JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
REPUBLIC OF SOUTH AFRICA

THE STUDY ON THE EXPANSION OF CAPACITY OF MAGALIES WATER IN THE REPUBLIC OF SOUTH AFRICA (PHASE 2 AND 3)

FINAL REPORT

VOLUME 6 : PILOT PROJECTS

JANUARY 1998

SANYU CONSULTANTS INC.
NIHON SUIDO CONSULTANTS CO.,LTD.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

DEPARTMENT OF WATER AFFAIRS AND FORESTRY
REPUBLIC OF SOUTH AFRICA

THE STUDY
ON
THE EXPANSION OF CAPACITY OF MAGALIES WATER
IN
THE REPUBLIC OF SOUTH AFRICA
(PHASE 2 AND 3)

FINAL REPORT

VOLUME 6: PILOT PROJECTS

JANUARY 1998

SANYU CONSULTANTS INC.
NIHON SUIDO CONSULTANTS CO.,LTD.

CURRENCY EQUIVALENTS

(As of September, 1997)

Currency Unit = South African Rand (R)

US$1.00 = 4.69 R

US$1.00 = 122 Yen (Japanese Yen)

VOLUME 1 : EXECUTIVE SUMMARY

VOLUME 2 : FEASIBILITY STUDY FOR NORTH MANKWE AREA

VOLUME 3 : FEASIBILITY STUDY FOR KLIPVOOR AREA

VOLUME 4 : FEASIBILITY STUDY FOR MORETELE2 AREA

VOLUME 5 : BOUNDARY ISSUES

VOLUME 6 : PILOT PROJECTS

VOLUME 7 : DATA BOOK

PREFACE

In response to request from the Government of the Republic of South Africa, the Government of Japan decided to conduct the Study on the Expansion of the Capacity of Magalies Water in the Republic of South Africa and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to South Africa a study team headed by Mr. Satoshi Kadowaki, SANYU CONSULTANTS INC., and composed of staff members of SANYU CONSULTANTS INC. and NIHON SUIDO CONSULTANTS CO. LTD., two times between February 1997 and November 1997.

The team held discussions with the officials concerned of the Government of South Africa, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relation between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of South Africa for their close cooperation extended to the Team.

January 1998

Kimio Fujita
President
Japan International Cooperation Agency

January 10, 1998

Mr. Kimio Fujita
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir,

We are pleased to submit the final report of the Phases 2 and 3 Study on the Expansion of Capacity of Magalies Water in Republic of South Africa. This report incorporates the views and suggestions of the authorities concerned of the Government of Japan and your Agency. It is also included the comments made by the Department of Water Affairs and Forestry, Magalies Water and other stakeholders in the Republic of South Africa during the meetings organized by Project Execution Group (PEG) and Project Steering Committee (PSC) in both Rustenburg and Pretoria where the Draft Final Report was discussed.

According to the South Africa's new water supply and sanitation policy, the specific challenges are to consolidate appropriate water supply infrastructures and to transform and empower institutions in the sector to deliver service so that all communities in the country can have access to safe water and sanitation in the near future. JICA has prepared Master Plan Reports for the area following these policies and strategy guidelines in 1996.

The main objectives of the Phase2 and Phase3 were to focus on the realisation of recomendations made in the Master Plan until the target year of 2015. Accordingly Phase2 dealt with the Feasibility Studies for the selected priority projects and Phase 3 implemented the pirot projects which were selected in the Master Plan.

This report contains the findings, conclusions and recommendations as outcome of the Phases 2 and 3 in which Feasibility Studies for three regional water supply projects and implementation of four pilot projects where involved.

The report consists of seven volumes. They are Executive Summary (1), Feasibility Reports (3), Boundary Issues (1), Pilot Projects (1) and Data Book (1).

We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, and the Ministry of Welfare of the Government of Japan for their valuable advice and suggestions. We would also like to express our deep appreciation to the relevant officers of the Department of Water Affairs and Forestry, Magalies Water and other related agencies of the Government of the Repubic of South Africa for their cooperation and the assistance extended to us during our study.

Very truly yours,

Satoshi KADOWAKI
Team Leader, Phases 2 and 3
Study on the Expansion of
Capacity of Magalies Water
in the Republic of South Africa

JICA STUDY ON THE EXPANSION OF CAPACITY OF MAGALIES WATER PHASE 3 – PILOT PROJECTS

LOCATION MAP OF PILOT PROJECTS AND FEASIBILITY STUDY AREAS

LEGEND :

- RIVERS
- DAMS
- TOWNS & VILLAGES
- WATER TREATMENT WORKS
- SEWAGE TREATMENT WORKS
- JICA STUDY AREA
- FEASIBILITY STUDY AREAS
- PILOT PROJECT AREAS

SUPPLY ZONES :

- WESTERN ZONE
- CENTRAL ZONE
- EASTERN ZONE
- SUPPLY BLOCK BOUNDARIES

KEY MAP

NORTHERN PROVINCE
NORTH WEST
GAUTENG
MPUMALANGA
FREE STATE
KWA-ZULU NATAL
NORTHERN CAPE
EASTERN CAPE
WESTERN CAPE
Cape Town

NORTH MANKWE
KAMEELBOOM
KLIPVOOR
PROPOSED KLIPVOOR WTW
GA-RASAI
MORETELE 2
SEHOKO
BAPONG
PRETORIA
EKANGALA
BRONKHORSTSPRUIT
JOHANNESBURG

N

0 25KM

JICA STUDY ON THE EXPANSION OF CAPACITY OF MAGALIES WATER PHASE 3 – PILOT PROJECTS

LOCATION MAP OF PILOT PROJECTS AND FEASIBILITY STUDY AREAS

LEGEND :

- RIVERS
- DAMS
- TOWNS & VILLAGES
- WATER TREATMENT WORKS
- SEWAGE TREATMENT WORKS
- JICA STUDY AREA
- FEASIBILITY STUDY AREAS
- PILOT PROJECT AREAS

SUPPLY ZONES :

- WESTERN ZONE
- CENTRAL ZONE
- EASTERN ZONE
- SUPPLY BLOCK BOUNDARIES

KEY MAP

NORTHERN PROVINCE
NORTH WEST
FREE STATE
KWA-ZULU NATAL
NORTHERN PROVINCE
EASTERN CAPE
WESTERN CAPE Cape Town

THABAZIMBI
NORTH MANKWE
KAMEELBOOM
RUSTENBURG
KLIPVOOR
PROPOSED KLIPVOOR WTW
GA-RISAI
BAPONG
MORETELE 2
SEHOKO
KYLSTROOM
SOSHANGUVE
GREENKLOOF
EKANGALA
BRONKHORSTSPRUIT
PRETORIA
JOHANNESBURG

N

0 25KM

EXECUTIVE SUMMARY

1. BACKGROUND AND DEVELOPMENT CONCEPTS

1.1 Pilot Project Action Plan

1.1.1 Objectives

The general pilot project objectives are listed below. Pilot projects are by nature an opportunity to test options and to interpret and share the lessons that emerge. In this context, the pilots are intended to inform both broad community water supply practice and the implementation of the Phase 2 feasibility studies. Specific objectives are:

- To address the overall aim of building an effective water services sector in the Magalies study area.
- To explore, in a practical context, institutional and technical options for water supply in previously unserved or underserved communities.
- To establish or reinforce sustainable management structures and systems which will support effective long term use of the infrastructure developed.
- To develop, test and evaluate innovative institutional development strategies and techniques.
- To make these available beyond the pilot projects themselves.

1.1.2 Situation

Four pilot projects have been undertaken. The table summarises the nature of these projects:

Pilot Project	Location	Description
Kameelboom	North Mankwe Feasibility Study Area	- Rural settlement with population of around 2000. - Major economic activities are agriculture and commute to around Rustenburg - Local leadership is well organised and keen to deliver. - Water supply is restricted to groundwater of poor quality.
Ga Rasai	Klipvoor Feasibility Study Area	- Small village of around 600 residents. - Economic activities are mixed with both agriculture and small business and labour - Village has new local authority and structures (LRDCand LWC) - Surface water infrastructure has been recently installed.

Pilot Project	Location	Description
Segokgo	Moretele 2 Feasibility Study Area	- Small village of 400 population. - Majority of economially active people commute to Metropolitan area. - Local water supply is entirely groundwater base with emergency supply of water tankers.
Bapong	Brits area	- Well-established pei urban settlement of 9000 population. - Mining employment and number commute to Metropolitan - Surface water is available in the village and faced illegal connection and low willingness to pay problems

1.1.3 Action Plan

The action plan was designed to build from awareness, through capacity building to planning and implementation. The action plan comprised the following sequence of steps:

- LPSC empowerment and awareness building.
- Capacity building and the confirmation of linkages with providers of support.
- Community-based water management and O&M planning, and formulation of management plans.
- Strategic research. This was research which assisted the task teams with their planning.
- Management and technical training.
- Operationalising planning.
- Best practice sharing.

The action plan was implemented over the period from April to October 1997.

1.2 Implementation of Capacity Building Plan

The Phase 1 situational analysis revealed limited capacity in village-level local government, and in some cases in regionally-based local government (for example the District Councils). The capacity building plan has sought to develop and consolidate community capacity, and to link with extra-local support wherever possible. The general capacity building plan addressed the following areas of capacity building:

- General awareness building.
- Ensuring a mandated management structure.
- Team building.
- Building institutional linkages.
- Building awareness of planning and management of water supply.
- Establishing a participatory planning process.
- Facilitating technical understanding.

- Skills training.
- Best practice sharing.
- Feedback to Regional Projects

The pilot projects link with the regional feasibility studies in two ways:

- They provide a testing ground for local service provision options.
- They demonstrate possible links between local areas and regionally based organisations like MW and the District Councils.

2. INFRASTRUCTURAL DEVELOPMENT

The process for tendering and the method of selection of a suitable contractor followed South African regulations and standard practice. The works for all three pilot projects were combined into a single contract to make the project attractive to larger contractors capable of providing a comprehensive service including the purchase of equipment. The tender documentation allowed for on the job training, labour based construction, and opportunities for local sub-contractors.

Eight contractors were nominated through consultation with the authorities concerned, and six expressed an interest and submitted tenders. The Study Team and the Engineer, (EVN Consulting Engineers appointed by the Study Team), made a thorough evaluation of these tenders and finally the Contract was awarded to Roadcrete Construction after consultation with JICA headquaters and after obtaining their subsequent approval. The selection process was approved by the LPSC and the selection was discussed at a meeting with the LPSC's.
The construction work was completed on schedule by late October 1997. Infrastructure and expenditure for each project is tabulated below.

Project	Cost (Rand x 1,000)	Major Facilities
Kameelboom	1,970	- 4 No. borehole pumps - 4 No. storage tanks - 16.2 km of pipelines - 36 No. street taps
Ga Rasai	231	- 23 No. pre-paid water meters - one computer system - 0.2 km pipelines
Segokgo	1,070	- 2 No. sets of booster pumps - 1 No. storage tank - 6.9 km pipelines - 6 No. street taps
Total Cost	**3,271**	

3. INSTITUTIONAL DEVELOPMENT

3.1 Establishment of Local Project Steering Committees (LPSC)

3.1.1 Roles and Responsibilities

The roles and responsibilities are summarised in the table below:

LPSC Role
Representing the local community in the pilot project process.
Liaison between key actors involved in the pilot project process.
Ensuring the local relevance of proposed infrastructure options and a positive relationship between contractors and communities.
Responsibility for the local administration of the pilot project prior to handover to a Water Services Authority or a delegated Services Provider.
Local link in relationship building with DC s, MW.
Planning the sustainable management of the local water supply system.
Facilitating the sharing of best practice.
Monitoring and evaluation.

3.1.2 Composition and Status

The three infrastructural projects have Local Project Steering Committees. Each has ten members. In Kameelboom, 30% of members are women. In Segokgo and Ga Rasai 70% are women. All the LPSCs have completed their assigned tasks, despite disruptions in the cases of Ga Rasai and Segokgo.

3.2 Assessment of Capacity Building

3.2.1 Approach and Method

The general approach to capacity building was based on several principles:

- An emphasis on local planning and the creation of g e nerative capacity.

- An emphasis on the development of networks and partnerships.
- Linked to the above, an emphasis on the development of complementary capacity in Planning Forums, District Councils and in Magalies Water.
- An emphasis on defining, mobilising and sharing best practice.
- An emphasis on integrative management and problem solving skills.
- An emphasis on ongoing evaluation.

3.2.2 Targets and Benefits

Targets and benefits are summarised below:

Target	Contribution
Improved water services	Water services have been dramatically improved in all three infrastructural pilots. The real benefits remain to be tested, however. These will depend in the longer term on effective and sustainable management.
Community based planning	Community-based planning processes have been introduced and followed through in the three infrastructural projects. The project has been successful in this regard, but implementation has yet to show whether the plans have produced workable outputs.
Viable management plans and structures	The plans are complete and the structures are in place. Community involvement in planning should ensure local suitability and hence viability. The latter remains to be tested.
Development of support linkages	Linkages (with the District Councils and Magalies Water) have been identified, negotiated and in some cases secured. Benefits are already evident in some cases (for example in Ga Rasai, where MW has provided technical assistance. The benefits must be tested in the long term.
Best practice sharing	Best practice sharing has been achieved to some extent. Best practices have been shared with and among pilots, but not in a particularly systematic manner. Benefits evident in some cases (eg the Ga Rasai visit to Modderspruit), but remain to be tested long term. BPS has more potential than the pilot projects have realised.
Monitoring and evaluation	Routine monitoring and evaluation has been established, and community participation in M&E has been encouraged. However, the bulk of the M&E remains to be done after project implementation. M&E links closely with best practice sharing, so the success of the one will contribute to the success of the other.
Cost recovery	Commitment to cost recovery has been secured in the three infrastructural pilots, and cost recovery systems are in place. Implementation is due shortly, when it will be established whether commitment translates into action. Cost recovery is under threat in Semohlase/Segokgo, for reasons discussed in Section 4.5.
Sustainable water management	Remains to be tested.

3.2.3 Bapong Issues

The Bapong pilot project has been seriously retarded by factors limiting access to the community:

- Political flux at local level. There is no stable, mandated organisation willing / able to support the implementation of the pilot, which focusses on cost recovery and illegal connections.
- Disagreements over payment for water. A small but vocal lobby is resisting payment for water. This lobby has the power to disrupt the pilot project, and has expressed opposition to it.

Under the above circumstances, the study team made efforts to proceed pilot project execution with consultation of EDC, Bapong branch of ANC (African National Congress) and Rand Water Board. There, unfortunately, was no successful progress within the study period.

EDC officials probably see Bapong as a important test case for wider precedent on the management of cost recovery and illegal connections. Rand Water has recently established retail organisations calls Odi Retail in the area.

Odi Retail will act as a regional service provider in the Bapong area. The cost recovery is probably the greatest it will have to face. A successful project in Bapong would assist Odi Retail to extend the lessons learned to other settlements in the jurisdiction.

3.2.4 Lessons from Capacity Building

The following broad lessons can be drawn from the pilot project capacity building initiative:

- Intensive capacity building is required in the following circumstances: fast-track delivery (like the pilot projects); "top down" technical solutions (eg the Ga Rasai RDP project); situations where local politics and structures are in a state of flux; large and institutionally complex areas (like Mbibane TLC, incorporating Segokgo/Semohlase). Conversely capacity building should be easy in situations where none of the above conditions are present. These conclusions should inform the implementation of the feasibility studies, and the institutional development costs associated with them.

- Communities are able to plan with the appropriate support, but sustainability cannot be taken for granted.

- Technical issues can be engaged by laymen with the appropriate support.

- Lessons from Capacity Building

- For sustainability of water supply in the context of feasibility study implementation, strong regionally based service provision structures are advisable. However, in many situations (for example Klipvoor and Moretele 2), such structures are unlikely to emerge in the short term. In this context, one short term service provision option is to develop and consolidate locally based service provision.

- From the pilot projects, local service provision is believed to be a viable (and often the only) route, if planning capacity is entrenched and support networks are secured. In the longer term, local Services Providers may be linked under the umbrella of a regional organisation, or joined in some less formal cooperative arrangement.

- The broad lessons that can drawn from the pilot project capacity initiative are summarised in the table below. The lessons are linked to capacity building strategies from Phase 1, and to the targets and contributions of Phase 3.

Phase 1 Strategy	**Phase 3 Contribution**	**Capacity Building Lessons**	
		Community	**District Council/ Magalies Water/DWAF**
Capacity building in District Council through a DC forum.	In Phase 3, iteraction between MW, DC's and LPSCs was mobilised through the Project Execution Forum	Through the PEF, communities were able to understand the relative strengths of the DCs in the Magalies area. Interaction in the PEF assisted LPSCs to develop perspectives on the local capacity needed, and the opportunity to cement support linkages.	Limited sharing of DC experiences was possible in the PEF. However, DC approaches to supporting the pilots were shared. The establishment of a focussed DC forum is highly recommended.
Development of planning capacity at local level	The development of planning capacity at local level was a central feature of the capacity building approach adopted in Phase 3. Targets in this context were effective planing processes, viable management plans and structures, and cost recovery.	Community structures are able to plan with the appropriate support, but sustainability cannot be taken for granted. With support, technical issues can be engaged by laymen The durability of local planning capacity established in Phase 3 remains to be tested.	Intensive local capacity building is required in the following circumstances: fast track delivery (like the pilot projects); "top down" technical solutions (like the Ga Rasai RDP project) ; situations where local politics and structures are in a state of flux; large and institutionally complex areas (like Mbibane TLC, incorporating Segokgo/ Semohlase. Local planning capacity will enable LPSCs and LWCs to interact with district planning forms, such as the RDC planning zones, and the DWAF Area Forums. Since Area Forums were being formed during Phase 3, it was not possible to coordinate local and regional planning to any degree.

Phase 1 Strategy	Phase 3 Contribution	Capacity Building Lessons	
		Community	District Council/ Magalies Water/DWAF
Institutional support though sharing of resources at third tier level	Phase 3 did not establish formal resource sharing at local level. Some best practice sharing was achieved (among communities and in the PEF), but a more structured approach is possible.	The community based planning process revealed strengths and weakness in the capacity building approach adopted for the various communities. It also uncovered issues around the viability of the technical option chosen, and the need for different levels of extra-community support. These lessons were shared through the medium of the study team. Following the completion of the JICA project, no formal best practice sharing mechanism has been established.	The DCs and MW were able to convey and receive best practice information through the PEG and the PEF. No alternative arrangements have been made, but the Area Planning Forums are a possibility. It is recommended that the DCs allow specific opportunities for best practice sharing in these forums. The newly-established Joint Decentralisation Task Team (in North West Province) might also be a vehicle for vest practice sharing. This possibility must be investigated Best practices sharing should be backed by a monitoring and evaluation programme. M&E proposals are contained in Section 6.5.1 of the main report.

3.3 Project Management Plans

3.3.1 Concept and Content of Plans

The LPSC's of Kameelboom, Ga Rasai and Segokgo produced water management plans. These were assembled by task teams, and tested with the communities and local government. The plans address the following:

- Present situation: population, management arrangements, community awareness, community involvement, water source, water infrastructure, maintenance problems and other development projects.
- Scope of work and details: new infrastructure; Water Services Authority and Water Services Provider; tariff administration and O&M structure; operation and maintenance; security.
- Details of the tariff build-up
- Training, education and capacity building
- Transfer to Local Authority.

3.3.2 Water Services Authority and Water Services Provider

The table provides details of arrangements around the roles of Services Authority and Services Provider:

Pilot Project	Community	Services Authority	Services Provider
Kameelboom	Kameelboom Mphonyoke	Rustenburg District Council	Kameelboom Water Committee. (Assisted by MW and RDC)
	Ramoshibitswana	Rustenburg District Council	Ramoshibitswana Water Committe. (Assisted by MW and RDC)
Ga Rasai	Ga Rasai	Eastern District Council	Ga Rasai Water Committee (assisted by MW)
Segokgo	Semohlase	Mbibane TLC	Semohlase Water Committee (not formally agreed by the TLC)

Most of these service provision arrangements might be seen as short to medium term options pending the development of regional service provision capacity.

3.3.3 O&M Plan and Tariff

Details of the O&M plans and tariffs are provided below:

Pilot Project	O&M Plan and Tariff
Kameelboom	Each section has a pump operator. In some cases the operator will also undertake maintenance. In some areas a maintenance officer will be present. MW assistance will be formally requested when required. Diesel stocks will be managed by a diesel controller, and purchases will be authorised by the community clerk. Security personnel will be mobilised at night. Tariffs: Kameelboom - R19 per household per month Ramoshibitswana - R23 per household per month
Ga Rasai	Key functionaries are a pump operator and a plant operator. Both will have assistants. The latter will be responsible for the filtration plant and spares, and the latter for the diesel pump, diesel supplies and the trailer used to transport the pump. MW assistance will be formally requested when required. The functionaries will be employees of EDC. Tariff: R2.44 per kilolitre.
Segokgo	Key functionaries are a technical administrator, an O&M officer and security officers. The administrator will oversee the O&M budget and O&M activities. The O&M officer will inspect and repair where possible, and will operate the electric pump. Tariff: R20 per household per month.

3.3.4 Accounting and Fee Collection

Details of the accounting and fee collection plans are provided below:

Pilot Project	Fee Collection Plan
Kameelboom	Kameelboom: Administered by the Community Authority Clerk. A treasurer will collect payments in each section. Ramoshibitswana: Administered by the Zonal Office Clerk. A treasurer will collect payments.
Ga Rasai	Payments and tokens will be administered by an adminstrative clerk, under the supervision of the Treasurer of the Water Committee. Detailed reporting is required from the Administrative Clerk.
Segokgo	Fee collection and financial administration will be undertaken by a Financial Administrator. Banking will be done by the Mbibane TLC, but under defined conditions.

3.4 Training

3.4.1 Technical

Technical training consisted of operation and maintenance of basic water supply infrastructure, O&M of special equipment (pumping plants), and in the case of Ga Rasai operation and maintenance of the prepaid water meters, including the associated computer system. Basic training was provided by the contractor, and specialised training by Lister Engines and Bambamanzi for the prepaid metering systems.

As a backup to training, general O&M and pumping plant manuals have been prepared. A manual for the prepaid metering system has been prepared for Ga Rasai.

3.4.2 Administration and Accounting

A great deal of general institutional training has been undertaken by the Study Team. This has provided a context for specialist training. It should also be noted that the training needs were identified by the LPSC's, so specialist training is understood and accepted. The specialist training providers are addressing the following:

- General financial administration and budgeting.
- Basic book and record keeping.
- Practical cost recovery administration.
- Office and staff administration.

Training providers were sourced from the DWAF directory of capacity building and training organisations. Following a consultative shortlisting process, Bosele Community Consultants were selected to undertake the specialised training. The three days training course was held successfully with 8 trainees of three projects from 22nd to 24th October, 1997.

3.4.3 Comprehensive Evaluation

Since newly constructed infrastuructures in the project area, i.e. borehole pumps, water storage tanks, prepaid water meters, are comparatively simple , the technical training has been undertaken smoothly on the subjects of actual local operation, countermeasure for accident and emergency cases and explanation of operation manuals and as-built drawings. Especially, illustrated documents which indicate countermeasures for emergency case was equipped with each facilities, trainees well understood such materials.
Trainings of administration and accounting, on the other hand, also has been conducted using special materials and detail discussions with short test trials by the specialist training providers. Trainees well commenced their obligations at respective project area under the control of LPSC.

3.5 Monitoring and Evaluation

3.5.1 Sustainability

The monitoring and evaluation of issues relating to sustainability are very important. The sustainability of the Local Services Provider option is of particular relevance to the feasibility studies. Key issues for such monitoring are:

- The relationship between quick delivery and sustainability.
- The nature of local capacity needed to ensure sustainability.
- The link between community involvement in planning and sustainability.
- The importance of extra-community links and support for sustainability.
- The use of institutional development to promote and support infrastructural development.
- The deployment of best practice sharing.
- The role and effectiveness of community-based project review.

These are elements of a proposed post-JICA monitoring and evaluation programme.

3.5.2 Monitoring and Evaluation

Two forms of monitoring and evaluation apply to the pilot project programme:

- Routine monitoring and evaluation undertaken by the Study Team and the LPSCs during project implementation.
- A follow-up programme of sustainability monitoring to be undertaken after the conclusion of the JICA project, possibly linked to CWSS. Recommendations are outlined in Section 4.3.

4. Recommendations

4.1 Contribution to Future Projects

The JICA Magalies project will link directly with future projects such as the implementation of the feasibility study projects. Recommendations in this regard are contained in Section 4.3.

The less direct contribution to future projects will depend on the extent to which the project material is made accessible, and the manner in which it is disseminated. Recommendations regarding best practice sharing are in Section 4.3.

4.2 Continuation

The following are activities that will require follow-up after the conclusion of the JICA project:

- Operational Carry Over. Consolidation and refinement of the management and O&M arrangements implemented in terms of the management plans, and full operational testing of water systems.
- Consolidation and Integration of Institutional Arrangements at local and at regional level. This is especially critical for the sustainability of the Segokgo project (Mbibane TLC), and for the implementation of the feasibility studies.
- Best Practice Sharing.
- Feasibility Study Implementation.

4.3 Recommendations

- The immediate establishment of a strategic task group. The brief of this group would be to develop an action plan for post-JICA follow-up activities. A key issue is the identification of the bodies responsible for taking the feasibility studies into implementation. Best practice sharing is also an important matter to be considered by the strategic task group.
- The establishment of a mentoring team, possibly comprising a coordinator and a community liaison officer.
- The development of a comprehensive M&E programme. The task group would design the programme, or find a consultant to do so.
- The determination of the scope of work of an institutional and technical support team (by the task group), and the formation of such a group.

It is proposed that funding be sought as follows:

- Strategic Task Group - ISD or Operations Directorates, DWAF.
- Mentoring Team - ISD or Operations.
- Monitoring and Evaluation Programme - JICA project stakeholders.

TABLE OF CONTENTS

CHAPTER 4 INSTITUTIONAL DEVELOPMENT

CHAPTER 5 BUSINESS PLAN AND TRAINING

CHAPTER 6 FOLLOW-UP ACTIVITIES

DRAWINGS

ANNEX

A : Engineering
B : Institutional
C : Financial

ABBREVIATIONS AND TERMINOLOGY

The following abbreviations are used in this report:

AADD	Annual Average Daily Demand
ANC	African National Conggress
APF	Area Planning Forum
AWSC	Area Water Service Cooperative
BOTT	Build, Operate, Train, and Transfer
BWSC	Block Water Service Cooperative
CAPLEX	Capacity Expenditure
CEO	Chief Executive Officer
CIP	Capital Investment Plan
CRDC	Central Reconstructions Development Committee
CSS	Central Statistics Service
CWSS	Community Water Supply and Sanitation
DAF	Dissolved Air Flotation
DANDIA	Danish International Development Agency
DBSA	Development Bank of South Africa
DC	District Council
DCC	Direct Construction Cost
DCF	Discounted Cash Flow
DFA	Development Facilitation Act
DFID	Department for International Development (UK)(formerly British ODA)
DWAF	Department of Water Affairs and Forestry
EDC	Eastern District Council
EIRR	Economic Internal Rate of Return
ESA	Expanded Supply Area of Magalies Water Board as gazetted in April 1996
ESKOM	Electricity Supply Commission
EVN	EVN Consulting Engineers (Pty) Ltd

FIRR	Financial Internal Rate of Return
FS	Feasibility Study
FVDF	Five Villages Development Forum
GIS	Geological Information System
HW	Highveld Water Board
HWSA	Highveld Water and Sanitation Association
IFR	Instream Flow Requirements
IRR	Internal Rate of Return
IMT	Interim Management Team
ISD	Institutional and Social Development Department
JV	Joint Venture
JICA	Japan International Cooperation Agency (the official agency responsible for the implementation of the technical cooperation programmes of the government of Japan)
LDO	Labour Desk Officer
LPSC	Local Project Steering Committee
LRDC	Local Reconstruction and Development Committee (Local RDP Committee)
LWC	Local Water Committee
M&E	Monitoring and Evaluation
MANCO	Management Comittee
MEC	Member of Executive Committee
MP	Management Plan
MW	Magalies Water Board
NGOs	Non-Governmental Organizations
NP	Northern Province
NPV	Nett present Value
NWP	North West Province
NWWA	North West Water Supply Authority

O&M	Operation and Maintenance
ODA	Overseas Development Assistance
ODO	Organisation Development Officer
OECF	Overseas Economic Cooperation Fund of Japan
P&G	Provisional and General
PEF	Project Execution Forum
PEG	Project Execution Group
PLP	Presidential Lead Project
PMC	Project Management Committee
PSC	Project Steering Committee
PWV	Pretoria Witwatersrand Vereeniging triangle(geographical area)
RDC	Rustenburg District Council
RDP	Reconstruction and Development Program
RF	Representative Forum
ROIP	Relevant Environmental Impact Prognosis
RPM	Rustenburg Platinum Mine
RR	Regional Reservoir
RSA	Republic of South Africa
RSC	Regional Service Council (regional bodies established to facilitate and coordinate service provision across local boundaries - now replaced by Regional and District Councils)
RW	Rand Water
S/W	Scope of Works
SAMWU	South African Municipal Workers Union
SANCO	South African National Civic Organization
SPDD	Summer Peak Daily Demand
SR	Service Reservoir
STW	Sewage Treatment Work
SWET	Sanitation and Water Education Training Programme

TA	Tribal Authority
TBVC	Transkei; Bophuthatswana, Venda, Ciskei (former "independant" homelands)
TDS	Total Dissolved Salts
THM	Ttrihalomethanes
TLC	Transitional Local Council
TMC	Transitional Metropolitan Council
TOR	Terms of Reference
TRC	Transitional Rural Council
TT	Task Team
VAT	Value-added Tax
VIP	Ventilated Improved Pit Latrine
WATSAN	Water and Sanitation Management Committee
WP	White Paper
WRYM	Water Resources Yield Model
WSA	Water Service Authority
WSP	Water Service Provider
WTP	Willingness to Pay
WTW	Water Treatment Works

UNITS

ha	Hectare
kg/c/year	Kilograms per capita per year
kl	Kilolitre
kld	Kilolitres per day
km	Kilometre
l/c/yr	Litres per capita per year
lcd	Litres per capita per day
m^3/c/yr	Cubic metres per capita per year
mcm	Million cubic metres
mcm/a	Million cubic metres per annum
mg/l	Milligrams per litres
Mld	Megalitre per day
R	Rand

CHAPTER 1

INTRODUCTION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1 INTRODUCTION

1.1 Background of the Study

1.1.1 Overall Framework of the Water Sector

(1) Historical Background

Historically the water sector in South Africa has been administered within the framework of The Water Act (Act 54 of 1956) which established centralised control over public water resources in South Africa and made some attempt to accommodate the expanding urban and industrial economy. The Act however still primarily served the interests of the agricultural sector. Homelands had their own water legislation that covered the areas under their jurisdiction.

(2) Transition

Since the transformation of South Africa with the election of a democratic government and the re-incorporation of the former homelands, a process of transition has commenced in the water sector. The first step in this process was the passing of the Water Laws Rationalisation and Amendment Act (Act 32 of 1994). While a major purpose of the act was to rationalise laws in force in the former homelands it also provided the Minister of Water Affairs and Forestry with the authority to provide water supply and sanitation services. This changed the emphasis in the public sector to the provision of basic services to the majority of the population who had not had these services in the past.

(3) Future Vision

The democratically elected government in South Africa has as a vision the transformation of many aspects of society. The supply of basic services to those people who have been deprived of these services is central to this vision. To achieve this a number of strategies and programmes have been developed. Those relevant to the water sector are:

(a) The Reconstruction and Development Programme (RDP).

(b) White Paper on Water Supply and Sanitation Policy

(c) Water Law Review Programme

(d) The Water Services Act, 1997

Each of these four key initiatives is discussed in further detail in the paragraphs that follow.

1.1.2 Reconstruction and Development Programme (RDP)

(1) Background

Transformation is a key objective of the democratic Government of South Africa. While there are many aspects of this, the *Reconstruction and Development Program* (RDP) which is aimed at social and economic development is the central program. It is an integrated and comprehensive initiative, which is based on an extensive process of consultation and joint policy formulation.

A *National Growth and Development Strategy* has been formulated which sets out the objectives, priorities and strategies required to accelerate growth/development so as to reduce poverty and increase employment. This strategy provides a guiding framework for the RDP and facilitates making strategic choices and trade-offs during implementation of the RDP.

(2) Principles of the RDP

The RDP has as its foundation six principles, which apply to the overall programme and to RDP projects.

(a) It must be an integrated and sustainable programme.

(b) The programme must become a people-driven process.

(c) The program and process must be closely bound to creating peace and security for all.

(d) As peace and security are established it will be possible to embark upon nation building.

(e) Nation building is an integral part of reconstruction and development.

(f) The preceding five principles all depend upon thorough and ongoing democratisation.

(3) Programs of the RDP

To achieve its aims the RDP was designed around five sub programs: meeting basic needs, developing human resources, building the economy, democratising the state and society, and implementing the RDP itself i.e. projects in various sectors.

(4) Implementation Roles

All levels of government have a role to play in implementing the RDP: Central Government sets the broad objectives and programmes; provincial governments develop the strategies and programmes for their own provinces; and local authorities are the key institutions for delivering basic services, extending local control and managing local economic development. Obviously the role of local authorities is closely integrated with the activities of communities they serve.

(5) DWAF RDP BOTT Programme

In order to accelerate implementation of RDP water projects, DWAF has enlisted the support of the private sector in a build, operate, train and transfer programme, which is being managed at a provincial level.

1.1.3 White Paper on Water Supply and Sanitation

(1) Purpose

The White Paper was published in November 1994 as a policy document with the aim of clearly setting out the position and strategies to be followed by the Department of Water Affairs and Forestry (DWAF) and other institutions involved in water supply. It covers the historical background; explains the development approach which has guided policy formulation; puts forward basic policy principles; outlines the institutional framework for water supply and sanitation services; provides standards and guidelines for basic service delivery; sets out policy for financing of service delivery; outlines some immediate initiatives being taken and provides supplementary briefing information on important related topics.

(2) Principles

The White Paper outlines a number of principles to guide the formulation of policy and strategy in the supply of water and sanitation services. These are:

(a) Development should be demand driven and community based.

(b) Basic services are a human right.

(c) The philosophy of "some for all" rather than "all for some".

(d) Equitable regional allocation of development resources.

(e) Water has an economic value.

(f) The user of the service must pay for it.

(g) Integrated development and environmental integrity.

To give effect to (c) above a minimum standard has been set for water supply in the country, which is referred to as the RDP minimum. This states that all persons shall have access to 25 litres of clean and safe water per day within 200 m of their household. The Government will meet the capital cost of providing this RDP level of service but consumers must pay operation and maintenance costs.

3) Institutional Development

The White Paper also provides some guidelines for institutional reform in the water sector. This is particularly important because of the government's emphasis on service delivery and obviously this requires institutional capacity. In terms of the White Paper there are phased goals:

(a) In the short term:

To maintain service delivery whilst rationalising DWAF and transforming and democratising the second tier (i.e. Water Boards)

(b) In the medium term:

To support institutional development at the third tier level (i.e. local level) and to provide financial and technical assistance for water supply and sanitation services. The restructured DWAF (especially at provincial level) and second tier institutions will work towards this goal together with the private and NGO sectors.

(c) In the long term:

To ensure that the provision of services to customers is the function of local government supported by provincial government. The second tier will provide bulk and wastewater disposal services, and DWAF will manage water resources and monitor and regulate policy implementation.

1.1.4 Sanitation Policy

The White Paper on Water Supply and Sanitation dealt at a high level with policy and strategy regarding sanitation. The need for more detailed inputs in this area has subsequently been addressed in the Draft White Paper entitled national Sanitation Policy issued in June 1996.

1.1.5 Water Law Review

(1) Background

As indicated there has only been a rationalisation of legislation since the democratically elected government came to power in 1994 (Water Laws Rationalisation and Amendment Act) (Act 32 of 1992). A major review of legislation to transform the water sector in accordance with the ideals of the RDP and White Paper is therefore necessary. To this end the Minister appointed a special Water Law Review Panel in June 1995 to develop a set of policy principles on which a new act could be based. The brief has been to make the new law simple, equitable, environmentally integrated and sustainable, economically viable and conducive to equitable economic growth, non-bureaucratic, and capable of simple and easy administration.

(2) Progress

The Panel has completed its work and reported (Fundamental Principles and Objectives of a New Water Law in South Africa). Nine themes were addressed. These were:

(a) Hydrological cycle.

(b) Aquatic ecosystem.

(c) Legal status of water.

(d) Demand apportionment and usage.

(e) Water quality management.

(f) Value of water.

(g) Existing rights to the use of water.

(h) Management, administration and enforcement.

(i) Water supply and sanitation services.

The law review process was taken forward by a Steering Committee and a major step in this process was a Water Law Review Conference. A final set of principles were embodied in the draft Water Services Act, 1997.

1.1.6 Water Services Act

(1) Background

The draft Water Services Act, 1997 was published in the Government Gazette dated 23 May 1997 and interested parties were requested to submit comments within 30 days. A large number of comments were received from many of the stakeholders which are currently being reviewed in order to finalise the bill to put it before parliament.

(2) Provisions

The provisions of the Act include the following:

(a) to provide for the right of access to basic water supply and basic sanitation

(b) to provide for the setting of national standards and norms and standards for tariffs

(c) to provide for water services development plans

(d) to provide a regulatory framework for water services institutions and intermediaries

(e) to provide for the establishment and de-establishment of water boards and

water services committees and their powers and duties

(f) to provide for the monitoring of water services and intervention by the Minister or by the relevant Province

(g) to provide for financial assistance to water services institutions

(h) to equip the Minister with certain powers

(i) to provide for the gathering of information in a national information system and the distribution of that information

(j) to repeal certain laws

(3) Role of Local Government

National water policy has consistently emphasised the responsibility of local government in the provision of water services. The Water Services Bill has made it very clear that local government (as the service authority) is accountable for the provision of local water services. Local government may delegate the role of Services Provider to other bodies, but the authority function cannot be transferred.

Against this background, it is clear that capable and effective local government is critical to the implementation of national water policy. This imperative is reflected in the attention given to local government support strategies by DWAF (at national and regional levels), by other government departments, and by agencies such as Water Boards.

1.1.7 Quantitative Overview of the Water Supply Scenario

The preceding paragraphs describe the overall framework of change in which the JICA study is taking place. To more fully illustrate the necessity for change the following statistics illustrate the historical imbalances and lack of service provision, which the changes Segokgo to address. Historically, the population of the RSA was classified in terms of population groups, namely, blacks, whites, coloureds and Asians. The classification is no longer enshrined in law, but it has relevance when considering demographic and socio-economic characteristics. Some baseline statistics for water supply and sanitation are summarised in the tables below:

Table 1-1 Population of South Africa According to Population Group

Population (1 000's)	Black	White	Coloured	Asian	Total
1995	31,676	5,215	3,602	1,051	41,544
	(76.2%)	(12.6%)	(8.7%)	(2.5%)	(100%)

Source: October Household Survey, 1995, Central Statistical Service

Table 1-2 Percentage Covered by Water Reticulation System According to Population Groups

Delivery Method	Black	White	Coloured	Asian
House Connection	17.5	99.7	78.9	99.2
Yard Connection	25.8	0.2	16.5	0.8
Public Standpipe	23.8	0.1	3.0	-
No Service	32.9	-	1.6	-
Total	**100%**	**100%**	**100%**	**100%**

Source: South Africa Labour and Development Research Unit, UCT, 1994

Table 1-3 Percentage of Population with Flush Toilet According to Population Group

Population Group	Black	White	Coloured	Asian
Diffusion of Flush Toilet (%)	34.2	99.8	88.0	99.6

Source: South Africa Labour and Development Research Unit, UCT, 1994

As clearly expressed the above, the black population group (who comprise about 70 percent of the total population) have access to characteristically low level of services in the water supply and sanitation sector. In view of RSA's policy to upgrade the quality of life of all South Africans, it is appropriate that high priority should be given to those people who are facing inferior service quality in the water supply and sanitation sector.

1.1.8 JICA Study Arrangements

(1) JICA's Preliminary Survey and Scope of Work

In response to the request of the Government of the Republic of South Africa, the Japanese Preparatory Study Team sent by JICA visited South Africa from 18 July to 11 August, 1995. The objectives of the Team were: to conduct a preliminary survey of the proposed study area and to discuss and finalise the Scope of Work for the proposed study among key stakeholders concerned, including DWAF, the Department of Finance, the Department of Foreign Affairs, MW, NWWA and the Embassy of Japan.

Through a series of discussions, the implementing arrangement termed A Scope of Work for the Study on Expansion of Capacity of the Magalies Water in the Republic of South Africa was agreed upon between DWAF and JICA on 4 August 1995. The Scope of Work and the Minutes of Meeting on S/W are compiled in the Data Book.

(2) Overall Framework of the Study

The Study has three phases; the first was completed in 1996 while Phases 2 and 3 will be completed by the end of 1997. The Phases are as follows:

(a) Phase 1: Formulation of a Master Plan.

Phase 1 comprised a situational analysis (an investigation to understand the circumstances prevailing in the Study Area including policy, socio-economic conditions, institutional arrangements, water resources, water demand, physical infrastructure, water tariffs and cost recovery systems); the formulation of a Master Plan up to the year 2015 and priority projects to the year 2002 (which incorporated a process leading to the formulation of policy and strategy recommendations; an investigation of technical solutions to water supply challenges identified throughout the Study Area; an institutional development plan; and an initial capital investment plan); and recommendations on study methods and terms of reference for Phases 2 and 3.

(b) Phase 2: Feasibility study on priority projects.

During Phase 1,many projects were identified by the master plan study in order to meet the requirements of the policy. The identified projects cover a range of infrastructure from modernised supply systems to the minimum level of the RDP.

There are priority projects in two-time frames. Firstly, the project target to the year 2002 involved areas where communities have no water supply, or where supply is below RDP requirements. In this context, the objective is to provide safe and hygienic drinking water to RDP service levels. Secondly, areas where incremental water demands will be high within the selected target years will be given high priority to implement expansion or improvement projects. Three priority areas under the first categories were identified and agreement was reached with all key stakeholders that these should be the subject of subsequent feasibility studies. The three feasibility study areas identified were North Mankwe, Klipvoor and Moretele 2. This report is the culmination of Phase 2 and is concerned with the second of these areas, Klipvoor. The scope of work for each area under Phase 2

included the preparation of a plan for a regional water supply system using surface water, an environmental impact assessment of the proposals, a plan for institutional development, proposals for implementation, a financial analysis of the proposed scheme and an overall evaluation and recommendations concerning implementation.

(c) Phase 3: Implementation of selected water supply and sanitation pilot initiatives.

Phase 3, which comprises four pilot projects, was carried out in parallel with Phase 2. The pilot projects were primarily institutional and intended to explore, in a practical context, institutional and technical options for water supply in previously unserved or under served communities.

A component of Phase 1 was a series of community case studies (30 in all). These case studies examined water supply and sanitation circumstances in a selection of villages throughout the Study Area, and explored socio-economic factors that have a bearing on the provision and sustainable management of water and sanitation services. A key facet of the case studies was an investigation of attitudes to cost recovery and levels of affordability. With the 30 case studies as background, four villages were selected as pilot projects. Table 1-4 summarises the work undertaken.

Table 1-4 Scope of Pilot Projects

Village	Infrastructural Input	Institutional Input
Kameelboom, North Mankwe FS Area	Reticulation of groundwater to RDP standard	Community based development and implementation of a water management plan
Ga Rasai, Klipvoor FS Area	Prepayment metering system on existing RDP community stand-pipes	Community based development and implementation of a water management plan
Segokgo, Moretele 2 FS Area	Existing pipeline extended to Semohlase community, reticulation to RDP standard.	Community based development and implementation of a water management plan
Bapong, Peri Urban, close to Brits	None.	Assistance to community structures around planning for cost recovery.

The scope of work for the three infrastructural pilot projects included: initial consultation with selected communities; the election of Local project Steering Committees; the provision and commissioning of water supply infrastructure, empowerment and awareness building; capacity building and the confirmation of institutional linkages; the development of water management

and O&M plans; management and technical training; the establishment of financial arrangements; and the sharing of best practise.
In the case of Bapong, the scope of work is confined to initial consultation, awareness building, the formation of a Task Team, and the development of a plan to implement cost recovery and to regulate illegal connections.

(3) Milestones

Work on Phases 2 and 3 has been carried out by a single Study Team working almost exclusively in South Africa with only the production of the Final Report being undertaken in Japan. Figure 1-1 shows the detailed work schedule from February to December 1997. The study was undertaken in two stages with a break in April corresponding to the change in the Japanese fiscal year. With regard to the Feasibility Study, data was collected and planning criteria were established and confirmed with key stakeholders during Stage 1. During the subsequent Stage 2 the water supply plan was developed and costed and financial, institutional and overall project evaluation took place.

The various reports produced by the Study Team during Phases 2 and 3 formed key milestones for the Study. These reports and their respective dates are as follows:

Inception Report	February 1997
Progress Report	March 1997
Interim Report	July 1997
Draft Final Report	October 1997
Final Report	December 1997

The first three reports have already been issued and served several important functions:

(1) they have provided regular opportunities for stakeholders to provide valuable input to the Study,

(2) they have enabled a wider audience than those able to actively participate in the management structures of the Study to be kept informed of progress,

(3) being accepted formally by the stakeholders they have provided the Study Team with a mandate to move forward to the subsequent stages of the Study, and

(4) they have recorded the methodology and findings of the Study for future use as a resource by stakeholders both within the Study Area and beyond in other parts of the country.

1.2 Composition of the Final Report

The Final Report for Phases 2 and 3 comprises a total of seven volumes. These are as follows:

Volume 1 : Executive Summary
Volume 2 : Feasibility Study for North Mankwe
Volume 3 : Feasibility Study for Klipvoor
Volume 4 : Feasibility Study for Moretele 2
Volume 5 : Study on Boundary Issues
Volume 6 : Pilot Projects
Volume 7 : Data Book

The Executive Summary contained in Volume 1 summarises the conclusions of the Study. The other volumes are self-contained so as to facilitate access by those concerned with only individual parts of the overall study. Back-up information, which may be of interest to the specialist reader, is provided as an Annex to each report.

This Report forms Volume 6 of the Final Report and is concerned with the Pilot Projects. The Report comprises a main report and an annex.

1.3 Project Management Structure

1.3.1 Study Management

The project management structure for the JICA Study is shown in Figure 1-2. The four levels are as follows:

(1) Project Steering Committee

The PSC remained in place from Phase 1 and is a high level body which discusses and resolves matters of policy and major issues relating to implementation. It has the following responsibilities:

(a) To discuss and resolve matters of policy relating to the agreement between the governments of Japan and South Africa.

(b) To discuss and resolve matters of study design, management and implementation that have major implications for the governments of Japan and South Africa, and for JICA, DWAF and MW; and

(c) To monitor overall project progress, especially with reference to the delivery and quality of major products.

(2) Project Execution Group

This replaced the former Project Working Groups (and aspects of the Project Management Committee). Membership consists of representatives of MW, the District Councils covering the three FS Areas, DWAF Provincial Officials and the JICA Study Team. This group is responsible for the efficient implementation of the Study by providing guidance and co-ordination between the Phases 2 and 3.

(3) Local Project Steering Committees

These were created at community level where pilot projects are being implemented to facilitate joint control of pilot projects and to oversee handover of the completed projects.

(4) Project Execution Forum

The forum is a reference group for the Study. It was created to formalise the interaction with the more than forty stakeholders that participated in Phase 1 and provides a vehicle for considering the many capacity building recommendations which emerged from Phase1. The PEF is a major vehicle for best practice sharing which is a key objective of the Phase 3 Pilot Project Programme.

The above structure was approved by the key stakeholders at the Project Steering Committee Meeting held on 18 February 1997.

1.3.2 Study Implementation

JICA entrusted implementation of the Study, based on the Scope of Works, to a consortium of Japanese consultants comprising Sanyu Consultants Inc. (SCI) as the managing company and

Nihon Suido Consultants Co., Ltd. (NSC). This consortium was selected through open tendering.

SCI and NSC together established the Study Team, which for Phases 2 and 3 has mobilised the experience gained during Phase 1. The team of 12 members is composed of 7 members from the Phase 1 Study Team and a further 3 people who participated in sub-contract work during Phase 1. The team includes six Japanese, one British and five South African Nationals.

During Stage 1, the Study Team sub-contracted some minor components of the Study to South African consultants. Their work included providing support for the environmental impact assessments and for gathering cost data for engineering aspects of the Feasibility Studies.

1.4 Acknowledgements

The numerous organisations and individuals that contributed to the work of the Study Team during Phase 1 have continued to provide excellent support to the Study. Whilst taking responsibility for this report, the Study Team wishes to acknowledge the help and support of the following:

1.4.1 Japanese Government

Embassy of Japan in South Africa
JICA Head Office
JICA local office in Pretoria
JICA Advisory Committee

The continued financial support of the Government of Japan has made the Study possible and the guidance and support provided by the Advisory Committee has played a crucial role in the strategic direction that the project has taken. The Study Team hopes that this first experience of this type of technical aid support in South Africa will provide a good precedent and contribute to further collaboration on future projects.

1.4.2 Department of Water Affairs and Forestry

DWAF Head Office
DWAF - Mpumalanga
DWAF - North West Province

Due to the more applied nature of the work, Phases 2 and 3 of the Study have required closer links with the Provincial staff of DWAF. In particular the Directors of DWAF in the two Provinces within whose jurisdiction the feasibility studies fall have participated actively in the Study despite the very pressing nature of their many other commitments. Senior staff from the Provinces have also provided valuable strategic and operational support. The senior managers and directors of DWAF in Pretoria have continued to provide excellent support through chairing and participating in meetings, providing insight and direction and not least by making available office space and other facilities to the Study Team.

1.4.3 Local Government

North West Province
Mpumalanga
Northern Province
Gauteng

Rustenburg DC
Eastern DC
Highveld DC

Mbibane TLC

It is clear from the Water Services Act that local government is responsible for service delivery and the responsibilities of Services Provider cannot be abrogated. Representatives of local government have played a crucial role in the project as it has been necessary to ensure that the institutional recommendations of the Study in each area are appropriate to the capacity and direction of the relevant local government institutions.

The organisations listed above have enthusiastically supported the Study by attending and actively participating in meetings. The senior members of staff at the district councils have met with the Study Team and provided guidance in interpretation of policy and new and ongoing service delivery initiatives.

In particular, Rustenburg DC must be thanked for providing office space and logistical support to the Team during their stay in Rustenburg. The system of zonal councillors and engineers has also provided something of a model and is rightly viewed with interest.

1.4.4 Water Boards

Magalies Water
Rand Water

Magalies Water in particular have provided invaluable ongoing help and support to the Study by participating in and chairing meetings but also by providing many hours of advice through reviewing reports and providing feedback to the Study Team. Of course Magalies Water is at the hub of the Study and the dialogue between the Study Team and Magalies Water has confirmed that the initiative is of value. The team hopes that the Study has provided a firm foundation for Magalies Water to lead the way as a representative of the new generation of second tier water supply institutions envisaged in the White Paper of 1994.

1.4.5 Pilot Project Communities

Kameelboom, Ramoshibitswana and Mphonyoke Communities
Ga Rasai Community
Segokgo, Moletsi, Semohlase and Loding Communities
Bapong Community

The members and leadership of the communities which have been the subject of the pilot projects have played an important role by giving of their time and hospitality most generously and affording the Study Team the privilege of working with them. The Team has certainly learnt much from working together with the communities and hope that this feeling is mutual. With regards to the Feasibility Studies, the Study Team is especially grateful to the pilot project communities for their co-operation with the questionnaire surveys and for providing feedback to inform Phase 2.

1.4.6 Other Stakeholders

There are more stakeholders in the Study than can be listed in this short acknowledgement. The Study Team interacted with many of these, and was pleased with the level of involvement and commitment. Since the Study area is large, many of the stakeholders demonstrated their interest by travelling long distances to meetings. A hallmark of the Study has been the high level of stakeholder involvement and the loyalty and commitment of participating stakeholders.

The Team extends thanks to all who have played a role in the execution of the Study.

Figure 1-1 Master Work Schedule for Phases 2 and 3 of Magalies Water Study

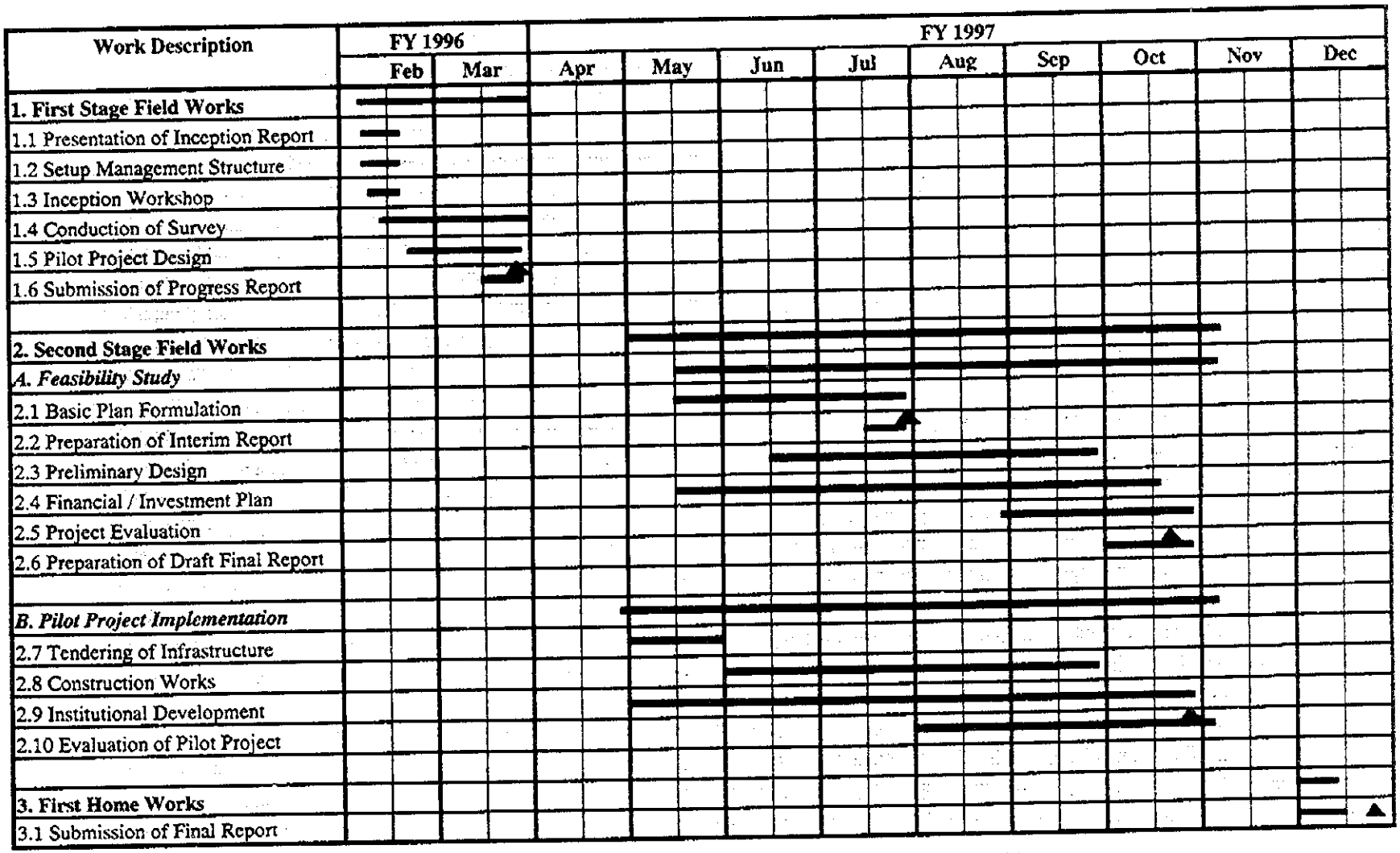
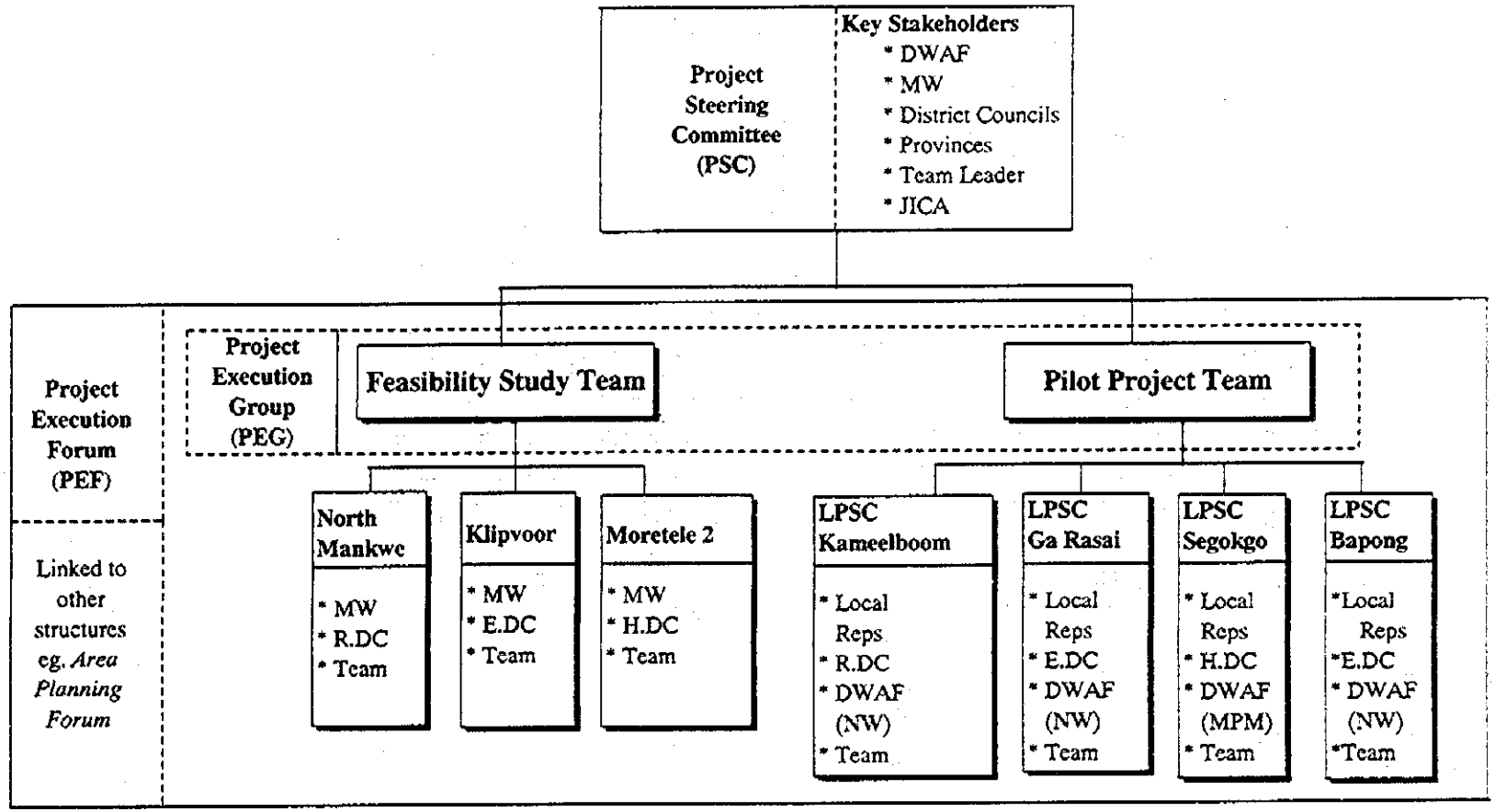


Figure 1-2 Management Structure for Phases 2 and 3



Note: RDC: Rustenburg DC, EDC: Eastern DC, HDC: Highveld DC

CHAPTER 2

DEVELOPMENT CONCEPTS

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 2 DEVELOPMENT CONCEPTS

2.1 Institutional Strategies

2.1.1 Context and Phase 1 Findings

National water policy has consistently emphasised the responsibility of local government in the provision of water services. The recently released Water Services Bill has made it very clear that local government (as the Services Authority) is accountable for the provision of local water services. The role of Services Provider may be delegated by local government to other bodies, but the Authority function cannot be transferred.

Against this background, it is clear that capable and effective local government is critical to the implementation of national water policy. This imperative is reflected in the attention given to local government support strategies by DWAF (at national and regional levels), by other government departments, and by agencies such as Water Boards.

Phase 1 of the JICA Study gave particular attention to the so called "third tier" in the Magalies study area, and recognised a number of challenges that will have to be addressed if this sector is to play its part in effective, viable and sustainable water delivery in the study area:

(1) Local government and service provision capacity (measured according to a variety of criteria such as organisational capacity, process capacity, technical capacity and financial capacity) is extremely limited in some parts of the study area. This is especially true among rural communities.

(2) Some communities are particularly vulnerable where local government and service provision capacity is low, and access to support networks is limited. A case in point is Ga Rasai, which is located in the area of jurisdiction of Eastern District Council. EDC itself has capacity constraints, and is not in a position to offer substantial support.

(3) Some forms of capacity relate to operational effectiveness, whilst other forms are the foundation for generating and growing capacity itself. The two key forms of "generative" capacity are the capacity to plan and the human and financial resources to put plans into action. The Stage 1 capacity analysis showed that many third tier structures lack generative capacity.

(4) Without generative capacity (particularly the capacity to plan), local government structures such as District Councils and Rural Local Authorities are at risk of remaining dependent

on external actors. Planning Forums are a vehicle for planning capacity at a regional level. For these to be fully effective, it is necessary to develop a level of local planning capacity which will enable small-town local authorities to engage in a dialogue with the Area Forums

(5) Whilst the development of local government capacity is perhaps the key institutional challenge in the water sector (and in other service delivery sectors), community based structures like Local Water Committees and RDP Committees remain a source of capacity, at least in the short to medium term. In many cases, these committees command human resources and expertise that far outstrip existing local government.

The Phase 1 Master Plan study recommended a number of strategies to deal with some of the challenges outlined above. The strategies relevant to the pilot project programme are outlined in the table below:

Table 2-1 Recommended Institutional Strategies from Phase 1

Strategy	Description	Relevance to Pilot Projects
Capacity building in lagging District Councils	This strategy envisaged the establishment of a District Council Forum in which DC s can share experiences and resources. The JICA project has brought the DC s together in the Project Execution Forum, and the Danida programme is assisting DC s in Northwest Province with cost recovery strategy	DC capacity building has particular relevance to Phase 2 (see 2.1.2, below), and this is where this matter will receive specific attention in the JICA study. Effective DC s are important to the pilot projects since the DC s are likely to play a key role in managing (or in delegating management) the pilot projects after handover
Community institution building programme	This strategy envisages the development of planning capacity at local level. It is recognised that communities might have to mobilise local resources is the absence of regional capacity, and that the ability to plan locally will enable communities to communicate effectively with DC s, Water Boards and other regional structures	A central focus of the pilot projects is the development of local planning capacity. Hence the pilots are an instrument to implement this strategy in the Magalies study area
Institutional support programme	This strategy recognises the need for third tier institutions to share resources and experience. The strategy envisages the co-ordination of training and the possible formation of service and training co-operatives, under the auspices of DC s. It also proposes mechanisms for the sharing of best practice regarding service delivery and the management of services	This strategy resides partially in the ambit of Phase 2. The pilot projects emphasise best practice sharing, and have put this into action through the Project Execution Forum (PEF), and by establishing links between communities (e.g. the visit by Ga Rasai PSC members to the Moddersprui prepayment scheme)

2.1.2 Nature and Purpose of the Pilot Projects2

The JICA Magalies Study was designed in three phases. The first phase incorporated a detailed situational analysis (with both technical and institutional components), and led to the production of a master plan for short and medium term planning. Phases 2 and 3 are more applied in nature, with Phase 2 pursuing detailed feasibility studies for regional surface water schemes proposed in Phase 2. Phase 3 incorporates a pilot project programme, involving four villages in the JICA Magalies study area.

The table summarises the nature of the pilot projects.

Table 2-2 Nature of the Pilot Projects

Pilot Project	Location	Description
Kameelboom	North Mankwe feasibility study area	Pilot project linking infrastructural and institutional development. Infrastructure includes boreholes and associated reticulation to RDP level. Institutional development focuses on capacity building and sustainable management of the water system.
Ga Rasai	Klipvoor feasibility study area	Pilot project linking infrastructural and institutional development. Existing infrastructure is an RDP surface water supply system with a package purification plant. Pilot project infrastructure development involves the installation of a prepaid metering system at RDP standard community standpipes. Institutional development focuses on capacity building and sustainable management of the water system.
Segokgo/ Semohlase	Moretele 2 feasibility study area	Pilot project linking infrastructural and institutional development. Infrastructure development involves the extension of existing surface supply to Semohlase village in the Segokgo area and associated reticulation to RDP level. Institutional development focuses on capacity building and sustainable management of the water system.
Bapong	Brits area	The Bapong pilot has a purely institutional focus, seeking to develop community-based action plans to deal with issues of cost recovery and illegal connections.

Despite differences among them, all four pilots emphasise the link between local planning and management and broader regional area planning and institutional capacity.

2.1.3 Objectives of the Pilot Projects

The pilot projects are an integral part of the overall JICA Magalies Study. Hence they should address the overall aim of building an effective water services sector in the Magalies study area. A broad objective of the pilot projects is to explore, in a practical context, institutional and technical options for water supply in previously unserved or underserved communities. In each case the intention is to establish or reinforce sustainable management structures and systems which will support effective long-term use of the infrastructure developed. In this context, one objective of the pilot projects is to protect and ensure ongoing local benefit from the investment made in water supply infrastructure. From this perspective, the pilots are similar in intention and design to small-scale RDP projects countrywide.

A second broad objective of the pilot projects distinguishes them from RDP initiatives. This is the objective of developing, testing and evaluating innovative institutional development strategies and techniques and of making these available beyond the pilot projects themselves. Thus whilst the pilot projects are based on RDP principles, they differ in details of design and implementation. For example, RDP-type Project Steering Committees have been established in each of the pilot communities. In the RDP context, the PSCs are predominantly instruments for community-based project management. In the JICA study, the PSCs are being deployed as the catalyst for local planning capacity, with full responsibility for designing locally appropriate water management plans, and for negotiating the implementation of these plans.

Specific objectives are the following:

(1) To explore, in a practical context, institutional and technical options for water supply in previously unserved or underserved communities.

(2) To establish sustainable management structures, institutional linkages and systems (including cost recovery) which will support the effective long-term use of the infrastructure developed.

(3) To ensure that the lessons learned are shared to the benefit of the participating communities and stakeholders such as Magalies Water, the District Councils (and Planning Forums), DWAF, and agencies charged with training and capacity building in the water supply context.

2.1.4 Key Features of the Pilot Project Institutional Approach

The approach adopted for the pilot projects has a number of features which address the second objective outlined above:

(1) An emphasis on local planning and the creation of "generative" capacity. The PSCs and the task teams nominated by them have been required to develop water management and operations and maintenance plans. In doing so, they have also had to determine training needs, the nature of capacity building inputs and the manner in which project activities are to be communicated with the affected communities. The assumption is that community-based planning will promote solutions appropriate to local circumstances and capacity, develop a solid understanding of the management tasks and what it takes to implement them, facilitate community buy-in to solutions developed by locals for their community, and from all of these that it will provide a base for sustainability. The process is more complex than typical RDP business planning, but the results may prove more durable.

(2) An emphasis on the development of networks and partnerships. While local planning might be one way of promoting sustainability, another is to ensure that local water management structures make maximum use of support available to them. It is believed that the potential for sustainable management of water systems is considerably improved where there is a working relationship with sources of support and resources outside the community (for example District Councils, Planning Forums, Water Boards, other local authorities and NGOs). Keys to the effectiveness of networks and partnerships are the development of linkages that are identified by local planners, which are informed by local needs, and which have been secured in terms of durable agreements between local bodies and those offering resources and support.

(3) Linked to the above, an emphasis on the development of complementary capacity in Planning Forums, District Councils and in Magalies Water. Activities related to capacity building in these organisations are a part of the Phase 2 institutional programme, but integration between Phases 2 and 3 is an important requirement.

(4) An emphasis on defining, mobilising and sharing best practice. This emphasis is based on the belief that the exchange and use of best practice is an efficient way to build capacity, especially in fast track delivery situations. The pilot projects work with three modes of best practice sharing: inter community (for example taking Ga Rasai PSC members on an inspection tour of the Modderspruit prepayment metering system); between levels of local government (for example PSC reports at Project Execution Forum meetings, where Dis-

trict Councils are also present); and community access to wider best practice resources.

(5) An emphasis on integrative management and problem solving skills. Capacity building and training in the context of RDP projects is often offered in the form of discrete packages. Whilst there is a need for such inputs, the pilot projects also make use of management-based techniques to sharpen local decision making and problem solving ability. This thrust links with the emphasis on local planning, in that decision making and problem solving are seen to provide a sustainable context and support for more specific technical and administrative skills.

(6) An emphasis on ongoing evaluation. All steps in the pilot project programme have an evaluation component which is detailed in the pilot implementation manual. Some of the evaluation is done by the study team, but wherever possible project review includes the PSCs and their communities. An example of community-based review is the series of PSC presentations at meetings of the Project Execution Forum. Such review improves the prospect of sustainability because fatal flaws are identified early, problems that will face future operators and managers are recognised and addressed, and review techniques and practices are entrenched as tools for sustainable management.

2.1.5 Short and Long Term Implications

The institutional strategies outlined above are in response to a particular set of institutional circumstances. In this context, it must be recognised that these strategies are to some extent place-specific, and that they are linked to a particular moment in the evolution of the water-related institutions active in the Magalies Supply Area.

Scenarios for institutional development in the Feasibility Study Areas (which incorporate Kameelboom, Ga Rasai and Segokgo) are included in Volumes 2, 3 and 4 of this final report.

2.2 Selection of Pilot Projects

2.2.1 Policy Guidelines

A number of policy guidelines have informed the pilot project programme. Because of the nature of the programme, some of the guidelines have been difficult to implement. Such difficulties are highlighted below:

(1) Community water supply projects should be demand driven. Since the pilot projects were selected and implemented in the context of a tight schedule, and with specific objectives in mind, they were not fully demand driven. However, actions were taken to ensure that community views were tested (for example in a detailed audit of needs and expectations), and that the selection and implementation process allowed for meaningful community participation.

(2) The provision of basic services should be governed by established RDP standards. The costs of elevated standards will have to be borne by the community. RDP guidelines have been followed in all three projects where infrastructure development has been involved.

(3) Users must pay for the water they consume. Cost recovery is an objective in all pilot projects.

(4) Responsibility for the management of local water supply should reside at third tier level. Building such capacity and capability is a central objective of the pilot programme.

Against this background, the pilot projects have been implemented within a consultative framework incorporating the communities concerned, and the relevant water sector institutions. The latter have included provincial DWAF offices, District Councils, Planning Forums, RDP structures, local authorities and Local Water Committees.

2.2.2 Base for Pilot Project Selection

The Phase 1 Situation Analysis included case study investigations of 30 communities in the Study Area. The pilot projects were selected from this body, and the information collected through the case studies provided material to inform the selection process.

The case-study communities are listed below:

Table 2-3 Case Study Communities

Community	Province/District	Settlement Type	Institutional Circumstances
Kameelpoortnek	Mpumalanga/ Kwamhlanga	Peri-urban	Tribal
Sokhulumi	Mpumalanga/ Kwamhlanga	Rural settlement	Tribal
Tweefontein E	Mpumalanga/ Kwamhlanga	Peri-urban	Community authority
Tweefontein N	Mpumalanga/ Kwamhlanga	Peri-urban	Tribal
Pieterskraal B	Mpumalanga/ KwaMhalanga	Rural settlement	Tribal
Boekenhouthoek	Mpumalanga/ Mkobola	Peri-urban	Magistrate
Vlaklaagte 1	Mpumalanga/ Mkobola	Peri-urban	Tribal
Segokgo	Mpumalanga/ Moretele 2	Rural settlement	Magistrate
Zamenkomst	Mpumalanga/ Moutse 1	Peri-urban	Tribal
Elandsdoorn	Mpumalanga/ Moutse 3	Peri-urban	Tribal
Luka	North West/ Bafokeng	Peri-urban	Tribal
Robega	North West/ Bafokeng	Peri-urban	Tribal
Molote City	North West/ Koster	Rural settlement	Tribal
Kameelboom	North West/ Mankwe	Rural settlement	Community authority
Disake	North West/ Mankwe	Rural settlement	Tribal
Mokgalwaneng	North West/ Mankwe	Peri-urban	Tribal
Mothlabe	North West/ Mankwe	Rural settlement	Tribal
Sandfontein	North West/ Mankwe	Peri-urban	Tribal
Mabele-a-Podi	North West/ Mankwe	Rural settlement	Tribal
Ledig	North West/ Mankwe	Peri-urban	Tribal
Ramokokstad	North West/ Mankwe	Rural settlement	Tribal
Norokie	North West/ Moretele 1	Rural settlement	Tribal
Makapanstad	North West/ Moretele 1	Rural settlement	Community authority
Sekampaneng	North West/ Moretele 1	Rural settlement	Magistrate
Ramotse	North West/ Moretele 1	Peri-urban	Tribal
Ga-Rasai	North West/ Odi 1	Rural settlement	Community authority
Centerville	North West/ Odi 1	Rural settlement	Tribal
Klipgat	North West/ Odi 1	Peri-urban	Magistrate
Berseba	North West/ Odi 2	Rural settlement	Tribal
Bapong	North West/ Odi 2	Peri-urban	Tribal

2.2.3 Selection Criteria

A variety of scenarios combining infrastructural and institutional development defined the range of pilot project options. These options are outlined below:

Table 2-4 Pilot Project Options

Infrastructural Development	Institutional Development
Installation of new local water scheme based on surface water	Plan reinforcement of existing local water management structures
Installation of new local water scheme based on groundwater	Plan reinforcement of existing local water management structures
Upgrade of existing water scheme based on surface water	Plan reinforcement of existing local water management structures
Upgrade of existing water scheme based on groundwater	Plan reinforcement of existing local water management structures
Installation of new local water scheme based on surface water	Plan establishment of new or expanded water structures
Installation of new local water scheme based on groundwater	Plan establishment of new or expanded water structures
Upgrade of existing water scheme based on surface water	Plan establishment of new or expanded water structures
Upgrade of existing water scheme based on groundwater	Plan establishment of new or expanded water structures

Against the background of the options listed above, the following criteria guided the selection of the pilot projects:

(1) Access to a surface water source that can be developed without major infrastructural investment (for example proximity to an existing pipeline). This criterion was applied to options where a new local water scheme based on surface water was considered.

(2) Access to viable proven groundwater sources. This was applied to options where a new local water scheme based on groundwater was considered.

(3) Circumstances where the upgrading of local reticulation, or the supplementation of existing resources were likely to make a significant difference to the quality of life of residents. This applied to both the surface water and groundwater upgrading options.

(4) Demonstrable need for local water development and at least an expression of demand on the part of the communities concerned.

(5) A viable base for institutional and organisational development around local water supply. The existence of local water management bodies was a recommendation but not necessarily a precondition. However, due to the relatively short implementation period, it was considered unwise to initiate pilot projects in communities where local organisation is absent, or is in a state of conflict.

(6) Absence of conditions likely to seriously impede or block willingness to pay for water. Again, because of the short implementation period, it was considered risky to tackle pilot projects in communities where the promotion of a system of cost recovery seemed likely to involve lengthy negotiations.

(7) The selected pilot studies must reflect a variety of settlement circumstances and institutional contexts, and must be spread across the study area.

2.2.4 Pilot Project Selection Process

The process for pilot project selection proceeded as follows:

(1) Seven candidate projects were identified according to the criteria. These are listed in the table below:

Table 2-5 Pilot Project Short List

Priority	Project Name	Infrastructure Devt.	Institution Devt.
	Kameelboom	Need	Need
	Segokgo	Need	Need
	Ga Rasai	Upgrading	Need
4	Tweefontein N	Need	Need
5	Klipvoor	Exist	Need
6	Bapong	Exist	Need
7	Tweefontein E	Exist	Need

(2) The pilot project shortlist was discussed with stakeholders (individually and in the context of the Project Execution Forum), allowing additions and deletions.

(3) Communities on the final shortlist were visited, to assess circumstances on the ground and to prepare communication channels with communities.

(4) Based on stakeholder and community consultations, the final selection of pilot projects was made. The four pilots selected included priorities 1-3, and Bapong which was originally listed as priority 6. The Bapong pilot was selected specifically because it posed the institutional challenges addressed in criteria 5 and 6 (local government and organisations in a state of flux, and evidence of resistance to payment for water).

(5) Detailed discussions with the communities concerned led to the implementation of the pilot projects. Implementation is discussed in detail in Chapters 4 and 5.

2.2.5 Constraints and Lessons

The pilot project selection process was designed to be systematic and consultative. However, due to the scheduling demands of the programme and the need to select projects according to defined criteria, a significant element of top-down delivery was unavoidable.
This had implications which are listed in the table below:

Table 2-6 Pilot Project Constraints and Lessons

Project	Constraints and Lessons
Kameelboom	The pilot project selection process, the element of top-down delivery and the speed of implementation have worked in the favour of the Kameelboom community. This is largely attributable to organised community structures, and to intensive consultation. Contributory factors are the external management support provided by the Rustenburg District Council, the fact that the RDC Councillor resides in Kameelboom, the Village Level Committee representative resides in the community, land is privately owned and there is a high awareness of resource management, and community structures had previously initiated and managed local development projects. The key lesson is that fast track delivery is possible if the community organisational infrastructure is available to absorb it, if the local experience base includes an awareness of development and its management, and if a significant investment in consultation and capacity building is made.
Ga Rasai	Fast-track implementation led to some confusion around the formation of the Local Project Steering Committee. In forming the LPSC, the Community Authority originally excluded the Local Water Committee, which caused time-wasting conflict. The approach also posed a particular challenge to the Study Team, which had to balance the pilot project objectives with emerging local expectations. Lessons for fast-track implementation are that procedural matters must be clearly defined and

Project	Constraints and Lessons
	actively guided, and that previously unrecognised expectations should be expected to emerge. The resourcing implication is that quick delivery requires significant input by social and developmental facilitators if it is to succeed. For RDP projects, the resources available for "soft" issues should perhaps be increased as implementation schedules are reduced.
Segokgo	Similar to Ga Rasai. Time to fully understand local and regional institutional contexts might have saved time in the longer term.
Bapong	Due to complex local political dynamics, the quick implementation of the pilot project proved difficult in Bapong. Satisfactory conclusion of the pilot project requires more time than the pilot programme allows. Lesson: Fast track implementation cannot be applied unselectively. Some circumstances will require an extended implementation schedule.

2.3 Pilot Project Action Plan

2.3.1 Context and Challenges

Since they are not full infrastructural development projects, the pilot projects have some limitations:

(1) The budget is limited. This has meant that infrastructural work has had to be prioritised in each community. Further development will have to be mobilised by the communities themselves. The emphasis on local development planning should assist in this regard.

(2) Implementation time is limited. JICA grant funding has been made available over a period of two years. Within this time frame, the pilot projects have had to be launched and completed in approximately eight months.

In this context, detailed action plans were developed for each of the pilot projects. The action plans were designed as a means to direct and monitor pilot project implementation, and also to clearly define the actions possible over the eight months of implementation.

2.3.2 Action Plan Rationale

The steps in the pilot project action plan are outlined below. These refer particularly to Kameelboom, Ga Rasai and Segokgo. The Bapong action plan shares some of the principles, but has a different emphasis. The Bapong plan is discussed in detail in Section 2.3.4. The action plan takes cognisance of the capacity building guidelines developed by DWAF, but with a particular focus on participative planning:

(1) LPSC empowerment and awareness building. This was designed to ensure that the LPSCs are firmly in place, have the necessary mandate, and have an awareness of water management issues and the likely management demands of the proposed infrastructure development. An essential component of awareness building is the development of a thorough understanding of the technical and operational characteristic of existing and planned water supply systems.

(2) Capacity building and confirmation of linkages. In this step the LPSCs debated and agreed internal roles, and formulated communication and capacity building plans. A balance between internal and external capacity was pursued, and LPSCs investigated and developed relationships with organisations able to assist them with human resources capacity, skills, or financial resources. Wherever possible, linkages were formally confirmed. It was considered to be vitally important that in-principle agreement on post-handover roles and responsibilities were reached as soon as possible.

(3) Water management and O&M planning. This set of tasks entailed the formulation of terms of reference for planning task teams, the mobilisation of the task teams, and specialist assistance to task teams in the form of inputs on best practice, tariff setting procedures, financial management and organisational development. The product for each community was a "management plan" incorporating a water management plan (including the management of cost recovery); and an O&M plan. The management plans are working documents, serving as a manual for the local water services managers, and as an agreement between the various role players involved.

(4) Strategic research. This was research which assisted the task teams with their planning.

(5) Management and technical training. On the basis of their planning the task teams determined training needs, and outlined terms of reference for administrative and O&M training. The Study Team assisted with the identification of training providers, and training was undertaken. The LPSCs identified trainees according to the requirements of the water management and O&M plans.

(6) Operationalising planning. This step is current, and involves the implementation of the water management and O&M plans. Linkages with external agencies which have agreed to play management or support roles will be formally secured during the operationalisation phase.

(7) Best practice sharing. This has taken place throughout the pilot project programme.

2.3.3 Detailed Programmes for Kameelboom, Ga Rasai and Segokgo

A more detailed description of the steps in the action plan is contained in Table 2-7 below. Study Team and Stakeholder roles are outlined, and ongoing internal monitoring and evaluation tasks described. Figure 2-1 illustrates the LPSC institutional development process:

Table 2-7 Detailed Pilot Project Action Plan for Infrastructural/Institutional Projects

Code	Task Description	Study Team Roles	Stakeholder Roles	Monitoring and Evaluation
1.	**PROVISION OF WATER SERVICES INFRASTRUCTURE**			
1.1	**Preparation of technical and institutional briefing document, with outline PSC terms of reference.**	Led by the institutional team, with information from the technical and financial teams.	Copies to District Councils and MW, for information and to guide involvement.	Test effectiveness of communication.
1.2	**Technical briefings for LPSCs. Ongoing process throughout Phase 3.**	Led by institutional and financial team, assisted by technical team.	Support bodies like MW and DC s to participate in some of the technical briefings.	Test quality of communication with participants, and also in terms of the growing effectiveness of the PSC
1.3	**Preparation of tender documents**	Study Team task.	Copies of tender documents to stakeholders.	
1.4	**Study team review of tender documents with LPSC.**	Institutional and technical teams facilitate this process.	Support if necessary.	Test quality of communication with participants.
1.5	**Call for tenders**	Technical team.		
1.6	**Study team appraisal of tenders and discussion with LPSC. PSC briefing meetings and meeting with JICA team to discuss appraisal methods and outcomes.**	Preparation and circulation of PSC briefing document. See Annex A.2. Institutional and technical teams to assist with communication to PSC.	Briefing document to stakeholders for information.	Understanding and acceptance of appraisal and selection is important. Follow up if necessary.
1.7	**Award contract.**	Technical team.		
1.8	**Initiate construction and supervise.**	Technical team (engineer).	Report progress to the bodies likely to oversee the projects after transfer (DC, MW).	Monitor PSC access to and communication with the contractor and the engineer.
1.9	**Testing of works.**	Technical team, assisted by O&M trainees	DC, MW get feedback.	

Code	Task Description	Study Team Roles	Stakeholder Roles	Monitoring and Evaluation
1.10	**Training of O&M staff by contractor. See 4.5 below.**	Technical team to assist with formulating curriculum and evaluation criteria, institutional team to assist PSC to implement/manage training.	Use MW and DC s in training if suitable. Also involve MW and DC counterparts if possible.	See training notes below.
1.11	**Commission facilities**	Technical team.		
2.	**LPSC EMPOWERMENT AND AWARENESS BUILDING**			
2.1	**Briefing document (see 1.1 above)**	See above.	See above.	See above.
2.2	**Finalisation of LPSC structures.**	PSC-led, facilitated by the institutional task team.	Assistance from DC where appropriate. Consistent local government involvement is critical.	Continuous monitoring ofthe effectiveness of the PSC. Take action if internal or external dynamics threaten effectiveness.
2.3	**Awareness building workshops with LPSCs and communities.**	Facilitated by the institutional and financial teams.	Assistance from DC, MW and other actors where needed.	Test levels of awareness through observation, and through PSC and community self reporting
3.	**CAPACITY BUILDING AND CONFIRMATION OF LINKAGES**			
3.1	**LPSC communication strategy and agreement of roles.**	PSC-led, facilitated by institutional team.	Assistance from DC, MW and other relevant actors.	Test communication strategy with PSC by formulating communication objectives and seeing whether these will be met.
3.2	**Formulation of LPSC capacity building plan.**	PSC-led, facilitated by institutional team.	Assistance as above.	Key tests relate to viability and likely impact.
3.3	**Formulation and implementation of LPSC institutional linkages plan. Obtain in-principle hand-over agreements with Services Authority and likely Services Providers. See 7.3.**	PSC-led, facilitated by institutional team.	Assistance of DC, MW and other relevant actors.	Criterion of success is the establishment of durable and effective relationships

Code	Task Description	Study Team Roles	Stakeholder Roles	Monitoring and Evaluation
4.	**DEVELOPMENT OF BUSINESS PLAN FOR WATER MANAGEMENT AND O&M SYSTEMS**			
4.1	**Terms of reference for the formulation of a local water management plan.**	PSC assisted by the institutional and financial teams.	TOR informed by best practice gathered elsewhere (see 4.6). Stakeholders will be approached to provide material on cost recovery and financial management.	TOR must provide a clear brief to PSC task team which is to develop a local water management plan. If the PSC finds operationalising the TOR difficult, they might be too complex.
4.2	**Selection and operationalisation of water management task team.**	Task team selected and led by the PSC. Facilitation by the institutional and financial teams.	Membership of task team if required. DC membership is highly desirable.	The task team must incorporate the necessary skills, and must be small enough to operate effectively. It is first and foremost a working group. Monitor the ability of the task team to produce according to objectives.
4.3	**Terms of reference for the formulation of a local operations and maintenance plan.**	PSC assisted by the institutional and technical teams.	TOR informed by best practice gathered elsewhere (see 4.6). Stakeholders will be approached to provide material on operations and maintenance management.	TOR must provide a clear brief to PSC task team which is to develop a local O&M plan. If the PSC finds operationalising the TOR difficult, they might be too complex.
4.4	**Selection and operationalisation of O&M task team.**	PSC-led, assisted by the institutional and technical teams.	Membership of task team if required.	The task team must incorporate the necessary skills, and must be small enough to operate effectively. It is first and foremost a working group.
4.5	**Preparation of O&M manual by contractors.**	Monitored and facilitated by the institutional and technical teams.	Review of manual contents and style by stakeholders as required.	The manual must be easy to use and relevant to the local situation.
4.6	**Collection of information on best practice.**	Institutional team assisted by technical and financial teams.	Stakeholders to provide examples of best practice in their areas of jurisdiction. Organisations that have conducted studies will be contacted.	The study team must edit and summarise the information collected to make it suitable for PSC use. The extent to which it is used will be an indicator of its relevance

Code	Task Description	Study Team Roles	Stakeholder Roles	Monitoring and Evaluation
4.7	**Assistance to water management task team on tariff setting procedures and financial management.**	Facilitated by the institutional team. Training module and instruction to be overseen by financial team. Best practice is relevant in this context.	MW and DWAF assistance may be useful here	Understanding of tariff setting and the ability to formulate tariffs the test of effective communication.
4.8	**Assistance to water management task team on organisational development and organisational procedure.**	Facilitated by the institutional team. The organisational development expert will play a key role here, and should assist in the development of a training module.	DWAF ISD to play an important support role here, especially in terms of policy implementation.	Viability and likely effectiveness of organisational plan developed by the PSC a test of understanding.
5.	**STRATEGIC RESEARCH**			
5.1	**Additional community-based research as needed.**	PSC assisted by the institutional and financial teams.	Involve DC counterparts in research, to build awareness and skills.	Strategic research may be required to facilitate and inform pilot project implementation. Check whether it does so.
6.	**MANAGEMENT AND TECHNICAL TRAINING**			
6.1	**Determination of management and training needs by water management task team.**	PSC-led, facilitated by the institutional team, supported by relevant experts.	Discuss with DWAF ISD re guidelines and approaches. Also discuss with MW and DC.	The identified training needs must give focus to an appropriate training response.
6.2	**Technical training needs determined by the O&M task team.**	PSC-led, facilitated by the institutional team, supported by the technical/engineering team and relevant experts.	Discuss with DWAF ISD and Operations. Also with MW and DC.	As above.
6.3	**Development of TOR for management and administrative training.**	PSC-led, facilitated by institutional team and relevant experts.	Discuss with DWAF ISD re guidelines and approaches. Also discuss with MW and DC.	Good TOR must provide focus and must be implementable by the PSC.
6.4	**Development of TOR for O&M training.**	PSC-led, facilitated by the institutional team, supported by the techni cal/engineering team andrelevant experts.	Discuss with DWAF ISD and Operations. Also with MW and DC. Look also at work done by the O&M training institute in Pietersburg.	As above.
6.5	**Identify and recruit management/administrative training providers.**	PSC supported by the institutional team.	Discuss with DWAF ISD.	Track record of training providers is important, as is willingness to work closely with trainees and PSC.

Code	Task Description	Study Team Roles	Stakeholder Roles	Monitoring and Evaluation
6.6	**Identify and recruit O&M training providers.**	PSC supported by the institutional team.	Discuss with DWAF ISD and Operations.	As above.
6.7	**Identify trainees and commence training (management and administration).**	PSC-led, supported by institutional team and selected training provider (if appropriate).	Consult with DWAF, MW, and DC to identify counterparts who might benefit from the training.	PSC to monitor training with the assistance of ST and possibly external review.
6.8	**Identify trainees and commence training (operations and maintenance).**	PSC-led, supported by institutional team (assisted by technical team) and selected training provider (if appropriate).	Consult with DWAF, MW, and DC to identify counterparts who might benefit from the training.	PSC to monitor training with the assistance of ST and possibly external review.
7.	**OPERATIONALISE BUSINESS PLAN**			
7.1	**Obtain community mandate to install water management system.**	Local government and PSC assisted by institutional team.	MW and or DC might be a part of the proposed management system. Important to involve them in any scenario.	Monitoring in a later phase (see 7.4).
7.2	**Obtain community mandate to install O&M system.**	Local government and PSC assisted by institutional team.	MW and or DC might be a part of the proposed O&M system. Important to involve them in any scenario.	Monitoring in a later phase (see 7.4)
7.3	**Confirm linkages and post handover responsibilities - Services Authority and identified Services Provider.**	Local government, PSC, assisted by the institutional team.	Follows from 3.3	Monitoring later (see 7.4)
7.4	**Agree and implement a monitoring process.**	Services Authority, Services Provider, assisted by the institutional team.	Must consult with DWAF, MW and DC. DWAF currently doing a lot of work on monitoring and evaluation	
8.	**SHARING BEST PRACTICE**			
8.1	**First best practice workshop and pilot project report back.**	PSC, institutional team and Project Execution Group (PEG).	All stakeholders will be involved through the Project Execution Forum.	Get participants to evaluate the workshop.
8.2	**Second best practice workshop and report back.**	Institutional team and Project Execution Group (PEG).	All stakeholders will be involved through the Project Execution Forum.	Get participants to evaluate the workshop.

Due to time constraints and local circumstances, tasks have not in every case been completed according to the detailed action plan (see Section 2.3.5). However, in all three pilot projects, the thrust of the plan has been followed. Gantt charts showing the planned timing of tasks are in the Annex B.1.

2.3.4 Action Plan for Bapong

As first conceived, the Bapong project had the broad objective of facilitating the design and implementation of action plans to improve cost recovery levels and to regulate illegal connections. The project design was based on the same participatory planning principles as the other pilots. For reasons outlined in Section 4.6, the project has not proceeded as planned. The proposed elements of the project are listed below. Despite the disappointing outcome of the pilot to date, this programme may prove useful in future:

Table 2-8 Proposed Work Programme - Bapong

Process Step	Progress	Approach and Method	Programme Ahead
Establish relationships.	Several meetings have been held with stakeholders outside and within Bapong. Meetings with Rand Water and Eastern District Council have been very constructive, but internal meetings have been poorly attended.	The envisaged approach is to make early contact with key stakeholders in Bapong, possibly through local contacts. This cautious approach is necessary because of the unsettled and volatile nature of Bapong.	This part of the Bapong programme was scheduled to be completed in June.
Awareness building	Progress on this task is limited. Awareness building in the community has only been possible through the limited contacts made so far.	The envisaged approach is to meet with community-based groups in Bapong, and to discuss the proposed pilot programme and its objectives. The planned outcome of these meetings is endorsement of the project, and a commitment to supporting it. If these meetings suggest a change in the proposed programme, this will have to be considered.	Scheduled for completion by mid-July.
Community workshops and strategic planning.	One community meeting to date.	The proposed approach has several steps: *Formation of a Representative Forum (RF) *First RF workshop agrees programme and	Due to be completed by the end of August.

Process Step	Progress	Approach and Method	Programme Ahead
		elects a task team *Task team embarks on a strategic planning process by investigating obstacles and opportunities	
		*Second RF workshop considers TT feedback, and works though a process which defines the water management challenges in Bapong. Also mandates the task team proceed with its work. *TT formulates strategies to address the identified management problems	
Strategy testing.	No progress to date.	*TT tests strategy proposals with local stakeholders *TT presents proposals to RF, and roles and responsibilities are agreed *TT prepares an action plan	Due to be completed by the end of September.
Reporting and strategy implementation.	No progress to date.	*Agreed local agents implement action plan. This implementation will be difficult if the present local authority vacuum persists (see discussion below).	Due to be completed by the end of October.

The details of difficulties encountered on the Bapong pilot are presented in Section 4.6.

2.3.5 Evaluation of Action Plan Implementation

It has been argued that detailed implementation plans are necessary for fast-track projects. However, such plans will seldom proceed entirely as planned in the complex and dynamic circumstances of communities. The following are issues that have arisen around action plan implementation:

(1) The fixed schedules posed problems when issues had to be discussed in detail by the PSCs, for example the finalisation of technical designs and the appointment of the main contractor.

(2) Ensuring that institutional development kept pace with infrastructural development was a challenge.

(3) The interactive approach adopted for the pilot projects required a substantial commitment of time by the LPSC and the members of the task teams. This presented difficulties on some occasions. For example, LPSC and task team meetings sometimes clashed with oth-

er community activities. In the case of women participating in LPSC or task team activities, the meetings scheduled in terms of the project plan were difficult to accommodate in busy household programmes. The broad lesson is that time consuming voluntary processes have to recognise the time available to the people involved, and that they have to be flexible.

(4) Sustaining the motivation and commitment of LPSC members was a challenge in GaRasai and Segokgo. In the former, the chairman was somewhat passive, and difficulties over membership tended to dull enthusiasm (see Section 4.2.3). In the case of the latter, LPSC members from Segokgo and Loding were not directly involved in the Semohlase project, and hence may have lost interest to some degree (see Section 4.2.3).

(5) Action plans had to be flexible to deal with emerging issues and in some cases conflict.

2.4 Targets of the Pilot Projects and Contribution

2.4.1 Background

The pilot projects are based on a number of objectives. These can be expressed the form of targets. The targets are more specific, making assessment of the contribution of the pilot projects concrete. The following targets are discussed in this section:

(1) Improved water services in the three infrastructural pilot projects. The selection criteria required pilots where water supply infrastructure was inadequate or non-existent.

(2) The implementation of community-based planning processes and the successful conclusion of a water management planning programme based on the process.

(3) The production of viable and locally appropriate management plans and the implementation of effective and sustainable operational structures based on these.

(4) The development and formalisation of support linkages that are appropriate to the water management needs of the communities, and which will provide reliable support.

(5) The mobilisation and effective use of best practice sharing.

(6) The implementation and effective use of monitoring and evaluation procedures.

(7) The development of effective and locally acceptable cost recovery systems, and sustainable and universal cost recovery.

(8) The installation of sustainable water management in the pilot project communities.

2.4.2 Contribution

The table outlines the contribution made by the pilot project programme in each target area.

Table 2-9 Contribution of Pilot Projects

Target	Contribution
Improved water services	Water services have been dramatically improved in all three infrastructural pilots. The real benefits remain to be tested, however. These will depend in the longer term on effective and sustainable management.
Community based planning	Community-based planning processes have been introduced and followed through in the three infrastructural projects. The project has been successful in this regard, but implementation has yet to show whether the plans have produced workable outputs.
Viable management plans and structures	The plans are complete and the structures are in place. Community involvement in planning should ensure local suitability and hence viability. The latter remains to be tested.
Development of support linkages	Linkages (with the District Councils and Magalies Water) have been identified, negotiated and in some cases secured. Benefits are already evident in some cases (for example in Ga Rasai, where MW has provided technical assistance. The benefits must be tested in the long term.
Best practice sharing	Best practice sharing has been achieved to some extent. Best practices have been shared with and among pilots, but not in a particularly systematic manner. Benefits evident in some cases (e.g. the Ga Rasai visit to Moddersprui) but remain to be tested long term. BPS has more potential than the pilot projects have realised.
Monitoring and evaluation	Routine monitoring and evaluation has been established, and community participation in M&E has been encouraged. However, the bulk of the M&E remains to be done after project implementation. M&E links closely with best practice sharing, so the success of the one will contribute to the success of the other.
Cost recovery	Commitment to cost recovery has been secured in the three infrastructural pilots, and cost recovery systems are in place. Implementation is due shortly, when it will be established whether commitment translates into action. Cost recovery is under threat in Semohlase/Segokgo, for reasons discussed in Section 4.5.
Sustainable water managment	Remains to be tested.

2.5 Sustainability Issues

2.5.1 Challenge

Perhaps the greatest challenge faced by RDP-style mass water project implementation is that of ensuring sustainability. The factors determining sustainability are complex and the subject of debate. However, for the purposes of the pilot programme, a number of sustainability propositions have been generated for ongoing testing. These are discussed below.

2.5.2 Testing Sustainability Indicators

The following table lists the propositions tested. In a number of cases there is no conclusive result, but early signals are emerging.

Table 2-10 Sustainability Propositions Tested

	Proposition	Notes on Evaluation
1.	Quick delivery and sustainability are not incompatible.	This is an assumption of the JICA project. It is expected that intensive capacity building and community-based planning will mitigate the effects of rapid implementation. Untested at present.
2.	Capacity building and sustainability are closely linked. Threshold capacity in the following is necessary for sustainability: * technical skills * administrative skills * governance skills * conflict resolution ability * public health awareness * project man date/support/awareness * financing systems * community wealth/poverty * support infrastructure (Refer L Abrams; "Threshold Concept"; November 1996)	The pilot projects will test this proposition in a negative way, since the full spectrum is not present in any of the pilot communities. However, early evidence has underscored the importance of technical skills (system failures in Ga Rasai); administrative skills (cost recovery failures in Ga Rasai); conflict resolution ability (LPSC breakdown in Ga Rasai and Segokgo); mandate (questioned in Ga Rasai); and support infrastructure (all pilots).
3.	Certain elements of capacity will "drive" others. * local planning capacity is a key driver * project support/awareness and support infrastructure may be others	The pilot project approach is based on this proposition. Early evidence that it might be valid comes from Kameelboom, where the LPSC has undertaken other water initiatives.

	Proposition	Notes on Evaluation
4.	The effectiveness of capacity building is related to the process in which CB is placed. Process issues influencing sustainability are: * the degree to which community actors are involved in planning and mobilising capacity build ing actions * appropriate selection and priori tisation of drivers and multipli ers (see 3 above)	This is difficult to test conclusively without a control project/community. Discuss with DWAF (ISD).
5.	Community-based development of water management and O&M strategies and systems promotes: * solutions appropriate to local circumstances and capacity * a solid understanding of the management tasks, and what it takes to implement them * buy-in to solutions developed by locals for their community * sustainability	It is already evident that community-based development of water management has promoted an understanding of the management tasks. This understanding is expressed in the management plans. Other propositions remain to be substantiated.
6.	Sustainable management of water systems depends on the effective deployment and use of support and resources outside the community (e.g. District Councils, Area Planning Forums, Water Boards, NGOs, other communities). Keys to effectiveness are: * the development of networks and linkages that are identified and driven from below * securing commitment and a du rable relationship with those of fering support and resources (variety of options)	Difficult to test without control community/ communities (talk to ISD). However, support from Magalies Water has already made the Ga Rasai system more reliable.
7.	Whilst capacity building and institutional development are often undertaken to support and sustain a physical system, the installation of the system can itself be a catalyst to capacity building through: * on the ground exposure of fu ture operators/ managers to the technical characteristics of the system * appropriate phasing of physical work and capacity building - especially to provide a con crete and evolving object for the capacity building	Early evidence suggests that this proposition is valid. Linking the installation of the physical system to planning and training has made these tasks more real.

	Proposition	Notes on Evaluation
8.	Best practice sharing is an important and effective capacity building tool, especially in fast track delivery situations. There are at least three modes of best practice sharing: * inter community sharing (e.g. in an area context) * community- extra community sharing (e.g. District Councils and communities) * community access to wider best practice resources (e.g. international experience) Effectiveness will depend on: * pertinence and accessibility of examples * timing in the capacity building process * credibility of those delivering the best practice examples	Best practice should be tested against other forms of technology and skills transfer. Measures are objective (how well is the job done after sharing) and subjective (ask participants whether this is a good way to learn). Subjective reports from pilot project participants suggest that BPS is regarded as a good way to learn.
9.	Periodic review of the project with and by the community involved improves the prospect of sustainability because: * fatal flaws are identified early * the flaws that are important to future operators and managers are identified * review techniques and processes are developed and entrenched as tools for sustainable management	Flaws have been reported in some cases. It remains to be seen whether informal review and reporting will continue after the departure of the Study Team.
10.	The review and evaluation process should employ both indicator-driven and qualitative/intuitive approaches. The former is rigorous and replicable, the latter is more likely to deal with perceptions, relationships and the local development "climate".	Not tested so far.