area for the first time. Tariff levels in the past were non existent. Furthermore, demand management in the neighboring Sohokho area has not been a priority because of reluctance by local government institutions, particularly the district councils to collect sufficient fees to recover costs. Hence it is paramount that the quality of service provided to the Simohlase community should be directly linked with the ability to collect user fees. Successful collection of fees from water users should also be linked to improved communication and community participation in operation of the Simohlase pilot project.

Operations and Maintenance

The physical sustainability of water supply systems including the electric pump in the Simohlase pilot project area will for the most part depend on a regular and well-planned maintenance system. O&M in the Simohlase and Sohokho areas have been unsatisfactory because of weak administrative controls, insufficient or no cost recovery, and weak financial management and planning. Lack of administrative capacity, poor institutional arrangements and lack of political will to introduce tariffs and encourage payment for services have also contributed to poor performance. Proper maintenance and reliable water delivery are critical for full cost recovery. In many instances local government control of cost recovery and O&M often lead to poor service. It is therefore pivotal that community (user) participation in the water management of the Simohlase pilot project take place. Best practices in other countries have shown that when community groups and associations were given responsibility for water management and O&M, the rates of cost recovery were excellent. Similarly, private sector incentives may also improve maintenance.

Tariff Setting

Setting the tariff at the right level is not enough; prices need to be paid if they are to recover costs and enhance efficient management of the pilot project. The record of non-payment and non-collection of fees for community water supply reflects two problems: weak incentives to collect and limited willingness to pay because services are poor. Not only have tariffs been neglected in the Simohlase-Sohokho areas, but so has cost recovery. Failure to recover costs through a reliable and sustainable tariff system leads to a vicious cycle whereby water services decline with collections as spare parts and essential materials run out and consumers become less willing to pay for the poor-quality services provided.

To this end, the Study Team has been working very closely with the Simohlase-Sohokho PSC and Local Water Committee towards establishing a flat monthly tariff and a single cost recovery system integrating the entire Simohlase-Sohokho area. The tariff is based on 100% cost recovery despite almost zero cost recovery achievement currently in some areas. The goal of the Study Team was to conduct the tariff exercise jointly with the PSC, not for them. The Financial Team assessed the proposed tariff components and tariff structure to determine that costs associated with each component was fair and equitable.

A flat monthly rate of R20.00 per household was proposed assuming all households would contribute to the cost of operating and maintaining the system. As shown in Table 1, the tariff includes energy costs (cost of electricity to run the pump); maintenance, service and repairs (mainly on the pump); cost of operating personnel; cost of bulk water supply from DWAF; cost of administering the tariff system including billing and collection of fees; and a capital replacement fee of 10% of total costs. The replacement fee is meant to cover the cost of replacing a motor or spare part of the pump. The proposed tariff was discussed with members of the community to get agreement on accuracy and commitment by all to pay for the water supply services. More details on tariff components are provided in the appendix.