

**CHAPTER 3**  
**INFRASTRUCTURE DEVELOPMENT**

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## **CHAPTER 3 INFRASTRUCTURE DEVELOPMENT**

### **3.1 Outline of the Infrastructure**

#### **3.1.1 General**

The locations of the four pilot project communities Kameelboom, Ga Rasai, Segokgo and Bapong are shown on the Location Map. One community was selected in each of the three Feasibility Study Areas and a fourth community was selected to enable institutional aspects associated with unauthorised connections and cost recovery to be investigated further.

Aerial photography and mapping work for three of the pilot project areas (all except Bapong) was conducted by the company Aermap. Maps with a scale 1 to 2000 were used to prepare the detailed design for these project areas and to confirm the exact number of houses in each community. The total area mapped was 1450ha.

#### **3.1.2 Kameelboom**

##### **(1) Background**

Kameelboom Agricultural Holdings is a rural settlement with a population of around 2000 comprising three well-defined small villages with a few scattered houses in between. The three villages: Kameelboom (the southwestern village), Mphonyoke (the southeastern village) and Ramoshibitswana (the northern village) are shown in Drawing 1. The community is situated in Mankwe District north of the Pilanesberg Mountains. The major local economic activity is agriculture but many residents commute to jobs in and around Rustenburg. Kameelboom falls within the area of jurisdiction of Rustenburg District Council and is one of fourteen communities within Zone 2, which is represented by one Councillor on the DC. Local leadership is well organised and keen to deliver.

Before the start of the pilot project water supply was restricted to groundwater which was of poor quality and the lack of a reticulation system resulted in long cartage distances for some residents. The pilot project in Kameelboom comprised the provision of assistance with strengthening and deployment of local organisational resources and with the construction of a borehole based reticulation system to RDP standard. An over-riding objective was to assist with the establishment of a sustainable water management structure and system.

(2) Test pumping for existing and newly constructed boreholes.

Specifications for the drilling of boreholes and for pump testing were prepared by the Study Team based on local practice and in consultation with local consultants.

Test pumping work was undertaken by the AB Pump and Irrigation Company and commenced work in the middle of March. In total 10 holes were pump tested and checked with respect to water quality; these included 5 new boreholes which were constructed under a separate contract.

The priority of the work and decisions concerning likely suitable groundwater sources for each community were guided by the Study Team due to the tight schedule of planning work for the pilot projects.

(3) Siting and drilling of new boreholes

Prior to commencing the drilling work, an investigation was conducted to determine suitable drilling sites by means of the electricity resistance method. This work proceeded in parallel with the test pumping. Five sites were recommended for borehole drilling in the Kameelboom Pilot Project Area.

(4) Field survey

A field survey consisting of an engineering and socio-economic inventory survey was carried out. The data collected was studied and analysed as part of the project formulation. The items included in the surveys were as follows:

(a) Socio-economic-

- current water supply and sanitation status
- major economic activity
- village organisational dynamics
- water source
- water facilities
- household age distribution
- household gender distribution
- status of household head
- occupations
- residential status
- family type

- household size
- house type
- tenure
- incomes
- incidence of water borne disease
- household water supply
- willingness to pay - amount
- reasons for lack of willingness
- participation in community organisations
- sanitation facilities
- water quality (perceived)
- value of water

**(b) Engineering-**

- household statistics (size, age, gender, place of residence)
- household economic status (employment, income)
- water demand
- water sources
- water supply problems
- water quality and health
- policy issues
- water expenditure and level of service
- mobility

**(5) Population and water demand projection**

The present population was confirmed from the inventory survey and the exact number of houses was confirmed using the aerial mapping. Comparing current photography with ortho-photos from ten years ago, very few, if any, new house can be seen. Therefore, the assumption made for the Feasibility Study that there is no population growth in this area was confirmed. Population and water demand projections for the pilot project were estimated taking into account the results of the inventory survey and findings on the affordability and willingness to pay for water as well as appropriate levels of service.

The expected service level by the year 2015 will be Rural Low. "Rural Low" was defined in Phase 1 as 80% of the community being serviced to the RDP level of service (with a street tap within 200m maximum walking distance), 15% by yard

connections and the remaining 5% making use of house connections. The per capita demand for a house connection was taken as 120 lcd, the yard tap demand as 70 lcd and the street tap demand as 30 lcd. Allowing for 15% system losses, the design demand (AADD) on the source was 46.6 lcd for the Rural Low level of service.

At the Kameelboom LPSC meeting on 6 March 1997 the representatives indicated that an RDP level would be sufficient. One person however raised the question on the possibility of getting a yard connection, which confirms that there may possibly be demand for a higher level of service now or in future. The data from the field survey confirmed that a Rural Low level of service is the appropriate design level of supply.

The Rural Low level of service was used to determine the water demand for sizing those elements of the infrastructure that can relatively easy be expanded in future (pumps and service reservoirs) while the reticulation system and water mains to supply the service reservoir were designed for a higher level of service corresponding to an average per capita consumption of 80 lcd.

In line with the findings of the inventory survey the following design parameters were used for the design of water supply systems in these villages:

**Table 3-1 Design Parameters for Kameelboom Pilot Project**

Town	Population	AADD (kl/day) @80 lcd	AADD (kl/day) @46.6 lcd	Network Demand (l/s)	Reservoir Capacity (kl)	Pump Capacity (l/s)
Kameelboom	520	41.60	24.23	2.17	48	0.84
Mphonyoke	468	37.44	21.81	1.95	43.6	0.76
Ramoshibitswana	255	20.00	11.88	1.06	24	0.41
<b>Total</b>	<b>1,243</b>	<b>99.44</b>	<b>57.92</b>	<b>5.18</b>	<b>115.6</b>	<b>2.01</b>

**(6) Design of infrastructure**

Infrastructure was designed based on established design criteria, the water demand projection, site surveys and after close consultation with local counterpart personnel.

A layout plan of infrastructure for each of the three communities was developed based on the field survey, the LPSC meeting and analysis related to the project formulation.

Layout plans showing the reticulation systems, Drawings 2,3,4 and 5 are attached.

The proposed infrastructure can be summarised as follows:

(a) Kameelboom	Pumpset and pumping main:	1 set
	Elevated tank :	43.5 kl
	Reticulation :	110dia - 63dia x 6,678m
	Street taps :	12 No.
(b) Mphonyoke	Pumpset and pump main :	2 sets
	Elevated tank :	36 kl + 12 kl
	Reticulation :	90dia - 63dia x 6,938m
	Street taps :	17 No.
(c) Ramoshibitswana	Pumpset and pumping main :	1 set
	Elevated tank :	24 kl
	Reticulation :	63dia x 2,554m
	Street taps :	7 No.

### 3.1.3 Ga Rasai

#### (1) Background

Ga Rasai is a small village of around 600 residents in Odi 1 District, close to Klipvoor Dam. Economic activities are mixed, with involvement in both local agriculture and small businesses, and labour migration to the larger urban centres. The village has a new local authority, and local development structures (LRDC and Local Water Committee).

Surface water infrastructure has recently been installed to RDP standard under a scheme for which DWAF was the implementing agent. The project utilises surface water abstracted from the Moretele River using a submersible pump and comprise a raw water main to a storage tank, a small package water treatment works, treated water storage in elevated tanks and 19 communal standpipes. The Mvula Trust supported a sanitation programme in the area and VIP latrines have been installed.

Against this background, the pilot project sought to assist local structures to identify needs with reference to the operation and maintenance of the newly introduced surface water supply scheme. Further, the pilot project assisted with the demarcation of roles and the implementation of a sustainable management structure and system. The possibility of piloting the institutional aspects of a standpipe system operated by tokens as a means of improving cost recovery was identified during the pilot project

and has been implemented. To achieve this a prepaid water meter system with 23 units was introduced to cover the entire community of Ga Rasai. Two additional standpipes were provided close to the community centre and school. The prepayment method selected was the Bambamanzi system that is already in use in Modderspruit that also falls within the Eastern DC area of jurisdiction. A room in the community centre was made secure, supplied with electricity and a computer installed for issuing tokens and for operating the system. The customers buy units, which are encrypted onto a smart card using the computer, and these can then be used at the standpipes to obtain a variable amount of water. When the units on the card have been used, the customer must purchase additional units from the office. The community of Ga Rasai show Drawing 6.

### **3.1.4 Segokgo**

#### **(1) Background**

Segokgo is situated in Moretele 2 on the northern fringe of the former Kwandébele within the southeastern portion of Moretele 2 District. The four communities of Segokgo, Moletsi, Semohlase and Loding shown in Drawing 7 together form a unit for the purposes of water supply and sanitation and have a common Local Water Committee. Moretele 2 was formerly part of Bophuthatswana and is under developed in comparison with surrounding districts. The villages all fall under Mbibane TRC that includes several other villages and is under Highveld District Council. Segokgo has one councillor on the TRC and has an LRDC and a LWC. The majority of economically active people commute to Pretoria and other large urban centres.

Until recently the local water supply was entirely groundwater based which was not reticulated. Since the water supply function has been taken over by DWAF, this supply has been augmented by means of emergency supplies in the form of water tankers bringing water into these areas by road. The settlement of Loding has been reticulated to a street tap level of service.

With District Council funding, an RDP level surface water supply was recently installed in Segokgo proper by making a connection to the pipeline in neighbouring Loding however the outlying community of Semohlase remained unserved. Loding is supplied from Weltevreden Water Treatment Work through Bloedfontein Regional Reservoir.

The potential for further direct expansion of the Segokgo supply is very limited as the pipeline is already near its capacity and the pipeline to Loding suffers from low flow



and low pressure during periods of high water demand. This can also be attributed to the absence of balancing reservoirs within the various settlements along the route of the main from Bloedfontein.

The pilot project therefore provided for the installation of a booster pump on a new branch off the pipeline at Loding, a supply main to Semohlase, construction of a service reservoir in Semohlase together with a reticulation system. The booster pump is designed to operate at night time when water is available in the pipeline and the reservoir will provide the necessary storage to ensure the reliability of the supply. Institutional aspects were to explore (with local structures) the implementation of a sustainable management structure.

## (2) Field survey

A field survey consisting of an engineering and socio-economic inventory survey was carried out. The data collected was studied and analysed as part of the project formulation. The items included in the surveys were as follows:

### (a) Socio-economic-

- current water supply and sanitation status
- major economic activity
- village organisational dynamics
- water source
- water facilities
- household age distribution
- household gender distribution
- status of household head
- occupations
- residential status
- family type
- household size
- house type
- tenure
- incomes
- incidence of water borne disease
- household water supply
- willingness to pay - amount
- reasons for lack of willingness
- participation in community organisations

- sanitation facilities
- water quality (perceived)
- value of water

(b) Engineering-

- household statistics (size, age, gender, place of residence)
- household economic status (employment, income)
- water demand
- water sources
- water supply problems
- water quality and health
- policy issues
- water expenditure and level of service
- mobility

(3) Population and water demand projections

The population and water demand projection were carried out in the same manner as for Kameelboom as described in Section 3.1.2. The estimated population, can be summarised as follows:

**Table 3-2 Population Projection for Segokgo Pilot Project**

Community	Population	Percentage
Loding	5,280	75%
Segokgo	1,014	14%
Moletsi	330	6%
Semohlase	396	6%
<b>Total</b>	<b>7,020</b>	<b>(100%)</b>

As for Kameelboom a Rural Low level of service was adopted for the design of the Semohlase reticulation but the bulk supply and distribution mains were designed for the expected medium term level of service, i.e. Rural Medium. As for Rural Low, the house connection per capita demand was taken as 120 lcd, yard tap demand as 70 lcd and street tap demand as 30 lcd. Allowing for 15% system losses in the target year 2015, the average daily per capita demand is 46.6 lcd for the Rural Low level of service 82.8 lcd for the Rural Medium level of service. Water demand for the respective communities is summarised in Table 3-3.

(4) Comparison of technical options

Three water supply options numbered 1 to 3 were identified for the Segokgo Pilot Project. These were called the "Semohlase Groundwater Option", the "Semohlase Direct Supply option" and the "Segokgo Sub-district Supply Option".

- (a) Option 1: Under the Semohlase Groundwater Option, water is supplied to the settlement of Semohlase only. This option entails drilling further boreholes in the flood plain of the Gotwane River near to the community. The infrastructure required is tabulated below.

Borehole	:	2 units
Rising main	:	675 m
Borehole access road	:	200 m
Pressure tank	:	40 kl
Reticulation	:	1,544 m
Street taps	:	8 No.
Cost including VAT	:	R 480,000

- (b) Option 2 : As for Option 1, under the "Semohlase Direct Supply Option", water is supplied to the settlement of Semohlase only. This option provides for supplying water from the end of the existing trunk main at Loding. A small booster pumping station is required at the draw-off point, which will serve to boost the supply to a 40kl pressure tank. Water supply facilities are as follows:

Booster pump station / power supply:		
	120 l/min 2 kw: 1unit	
Delivery main	:	110 dia x 5,374m
Pressure tank	:	40 kl
Reticulation	:	75 dia - 63dia x 1,544m
Street taps	:	8 No.
Cost including VAT	:	R 858,000

- (c) Option 3 : Under the "Segokgo Sub-district Supply Option", the settlement of Semohlase is supplied but current supply to the villages of Segokgo, Moletsi and Loding is also improved. As stated above, pressure problems are currently experienced in Loding which make it more difficult to implement a pilot project for the settlement of Semohlase in isolation. By constructing a storage reservoir to serve

Table 3-3 Water Demand of Segokgo Pilot Area

Town	No. of Houses 2007	Population 2007	AADD (kl/d)			Instantaneous Peak Demand (l/s)			Reservoir Capacity (kl)			Pump Capacity (l/s)				
			Rural Low	Rural Medium	Rural High	Rural Low	Rural Medium	Rural High	Rural Low	Rural Medium	Rural High	Rural Low	Rural Medium	Rural High		
LODING																
Loding A	171	1,026	48	85	85	2.5	4.4	96	170	1.7	2.9					
Loding B	380	2,280	106	189	189	5.5	9.8	212	378	3.7	6.6					
Loding C	290	1,740	81	144	144	4.2	7.5	162	288	2.8	5.0					
Loding D	39	234	11	19	19	0.6	1.0	22	39	0.4	0.7					
<b>Loding Total</b>	<b>880</b>	<b>5,280</b>	<b>246</b>	<b>437</b>	<b>437</b>	<b>12.8</b>	<b>22.8</b>	<b>492</b>	<b>874</b>	<b>8.5</b>	<b>15.2</b>					
Seghokgo	169	1,014	47	84	84	2.5	4.5	95	168	1.6	2.9					
Moletsi	55	330	15	27	27	0.8	1.4	31	55	0.5	0.9					
Semohase	66	396	18	33	33	1.0	1.7	37	66	0.6	1.1					
<b>Total</b>	<b>1,170</b>	<b>7,020</b>	<b>327</b>	<b>581</b>	<b>581</b>	<b>17.0</b>	<b>30.3</b>	<b>654</b>	<b>1,163</b>	<b>11.2</b>	<b>20.2</b>					

Assumptions

1. Number of persons per house = 6
2. Design peak in distribution network = 4.5 x AADD
3. Rural Low annual average daily demand per capita =  $((5\% \times 120) + (15\% \times 70) + (80\% \times 30)) \times 1.15 = 46.6 \text{ l/c/d}$
4. Rural Medium annual average daily demand per capita =  $((20\% \times 120) + (60\% \times 70) + (20\% \times 30)) \times 1.15 = 82.8 \text{ l/c/d}$
5. Reservoir storage requirement. Pump supply from regional reservoir = 48 hours
6. Pumping rate to reservoir =  $1.5 \times \text{AADD} / 12 \times 3.6$

the settlements of Loding, Segokgo, Moletsi and Semohlase on a high point within the Mdala Nature Reserve the situation for all four communities can be improved. This reservoir can be filled during off-peak periods by boosting the water from the trunk main into the reservoir. Semohlase will be supplied directly from the reservoir, which will also serve the other neighbouring communities. Permission for erection of the reservoir would need to be formally obtained from the nature conservation authorities before this solution could be adopted. A summary of the facilities required is as follows:

Loding pumping station	
1.2kl /min, 17kw :	1 unit
Rising main :	2,343 m
Loding reservoir :	600 kl
Access road :	650 m
Gravity main :	618 m
Reinforcement of Loding	
Reticulation :	1,496 m
Delivery main :	4,872 m
Reticulation :	1,544 m
Street taps :	10 No.
Cost including VAT :	R 2,233,000

- (d) Conclusions : Option 1 represents the lowest capital cost of the three alternative solutions. Water quality of groundwater in the area, however, is expected to be poorer than for the surface water based options. The security, quality and cost of the supply would therefore vary from that of the supply to Loding, Moletsi and Segokgo.

The cost of Option 2 falls between those of Option 1 and Option 3. The security of supply would be dependent upon the security provided by the Bloedfontein to Loding supply line that has reportedly been poor in the past. Water quality from Weltevreden WTW is probably reasonably good. The small pumping station will be powered by an electric motor, and must be operated by the Local Water Committee, supported by the responsible water supply authorities.

Option 3 does not only target the settlement of Semohlase, but attempts to improve the overall water supply situation in each of the neighbouring settlements. For this reason the capital investment cost for this option is highest. Security of supply and water quality under this option is the same as for Option 2.

In conclusion, Option 2 was adopted as a suitable alternative for the Pilot Project facilities taking into consideration the need for economy, simplification and the objectives of the pilot project.

#### (5) Design of infrastructure

As for Kameelboom the design was prepared based on established design criteria, water demand projections and several site surveys and following close consultation with local counterpart personnel.

Summary of infrastructure completed is as follows:

Pump Set	:	2 sets
Main Pipe	:	90 dia.x 5,392 m
Elevated Tank	:	43.5 kl
Reticulation	:	75 dia. - 63 dia. X 1,532 m
Street Taps	:	6 nos.

#### 3.1.5 Bapong

Bapong is a well-established peri-urban settlement near Brits in Odi 2 District with a population of around 9000. A local authority is in place and local water structures are present. The surrounding mines provide employment to many Bapong residents and a number commute to Johannesburg, Pretoria and Rustenburg.

Surface water is available in the community from Rand Water. Standpipes have been installed but unauthorised connections are very common. RW has facilitated discussions with communities in the area regarding unauthorised connections and cost recovery.

### 3.2 Construction Management

#### 3.2.1 Preparation of Contract Documents

Formal tender documentation and general specifications for construction work were prepared based on a single contract to be awarded by competitive tendering.

The tender documents were based on the following:

- (1) The general conditions governing the contract are the "General Conditions of Contract" (Sixth Edition) (1990) for use in connection with Works of Civil

Engineering Construction. This document was sponsored by the Civil Engineering Advisory Council and has been prepared under the auspices of the South African Institution of Civil Engineers, the South African Association of Consulting Engineers and the South African Federation of Civil Engineering Contractors and is generally used for this type of contract.

- (2) Standardised Specifications for the project was SABS 1200.
- (3) Particular Specifications were added as required.

The process for tendering and the method of selection of a suitable contractor followed South African regulations and standard practise. 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. Tender invitations were issued in mid May.

### **3.2.2 Tendering and Contract Award**

Selection criteria for contractors were prepared early in May 1997 and eight contractors were nominated in accordance with these criteria, of which six expressed an interest. A briefing meeting was held on 15 May 1997 when the tender documents were issued. The six tenderers submitted their tender proposals by the closing date of 4 June 1997. The Study Team and the Engineer, (EVN Consulting Engineers, appointed by the Study Team to carry out design work and supervision of the pilot projects), made a thorough evaluation of these tenders and began negotiations with Roadcrete Construction, who offered the second lowest quotation. The lowest bidder, Going Up Construction failed to comply with several parts of the specified tender conditions.

A joint LPSC meeting attended by more than 30 people was held on 13 June at the offices of Rustenburg District Council to explain the likely conclusion of the evaluation to representatives of the communities concerned. Basically, the community representatives agreed with the Team's conclusions however more interest was expressed with issues concerning local participation in the construction work and hand-over procedures after completion of the project.

After consultation with JICA Headquarters and obtaining their subsequent approval, the Letter of Acceptance was issued to Roadcrete Construction on 17 June, and the kick-off meeting between the Client, (the Study Team), the Engineer, (and construction supervisor), and Roadcrete Construction, (the Contractor), was held on 20 June 1997. Immediately after the

contract between the Study Team and Roadcrete Construction was signed on 23 June 1997, the Contractor, with assistance of Study Team staff, convened meetings with the communities concerned.

### 3.2.3 Construction Supervision

Local consultants under the control of the Study Team carried out construction supervision. The site supervision included monitoring compliance with conditions regarding training, local employment and payment of contractors. The construction period was about four months and construction work, including commissioning of the new water supply infrastructure, will be completed by late October 1997.

### 3.2.4 Contract Amount

The final contract amount for construction works was about R 3,239,000 after remeasurement based on the quantities of completed work and excluding contingencies from the contract amount.

A breakdown of the amounts for each project is summarised as below.

**Table 3-4 Cost of Pilot Projects**

Item	Cost (R x 1,000)			
	Kameelboom	Ga Rasai	Segokgo	Total
Preliminary & General	185	22	101	308
Direct Construction Cost	1,543	181	838	2,562
Sub-Total	1,728	203	939	2,870
VAT (14%)	242	28	131	401
<b>Total</b>	<b>1,970</b>	<b>231</b>	<b>1,070</b>	<b>3,271</b>

Under the terms of the Contract there is a defects liability period of one year after issue of the Completion Certificate during which time Roadcrete Construction is responsible for taking care of defects arising in the water supply infrastructure.



### **3.3 Community Involvement**

#### **3.3.1 Community Role in Contractor Selection.**

This is discussed in Section 3.3.2. However it should be noted that a briefing document on contractor selection was discussed in detail with the LPSCs prior to going ahead with the selection process. A copy of the document is in the Annex A.3 at the end of this report.

#### **3.3.2 Use of Community-Based Labour**

The contract made several provisions for community-based labour:

- (1) The contractor was required to set up a Labour Desk to assist in identifying local labour and subcontractors. The Desk was to have representation from Kamcelboom, Ga Rasai and Segokgo/Semohlase.
- (2) The contractor had to adhere to statutory minimum wage rates, but was at liberty to negotiate additional incentives based on performance.
- (3) Contracts of employment had to be signed between the main contractor and employees and subcontractors.
- (4) Certain tasks had to be performed using labour intensive methods.
- (5) The contractor had to limit the involvement of his own personnel to key tasks. The rest of the work had to be done by a project-related workforce of local residents.
- (6) The contractor had to foster cooperation with the community. He was also required to attend LPSC meetings as directed by the Study Team.

#### **3.3.3 LPSC Role in Contract Supervision**

The supervision of the contracts was the primary responsibility of the client (the Study Team). However the LPSCs were asked to assist the team in the day-to-day management of the contracts. Specific roles discussed with the LPSCs were the following:

- (1) Assisting with the formation of the Labour Desk, and with the identification of subcontractors and local labour.

- (2) Ensuring that the contractor complies with employment, liaison and training requirements of the contract.
- (3) Facilitating a cooperative relationship between the contractor and the community.
- (4) Coordinating the process of institutional planning so that it supports and links with infrastructural development.
- (5) Drawing any problems relating to the construction works themselves to the attention of the Study Team.

Overall, the key responsibility of the LPSC was to ensure that the project was accepted and valued by the community.

### 3.3.4. Relationship between Construction Works and Capacity/Institution Building

The construction of infrastructure in the pilot projects was an opportunity to link physical development with the development of water management capacity. Activities ensuring these linkages have been the following:

**Table 3-5 Community - Contractor Linkages**

<b>Initiative</b>	<b>Comments</b>
Briefing document for LPSCs	The briefing document served two purposes: as a vehicle for communication; and as a durable record of an agreed process.
Full briefings of PSCs based on the above document.	The briefings allowed the LPSCs to comment and to approve the process. They also exposed the members to tendering procedures and contractor selection.
Meeting between the PSCs and the JICA study team.	The LPSCs were guided through the adjudication process, and were informed of the selection made. Participants approved the selection, and also gained knowledge of adjudication processes.
Detailed briefing of the contractor by the Study Team.	The meeting included reference to issues relating to community relations and the recruitment of local labour. Particular attention was given to the appointment of Labour Desk Officers to oversee the local labour aspects of the pilot projects.
Facilitated meetings between the contractor and community stakeholders.	The contractor was introduced to local stakeholders in each of the communities. These meetings were arranged and facilitated by the Study Team. The contact enabled communities to grasp the scope and nature of the contract works.
Appointment of Labour Desk officers.	Several options for the appointment of LDOS were discussed by the Study Team and the contractor. It was agreed that the LDOS should be locally recruit. people provided they are highly regarded in the community.
Assisting the LPSC s to monitor labour recruitment and disputes.	This activity helped to develop the monitoring and managerial skills of the LPSC.

### 3.4 Operation and Maintenance

#### 3.4.1 General

The training programmes consist of technical, administrative and accounting aspects. Technical training can be further classified into three categories, namely operation and maintenance of basic water supply infrastructure (pipes, faucets etc.), O&M of special equipment (pumping plant), and O&M of prepaid water meters including the associated computer system. Discussion in this section is focused on technical aspects of training rather than administration and accounting which are discussed in Chapter 5.

#### 3.4.2 Operation and Maintenance Manuals

The following operation and maintenance manuals were prepared for respective pilot projects.

**Table 3-6 Scope of Operation and Maintenance Manuals**

Item	Kameelboom	Segokgo	Ga Rasai
General O&M Manual	✓	✓	✓
Pumping Plants	✓	✓	✓
Pre-paid Water Meter			✓
Reference	✓	✓	✓

(1) General O&M manual

The contents of the manual consist of four chapters; description and function of the facilities, operation practice, daily and periodic maintenance and countermeasures for trouble shooting.

The first chapter comprises a description of the scheme and water sources, the function of the pumps, electric motors, diesel engines, water meters, water supply pipelines, service reservoirs, and rudimentary draw-off etc. The second and third chapters describe operating practice, mostly for pumping plant, and suggest daily and periodical maintenance activities for major infrastructure. The fourth chapter provides trouble shooting countermeasures to overcome problems with the pumping plant, and what to do in the event of water loss and leakage.

(2) Manufacturer's manuals for pumps and prime movers

The specification of borehole pumps in the Kameelboom project are Monostroom MK3 type supplied by Mono Pumps and the prime movers are Lister Diesel Engines.

The manufacturers provided standard equipment manuals and instruction books. For the Segokgo project two units of volute type booster pumps with electric motors supplied by KSB were installed. Three sets of manufacturer's manuals were delivered.

(3) Prepaid meter system

In order to improve the efficiency of water fee collection, a pre-paid water meter system was introduced to Ga Rasai where an RDP standpipe system has already been provided. The manufacturer selected to supply this specialised equipment is the Bambamanzi Investment company. The two major components of the system are prepayment metering units and a management system unit. These systems are effectively linked during operation of the water management system. Information necessary for the O&M manuals and instructional material have been provided with the standard software by the system supplier. The manufacturer successfully provided a demonstration to the community members and training for practical operation of the system.

### 3.4.3 Technical Training

The training of scheme operators was done in two sessions, one in Kameelboom and one at Segokgo.

(1) Kameelboom training session (15 October 1997)

Training took place at the Kameelboom Community Centre and was attended by:

- Two operators from GaRasai
- Two operators from Kameelboom
- Four operators from Mphonyoke
- Two operators from Ramosibitswana
- Mr Moitsiwa of the JICA study team
- Mr P Viljoen of EVN Consulting Engineers
- Mr R Viljoen of Roadcrete Construction
- Mr C Myburgh of SA Lister

The following topics were taught by Mr Myburgh:

- Operation of the motor
- Maintenance of the motor and its environment

- Diesel, storage and handling

Mr P Viljoen taught the following topics:

- Basic maintenance of pumps
- Maintenance of pipelines, valves, air valves
- System operation
- Reading water meters and reservoir levels

(2) Segokgo training session (19 November 1997)

Training took place at the newly constructed pumpstation and was attended by:

- Three operators from Semohlase
- Mr R Davey
- Mr P Viljoen of EVN Consulting Engineers
- Mr R Viljoen of Roadcrete Construction

Mr R Davey taught the following topics:

- Starting and stopping the motor
- Setting the time switch and no-flow switch
- Checking electrical power
- Checking the availability of water

Mr P Viljoen taught the following:

- Basic maintenance of pumps
- Maintenance of pipelines, valves, air valves
- System operation
- Reading water meters and reservoir levels

(3) Evaluation

The effectiveness of the training remains to be evaluated. This will be done as one of the proposed follow-up actions.

### **3.5 Commissioning of Water Supply Infrastructure**

Water supply infrastructure, which has been commissioned, has passed all necessary test running and has been accepted by the JICA Study Team, will be transferred to the appropriate local government authorities which are the responsible Services Authority in each area under the terms of the draft Water services Bill. The respective Authorities for each of the pilot project communities are as follows:

- Kameelboom : Rustenburg District Council
  
- Segokgo : Highveld District Council
  
- Ga-Rasai : Eastern District Council

Commissioning and handover of the infrastructure for the three communities will be carried out at the end October 1997.

## **CHAPTER 4**

### **INSTITUTIONAL DEVELOPMENT**

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## CHAPTER 4 INSTITUTIONAL DEVELOPMENT

### 4.1 Present Institutional Conditions in Pilot Project Areas

#### 4.1.1 Within Pilot Communities

##### (1) Kameelboom.

Elected local government and traditional authority remain mixed in Kameelboom. The village has local government (local Councillor, Village Level Committee) as well as the Kameelboom Community Authority. The local RDP Committee also forms part of the management in Kameelboom. The committee has a number of sub-committees, dealing with water, health, education and agriculture. The Community Authority plays a role in administration, the collection of revenue, decisions around development and conflict resolution. The Rustenburg District Council is represented in Kameelboom, and has constitutional local government responsibilities. In terms of this, RDC will act as the water services authority for both the Kameelboom pilot and the North Mankwe feasibility study implementation.

##### (2) Ga Rasai.

As with Kameelboom, Ga Rasai has both traditional and constitutional forms of local government. The Eastern District Council has constitutional responsibility, but the Community Authority is the de facto local government presence. EDC will act as the water services authority for the Klipvoor feasibility study implementation and the Ga Rasai pilot project.

##### (3) Segokgo.

Segokgo and Semohlase fall under a traditional authority and an elected Transitional Local Council. Semohlase itself is a small community with little organisational diversity. The management of existing development in Semohlase is presently the responsibility of the local headman. As Semohlase is underdeveloped, the responsibilities of the headman are currently nominal. Against this background, the influence of the TLC is increasing. In the Semohlase ward the management of new development, services and administration is the responsibility of the Ward Councillor. Mbi-bane TLC will act as the water services authority for the Segokgo pilot project.

## 4.1.2 Beyond the Pilot Communities

Institutional arrangements and capacity at regional level are covered in detail in Volumes 2, 3 and 4. In general, Kameelboom is the most advantageously placed of the three pilot projects, since both RDC and MW have capacity and a significant development track record. Ga Rasai is able to call on the support of MW, but EDC has limited capacity. Segokgo / Semohlase is the least advantageously placed since there is no water board (the Highveld Water Board will not be formally established for some time), the capacity of the HDC is limited, as is the capacity of the Mbibane TLC. This relative institutional vacuum has implications for the sustainability of the Segokgo project (see Section 4.5).

## 4.2 Establishment of Local Project Steering Committees

### 4.2.1 Terms of Reference

Local Project Steering Committees have been formed in Kameelboom, Ga Rasai and Segokgo. The LPSC s have a variety of roles, which are summarised in Table 4-1 below:

**Table 4-1 LPSC Terms of Reference**

LPSC Role	Description
Representing the local community in the pilot project process.	The LPSCs are representative bodies which were formed with the participation of the communities in which they are situated. In this context they are seen to be the representatives of the community in the pilot project process. The issue of representativity is important, and is monitored regularly. The Segokgo LPSC was reformulated when the technical option for the area was redefined.
Liaison between key actors involved in the pilot project process.	The LPSC acts as a liaison agent between key actors involved in the pilot project. Two areas of liaison are particularly important: liaison with the broader community and liaison with DC s and Magalies Water. The LPSC s also interact with other community based organisations. LPSC s have a specific brief to develop and implement a communication plan.
Ensuring the local relevance of proposed infrastructure options and a positive relationship between contractors and communities.	The LPSC s were involved in early discussions around technical options, and assisted in selecting options that met budgetary constraints whilst maximising benefits to the broader community. During construction they had the role of monitoring the relationship between contractor and communities, ensuring the effective use of local human resources, and identifying possible sources of conflict.

LPSC Role	Description
Responsibility for the local administration of the pilot project prior to handover to a water authority or a delegated service provider	The LPSC s are transitionally bodies, and are specifically linked to the pilot projects. They have responsibility for the local administration of pilot project activities during the JICA study , but management of the projects will be handed over to another body after October 1997. In terms of the Water Services Bill, this responsibility can only be delegated by the relevant local government Awater authority. The LPSCs are required to negotiate the terms of this handover with water authorities.
Local link in relationship building with DC s, MW.	Apart from the liaison task described above, the LPSCs are also charged with forming formal and secured relationships with bodies that will assist with water supply management or which will offer technical and institutional support (e.g. MW, DC s). Particular emphasis is placed on building and formalising these links, because informal arrangements might not be sustainable.
Planning the sustainable management of the local water supply system.	<p>A key role of the LPSC s was to plan for the sustainable management of the local water supply system. The planning was done using task teams and specialist inputs where required. The specific planning responsibilities were the following:</p> <ul style="list-style-type: none"> <li>* Formulation and implementation of a communication strategy</li> <li>* Formulation and implementation of a capacity building strategy</li> <li>* Formulation and implementation of a water management system (including cost recovery)</li> <li>* Formulation and implementation of an O&amp;M system</li> <li>* Development and implementation of an appropriate training programme to support the envisaged WM and O&amp;M systems.</li> </ul>
Facilitating the sharing of best practice.	The LPSC s are responsible for reporting progress and lessons learned to the Project Execution Forum. They also considered best practice in their management planning process.
Monitoring and evaluation.	<p>A number of agents will have responsibility for monitoring and evaluation. The LPSC s are key agents during their period of tenure. Key tasks are:</p> <ul style="list-style-type: none"> <li>* Ongoing qualitative evaluation and feedback to the study team</li> <li>* Participation in planning an M and E programme for the post-handover period.</li> </ul>

#### 4.2.2 Process for the Formation of LPSC s

The general process for the formation and consolidation of LPSC s is described below. In practice, each of the three LPSC s has developed somewhat differently. These differences are described in the following section.

- (1) Initial contact meetings with the various communities provided the opportunity for the Study Team to meet representatives of key local structures, and to brief them on the proposed pilot projects.

- (2) From these meetings, a core liaison group was formed in each community, typically comprising representatives of local government and members of the Local Water Committee and RDP structures.
- (3) The process of LPSC formation was discussed with this group in each of the pilot communities. These briefings emphasised the need for a LPSC, and the importance of a LPSC structure which includes a spectrum of local stakeholders.
- (4) Based on these briefings, public meetings were held in each of the pilot project communities and the LPSC s were nominated and elected. The study team is not formally represented on the LPSC s, but study team members have facilitated the over-all programme of the LPSC s, and individual meetings and workshops.
- (5) Modification to LPSC membership was negotiated where necessary (for example in Segokgo, where the nature of the proposed infrastructural development was changed).
- (6) The study team facilitated a process of empowerment and awareness building with each of the LPSC s.
- (7) The LPSC s appointed task teams to undertake the various planning tasks. The task teams were made up of members of the LPSC s, and were permitted to co-opt technical and process expertise as required. Possible sources of such expertise were DWAF, MW and other water sector organisations. The study team facilitated the activities of the task teams.

#### **4.2.3 LPSC Status and Issues**

The membership of the three LPSC s is listed in Table 4-2. In all three, representation is centred mainly around the Local Water Committee and RDP structures. Local Government is represented in Kameelboom and Segokgo, but not directly in Ga Rasai. In the latter case, the Eastern District Council has local government responsibilities, but very limited capacity.

Two of the three LPSCs have had to respond to specific local circumstances. The Kameelboom LPSC has worked jointly with the Kameelboom and the Ramosibitswana communities. Despite the physical separation of these settlements, it was felt that a co-ordinated approach to planning in the Kameelboom area was desirable. However, detailed management planning revealed that Kameelboom and Ramosibitswana would be best served by separate service providers. In this context, management plans were developed for both communities, and the Local Water Committee in each community was designated as the service provider. Sections 5.1.3 and 5.1.4 summarise the Kameelboom and Ramosibitswana management plans.

The Segokgo LPSC has had to accommodate the institutional complexity of the Segokgo region. Here, Segokgo, Semohlase and several neighbouring communities fall under the jurisdiction of the Mbibane TLC. The villages all send councillors to the TLC. In turn, Mbibane and other proximate local authorities are represented on the Highveld District Council.

The DC does not have jurisdiction in the TLC area, and will only intervene if the TLC is unable to discharge its local government functions. In this context, the PSC opted for an area-based representation, including members from Semohlase, Loding (a nearby village) and Segokgo.

Gender representation varies across the LPSC s. In Kameelboom, 30% of members are women. In Ga Rasai and Segokgo the ratios are reversed, and 70% of the LPSC membership is represented by women.

**Table 4-2 LPSC Members**

Kameelboom	Ga Rasai	Segokgo
Mr Shadrack Lebeko - Chair Mr Wisdom Molotsi - Secretary Mrs B Malao - Treasurer Mr K Manyo Ms A Nebutanda Mr M Lekgema Mr M M Maine Mr J Mashinini Mr P A Moyo Miss T Masango	Mr R D Tlale - Chair Mrs C Madalane - Deputy Chair Ms Sanie Ndebele - Secretary Ms Helen Mohaule - Deputy Sec Mrs Salamina Setshedi - Treasurer Mr Oriah Manamela Mrs Cecilia Mohaule Mrs Martha Sebatjane Mr Jacob Monaisa Ms Isabel Tlale	Mr M Ndala - Chair Mrs Tryphina Maloka - Deputy Mr Mandla Mahlangu - Secretary Mrs Vivian Moloka - Deputy Mrs Idah Sefike - Treasurer Mrs Reineth Moloele - Organiser Mrs Elizabeth Msimanga Mrs Phillipine Moeketsi Ms Salamina Phenya Mr Percy Maloka

Table 4-3 summarises the status of the LPSC s in Kameelboom, Ga Rasai and Segokgo, and lists key issues that have influenced the operation and activities of each of the LPSC s.

**Table 4-3 Issues Impacting LPSC Activities and Effectiveness**

LPSC	Status	Issues
Kameelboom	The Kameelboom LPSC is strong and has proved to be willing and able to take initiative. The LPSC took the lead in looking for resources for a school water project, and made good progress with task team planning activities.	Key issues that have required the attention of the LPSC are the following: <ul style="list-style-type: none"> <li>* The pilot project does not reach all sections of a very dispersed community (addressed to some extent by plans to provide a supply to local schools using Japanese Grassroots funding).</li> <li>* Cost recovery systems were in place in some areas, but these were very informal and uncoordinated. A more rational tariff and cost recovery system has now been developed.</li> </ul>

**Table 4-3 Issues Impacting LPSC Activities and Effectiveness (Continue)**

LPSC	Status	Issues
	<p>This LPSC has been regarded as the test-bed for approaches and techniques used in the pilot projects.</p>	<ul style="list-style-type: none"> <li>* Kameelboom has had access to planning and infrastructural support from the Rustenburg District Council. Effective use of this has to be ensured in future.</li> <li>* Water quality and limited yield constrain the use of some existing and newly drilled boreholes.</li> <li>* Local people have expressed the desire to have access to surface supply as soon as possible. The community is largely agricultural, and the question of stock watering is often raised. The LPSC will have to deal with these expectations in due course.</li> </ul>
<p>Ga Rasai</p>	<p>The Ga Rasai LPSC has been active in the community, especially around issues of cost recovery. The LPSC itself has experienced some problems, particularly regarding the roles of actors who felt that they should have been included in the Committee. The study team has assisted the LPSC to deal with this issue. The LPSC has completed its planning tasks.</p>	<p>Key issues requiring the attention of the LPSC have been the following:</p> <ul style="list-style-type: none"> <li>* Ga Rasai is a very isolated community, both spatially and institutionally. The local authority function is the responsibility of the Eastern District Council, which has very limited capacity. The LPSC has had to give particular attention to potential sources of support, and will have to continue to build durable local capacity. MW is the most viable present source of technical support, and this link will have to be further consolidated.</li> <li>* The present RDP water project is technically complex, and this places particular demands on the LPSC. Problems already encountered are the breakdown of the pump which transfers water from the Moretele River to storage, and various problems with the purification plant in the village. The installed prepayment metering system facilitates cost recovery, but it adds another layer of complexity. In this context, committed and reliable technical support from outside is critical.</li> <li>* Cost recovery in the village is historically erratic, leading to frequent failure of the surface supply system due to lack of fuel or chemicals. The LPSC has had to face the challenge of ensuring a level of cost recovery which will support the water supply system, and a level of reliability which will encourage users to pay for the service.</li> </ul>



**Table 4-3 Issues Impacting LPSC Activities and Effectiveness (Continue)**

LPSC	Status	Issues
Segokgo	<p>The original Segokgo LPSC had to be restructured when the infrastructure proposal was restricted to a surface supply to the village of Semohlase. Members from Semohlase were added, but membership representing surrounding communities was retained. This was supported by the study team because coordination of management strategies among these villages is very important. Initially, the LPSC experienced problems of absenteeism by a few members. The LPSC replaced the non-participants.</p>	<p>Key issues that have required the attention of the LPSC are the following:</p> <ul style="list-style-type: none"> <li>* The pilot project has extended an existing pipeline to the village of Semohlase. The same pipeline serves Loding, Segokgo proper and Semohlase. The pilot project has the objective of ensuring cost recovery in Semohlase, but recovery is not demanded in Segokgo and Loding. Further, illegal connections are common in Loding. In this context, the LPSC/LWC will find the task of maintaining support for their management plan particularly difficult. If they succeed, it will be hard to sustain payment and the regulation of illegal connections if this is not the practice in neighbouring settlements. The pilot project has not had the resources to extend a cost recovery campaign to the whole district, but it is important to develop a strategy to deal with the issue.</li> <li>* The problem faced by the Segokgo/Semohlase LPSC has been recognised elsewhere, and DWAF favours an area-based and programmatic approach to water delivery. Follow-up actions listed in Chapter 6 address area planning in the Segokgo/ Semohlase area.</li> </ul>

Numerous formal LPSC meetings have been held since the end of March 1997. It should be noted that the minutes of LPSC meetings are translated into Tswana for ease of communication. A summary of matters discussed in the LPSC meetings is attached in the Annex B.6.

#### 4.2.4 Lessons

The following are the key lessons that emerge from the formation and functioning of the LPSCs:

- (1) The effectiveness of Project Steering Committees is strongly determined by the historic cohesiveness of community structures, and the depth of community experience with development. The extent and nature of PSC capacity building should be related to this background.

The following assessments should be undertaken to measure cohesiveness and development experience:

- Key informants should be asked about the nature of community organisations, the period of time they have existed, their achievements, linkages between community organisations, and the nature and origin of conflicts.
- Socio-economic surveys should address the credibility of community structures, the level of community membership and support, and community assessment of locally sourced development initiatives.

If cohesiveness and development experience are not present, additional capacity building input should be expected. Preparatory work with communities must be preceded by initial introductions and negotiations. It is important to consult with all credible leaders (especially local government), and to make the objectives of the project very clear. Accessible documentation in the appropriate local language would be helpful

- (2) PSC processes, especially if they are highly interactive, must recognise and work with the activity patterns of members and of the community at large.
- (3) Task teams are an effective way to focus the efforts of PSCs, and to fully involve all members. Task teams also permit capacity-building interaction between PSCs and experts in various fields of planning and training.
- (4) Whilst the success of PSCs depends on conditions within communities, it is also related to dynamics beyond individual villages and towns. In the Segokgo example, the LPSC and LWC face the difficult challenge of sustaining effective water management when the Semohlase community is surrounded by villages where non-payment and unauthorised connections are common. An area-based approach would have dealt with this issue to some extent, but it is evident that securing an area-wide social-economic and institutional environment for effective water management is a task that will demand substantial time and human resources.

### **4.3 Capacity Building in Kameelboom**

#### **4.3.1 Challenges**

The Kameelboom pilot project has been challenging from the perspective of capacity building and the establishment of a sustainable water management system. The following are the key elements of the challenge:

- (1) The Kameelboom settlement is low density and dispersed, and infrastructure has been installed in different locations. Against this background, it has been necessary to develop awareness, capacity and a management system that recognises the distinct operating circumstances of each system, whilst ensuring an integrated and accountable cost recovery system and a coordinated operations and maintenance system. Integrated management is also important when seeking to secure technical and other support from organisations like MW.

The process of integration has proved more difficult than expected. It has required the drawing together of personnel from different neighbourhoods, and the fusion of varying levels of political will and commitment. An important and time consuming task has been the definition of common objectives and a single vision of local development.

- (2) Kameelboom is spatially isolated. This makes sustainable external technical and institutional support difficult to ensure. The lack of effective communication facilities compounds the effects of isolation.
- (3) The pre-pilot water management system was uncoordinated and fragmented. There was some confusion around community structures responsible for managing water, and cost recovery and O & M strategies had been focused on single boreholes. Hence different structures and practices had emerged around various water sources. The challenge of the pilot project has been to integrate management (see (1)) above whilst working with the expertise and experience that has developed around water management issues. The pilot project process has explored successful techniques, and has sought to draw lessons from failures.

#### **4.3.2 Resources**

An important capacity resource in Kameelboom has been the proven ability of the community structures to secure and manage development. This is demonstrated by the building of a community hall and a post office. In addition, the LPSC has pursued options for the funding of a water supply to a neighbourhood school. The pilot project has sought to capture this energy and initiative. This has required an understanding of the roles, relationships and strengths of local organisations and individuals.

The lesson for other water projects is that capacity is often available in communities. This is not necessarily expressed in skills and education, but in the way in which human competencies (and weaknesses) interact in a community to produce results. The bonding agents which lead to collective action are not easily understood by outsiders. In this context the awareness building process assisted the study team to work with the group strengths of the LPSC.

### 4.3.3 Approach and Method

The institutional component of the pilot projects moved through a series of phases, each designed to build on preceding work:

- (1) Awareness building and LPSC Empowerment.
- (2) Capacity Building and the Development of Linkages.
- (3) Participatory Water Management Planning.
- (4) Training in Required Skills.
- (5) Implementation of Water Management Plans.

Apart from the specific capacity building task, elements of capacity building were required throughout the pilot project programme. The following table outlines the approach and method deployed to build capacity in Kameelboom, and more specifically in the LPSC. The Kameelboom pilot has been used to some extent as a laboratory for the other pilot projects, particularly for the refinement of capacity building approaches and techniques.

The table is thematically organised, describing key areas of capacity building. These key areas reflect the fundamental institutional approach discussed in Section 2.1.3. Since the emphasis is on themes, the table does not necessarily present material in chronological order.

**Table 4-4 Capacity Building Approach and Method (Kameelboom)**

Capacity Input	Approach and Method	Contextual Issues
General Awareness Building	<ul style="list-style-type: none"> <li>* Detailed briefings of community representatives and later the LPSC at the outset of the project. Technical inputs by study team members.</li> <li>* Detailed analysis of the existing water system by the LPSC to develop a practical and locally relevant understanding of technical and management characteristics.</li> <li>* LPSC-led community meetings at strategic points in the project: LPSC election, selecting technical options, agreement on tariffs and management processes.</li> <li>* Regular participation of the LPSC in meetings of the PEG and the PEF.</li> </ul>	<p>General awareness building has been facilitated by the relative cohesion of the LPSC and the past experience of the community with reference to development projects.</p> <p>Community awareness building has been particularly important in the context of a spread-out settlement comprising a number of discrete sub-communities.</p>

**Table 4-4 Capacity Building Approach and Method (Kameelboom) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
Mandated Management	<ul style="list-style-type: none"> <li>* Initial contact was with a spectrum of community representatives.</li> <li>* Selection of the LPSC based on JICA-developed guidelines (using RDP practice as a base). Prior research into local politics and socio-economic structure informed the membership selection</li> </ul> <p>The research was discussed openly and constructively. Membership was drawn from RDP structures (including the LWC), the Youth League, the Health Committee and local government. 30% are women.</p> <ul style="list-style-type: none"> <li>* LPSC elected and mandated by the community.</li> </ul>	<p>Community tensions were to some extent manifested in the LPSC. The strained relationship between the community authority and the RDP committee became evident in the LPSC, as did a conflict over roles between the LPSC and the LWC.</p> <p>Clarity on roles and responsibilities resolved most tensions.</p>
Team Building	<ul style="list-style-type: none"> <li>* Team building based around discussions of roles and responsibilities, LPSC objectives, individual fears and concerns, LPSC relationships with other structures, and technology and scheme options. Team building also accompanied the resolution of problems such as the laying of pipes across private land and misunderstandings with the contractor.</li> <li>* Active roles assigned to most LPSC members, either in the LPSC itself, or in planning task teams.</li> <li>* A key team building instrument was the development of a thorough technical understanding of the project, through the use of maps and drawings</li> </ul>	<p>Team building was essential given the initial tensions in the LPSC, and the complexity of the planning task in a spatially and socially disaggregated community.</p>
Building Linkages	<ul style="list-style-type: none"> <li>* The LPSC identified stakeholders and discussed their roles. Important stakeholders (MW and RDP) were encouraged to participate in the LPSC and in the task teams.</li> <li>* The LPSC has considered ways to sustain routine communication with key sources of support, and the formation of firm linkages with specific service providers or suppliers of technical assistance.</li> </ul>	<p>The institutional environment around Kameelboom is in a state of flux. Rustenburg District Council has established zonal structures, but RDC and MW are still negotiating possible service provider options. A MW/RDC joint venture has been proposed, but not finalised.</p>

**Table 4-4 Capacity Building Approach and Method (Kameelboom) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
	<p>* Discussions of the management plan with RDC have confirmed the service authority role of the DC, and also the availability of administrative assistance. The management plan has also been discussed with MW. RDC and MW have to agree service provider roles before MW can enter a formal agreement with the LPSC.</p>	<p>In this context, the LPSC has had to make interim arrangements around the administration of water payments.</p>
<p>Planning and Management Awareness Building</p>	<p>* Planning was linked to the present water management culture by mapping both the current and possible future water management systems. These were then compared and analysed. Awareness of the Abusiness of water was also built using a municipality model. The PSC then engaged the community in various meetings to discuss issues like section-based management.</p> <p>* Preliminary technical designs were prepared by the JICA Study Team, based on initial social research. A JICA engineer and social consultant presented the design options to the LPSC. Designs were discussed by the LPSC and the community, and changes were made.</p> <p>* A document outlining JICA conditions for the selection and management of contractors was discussed with the LPSC and other interest groups (see Annex A.3). The LPSCs of all three infrastructural pilot projects met with the Study Team to discuss contractor selection and to approve the main contractor</p> <p>* The LPSC appointed sub-contractors. A member of the LPSC took responsibility for each of the three areas supplied, and monitored the sub-contracting work.</p>	<p>Due to budgetary constraints, one area of Kameelboom could not be supplied with water. This created management problems at a later stage. However, with the help of the Study Team, the LPSC applied for funding from the Japanese Embassy to provide water to schools in the village. This initiative, and the efforts of the LPSC to secure money from other sources, indicate a planning awareness and a willingness to act.</p> <p>The contracting and sub-contracting went smoothly, although at one stage the workers in one section refused to work due to a dispute over payment. Although the issue lay with the main contractor, it became apparent that insufficient communication took place between the appointed sub-contractor and the LPSC.</p>
<p>Planning Process</p>	<p>* A process for community based water management planning was designed by the Study Team and discussed with the LPSC. The essence of the process was for planning to be undertaken by task teams appointed by the LPSC. Terms of reference for task team membership and activities were discussed and agreed.</p> <p>* The task teams began their work in June. Each team developed its own specific terms of reference, and plans were developed for</p>	<p>A planning culture does not exist in many rural communities. For this reason, the process has to be carefully designed to permit maximum participation whilst producing viable and sustainable plans.</p> <p>Planning has been undertaken by the Kameelboom community in the past, and</p>

**Table 4-4 Capacity Building Approach and Method (Kameelboom) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
	<p>administration, cost recovery and operations and maintenance. The Study Team facilitated the work of the task teams, and experts from MW and RDC participated.</p> <p>* In addition to specific plans, the task teams also developed job descriptions for the management tasks identified. These job descriptions informed the training strategy.</p>	<p>this undoubtedly facilitated the water planning process.</p>
<p>Technical Understanding</p>	<p>* Specialist technical inputs to the planning process were made where necessary. An expert from the Study Team assisted with the development of a water tariff.</p> <p>* Time was spent with the LPSC to develop an awareness of the costs associated with water delivery and the requirements of cost recovery. The proposed water tariff was developed interactively and in a series of steps. Key inputs were made by the LPSC. The tariff build-up is discussed in detail in Section 5.1.</p> <p>* The proposed tariff (and its components) was presented to a community meeting for discussion. The proposal was also discussed with the finance section of RDC, and with MW.</p>	<p>Wherever possible, technical understanding has been conveyed in an interactive manner, and against a the background of a broader understanding of the entire water system and its management implications.</p>
<p>Specialist Training</p>	<p>* Discussed in Section 5.2.</p>	
<p>Best Practice Sharing</p>	<p>* Best practice was shared in a number of ways. For example: the team consulted with tariff administration experts and shared the knowledge with the LPSC; technical options were presented to the LPSC and debated; the task teams drew in expertise when required; the LPSC attended and contributed to meetings of the PEG and the PEF. The latter was specifically used as a vehicle for best practice sharing.</p>	<p>The Kameelboom community has its own development experience, which should be shared. The process and instruments of best practice sharing should be continued after the JICA project is completed.</p>
<p>Monitoring and Evaluation Culture</p>	<p>* The project has tried to instil a monitoring and evaluation culture in the LPSC. This has been done by: taking time to evaluate existing situations and options; encouraging the LPSC to take an active part in monitoring construction; providing opportunities for the PSC to evaluate the overall project and to present the evaluation to a broader forum (the PEF).</p>	<p>Internal monitoring and evaluation of development projects has not been routine in Kameelboom. However, the beneficiaries of development are perhaps best placed to provide incisive and relevant M&amp;E.</p>

#### **4.3.4 Difficulties and Countermeasures.**

In general, the Kameelboom pilot project has progressed smoothly. The satisfactory progress can be attributed in part to the development experience of the community, and to the broader institutional framework in which Kameelboom is placed (for example the RDC Zonal Planning structure). However, the key to the success of the project is probably the committed participation of the stakeholders represented on the LPSC.

During the course of the project, the following difficulties were encountered:

- (1) Initial conflict over roles in the PSC. This conflict is described in the table above.

The countermeasures were the following:

- (a) Clear assignment of roles and responsibilities.
  - (b) Structures to ensure that all LPSC participants have an active role (e.g. the Task Teams).
  - (c) A focus on the management and planning brief of the LPSC, and a business-like approach to this task.
  - (d) Allowing and encouraging open and frank debate of issues in the LPSC.
- (2) A short strike by sub-contracted labourers. The countermeasure was mediation by the PSC and the Task Team and the facilitation of improved communication between the contractor, the local area supervisor and the workers.
  - (3) Short term administrative arrangements. RDC has agreed to take the service authority role. It has also agreed in principle to assist the community with the provider role. Currently the Department of Traditional Affairs administers Kameelboom and Ramoshibitswana, and RDC has yet to take over. This poses a short term problem, for example with the administration of funds from water cost recovery.

The countermeasure has been to set up interim fund management arrangements:

- (a) Funds from Ramoshibitswana and Kameelboom will be administered in different places (the former in the appropriate zonal office, and the latter in Mogwase).
- (b) To deal with the above arrangement, separate management plans have been developed for Kameelboom and Ramoshibitswana.



### 4.3.5 Strategic Evaluation and Lessons

The pilot project has emphasised the development of capacity to plan at local level. In Kameelboom, capacity building has proceeded from a reasonable base, in that community structures are relatively active, and have managed development initiatives such as the construction of the community hall and the post office. Further, despite the fact that water management has been fragmented and informal, there is at least core of awareness and skills in the area. The pilot project has sought to work with these resources and to develop them further. In this context, considerable effort has been directed to the development of a sound understanding of the tasks involved in managing and maintaining the upgraded water system, and to the development of decision-making skills. The effectiveness of this capacity building has been reflected in the activities of the task teams. These progressed well and produced the products required. The following capacity building lessons are evident in the Kameelboom pilot project:

- (1) Capacity is often available in communities. This is not only in the form of people, but also experience. A capacity audit should precede any institutional work in a community, and should include an evaluation of initiatives undertaken by community structures, and the socio-political circumstances in which these have taken place. It is important to understand the local Abonding agents that will ensure effective teamwork in LPSCs. A method for capacity audits is the following:

**Table 4-5 Capacity Audit**

Theme	Method	Checklist
History of development and management activities	Key informant survey with local government (including tribal), and among the major community-based organisations.	<ul style="list-style-type: none"> <li>* Organogram of local government and community-based organisations.</li> <li>* List of development projects undertaken locally in the past five years.</li> <li>* Evaluation of these projects.</li> <li>* Evaluation of the effectiveness of local government (in terms of day-to-day management and of pro-active development activities).</li> <li>* Overview of the problems that have faced local government and community-based organisations.</li> </ul>
Socio-economic context	Key informant survey backed by household survey (if possible).	<ul style="list-style-type: none"> <li>* Structure of local government.</li> <li>* Linkages and rivalries among community-based organisations and with local government.</li> <li>* Household income levels and history of payment for services.</li> </ul>

**Table 4-5 Capacity Audit (Continue)**

Theme	Method	Checklist
Local organisational capacity	Key informant survey (local government and development/service oriented community based organisations).	<ul style="list-style-type: none"> <li>* Human resources committed to planning, and planning activities.</li> <li>* Structure and effectiveness of organisation.</li> <li>* Nature and effectiveness of management and operational systems.</li> <li>* Cost recovery systems, record and access to financial resources.</li> <li>* Extent of community support / mandate.</li> </ul>

- (2) The effectiveness of awareness building can be maximised by linking it to a locally-driven evaluation of existing water supply and water management systems. The evaluation provides a foundation for awareness building inputs.
- (3) The promotion of local planning capacity is important for a number of reasons: sustainability is more likely if local players are able to recognise problems and design solutions; and local planning ability enables local government and community structures to engage broader planning forums in constructive dialogue. However, the promotion of this capacity is costly and time-consuming. On the JICA pilot projects, institutional inputs comprised around 10% of the total project cost.
- (4) Community structures are able to engage technical issues if the transfer process is well designed.
- (5) The task team approach to LPSC functioning seems to work well. It provides opportunities for focused technical input, it promotes participation and accountability, and it permits several planning activities to take place at the same time.
- (6) Best practice sharing is potentially a powerful and practical form of skills and information transfer. The pilot project has experimented in this regard, but a more systematic approach could be developed for RDP practice. Proposals for the institutionalisation of best practice sharing are outlined in Section 4.7.4.

#### **4.3.6 Monitoring and Evaluation.**

Internal M&E has taken place throughout pilot project implementation. The primary agents have been the Study Team, the LPSC, and forums such as the PEG and the PEF. Ongoing M&E will be required after the conclusion of the JICA study. Recommendations in this regard are contained in Chapter 6.

## 4.4 Capacity Building in Ga Rasai

### 4.4.1 Challenges

The Ga Rasai pilot project combines a number of circumstances that make it particularly challenging for institutional development:

- (1) The present water system uses technology that is considered inappropriate for deep rural settings by some observers. The system is subject to frequent breakdowns, usually due to a lack of diesel for the main pump which transfers water from the Moretele River to storage, and a lack of chemicals at the package water treatment plant. The proposed prepayment metering system will add another level of technology which will increase the potential for system failure. The challenge is to ensure the reliable operation of the system through effective management and accessible technical and institutional support.
- (2) Ga Rasai is spatially and institutionally isolated. This makes the establishment of sustainable external technical and institutional support links more difficult. In this regard, an added difficulty is the limited capacity of the nominal local authority, the Eastern District Council. In the short term, Magalies Water is believed to be the best source of support, but this must be supplemented in the medium term by a stronger and more effective local authority. In this regard, the building of capacity in EDC is believed to be a local and regional priority.
- (3) Cost recovery in Ga Rasai has been erratic and initiatives in this regard have failed to persuade all water users to contribute. The LPSC believes that the prepayment metering system will solve the problem, but support for this has to be based on a reliable supply that the community believes provides value for money.

With the potential for breakdown outlined above, effective management will be critical both for sustainable supply, and for ongoing support of the cost recovery system.

- (4) The Ga Rasai LPSC has been subject to debates around membership. These have now been resolved, but the formation of a strong and committed team has been delayed.

### 4.4.2 Resources

The implementation of the Ga Rasai RDP project has been problematic for reasons outlined above. However, these difficulties have also served to focus community attention on the

challenges of water supply management. Prior to JICA's involvement, the community had begun grappling with cost recovery issues, and matters relating to the operation of the pump.

This experience was a base for the pilot project programme. During the course of the project encouraging developments have included the following:

- (1) Communication between Ga Rasai and Magalies Water has improved over time.
- (2) Initial community support for the prepayment system has been high. However, this can be quickly eroded by system failures and administrative weaknesses during the start-up phase.

#### **4.4.3 Approach and Method.**

As with Kameelboom, the institutional component of the Ga Rasai pilot project moved through a series of phases, each designed to build on preceding work:

- (1) Awareness building and LPSC Empowerment.
- (2) Capacity Building and the Development of Linkages.
- (3) Participatory Water Management Planning.
- (4) Training in Required Skills.
- (5) Implementation of Water Management Plans.

A part from the specific capacity building task, elements of capacity building were required throughout the pilot project programme. The table outlines the approach and method deployed to build capacity in Ga Rasai. As in Section 4.3.3, the table is thematically organised, describing key areas of capacity building. The table does not necessarily present material in chronological order.

**Table 4-6 Capacity Building Approach and Method (Ga Rasai)**

Capacity Input	Approach and Method	Contextual Issues
<p>General Awareness Building</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* LPSC meetings were held weekly. A high level of interaction between the Study Team and the LPSC was maintained because of the relative isolation of Ga Rasai in the past.</li> <li>* Similarly, frequent interaction took place between the PSC and the community, especially around key decisions.</li> </ul>	<p>The Ga Rasai community was relatively uninformed about water provision and water management prior to the JICA input. The RDP scheme help build awareness to a certain extent, but largely from a negative perspective due to frequent system failures.</p>
<p>Mandated Maagement</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Intensive attention to roles and responsibilities of the LPSC, and to team building. Also particular attention to interaction with the community to deal with issues of legitimacy.</li> <li>* Mediation of conflicts by the Study Team, and facilitation of discussions to resolve differences.</li> <li>* A specific mandate to proceed with the prepayment metering system was obtained from the community.</li> </ul>	<p>Political divisions in the community have impacted on participation in the LPSC. Divides are apparent between the Community Authority and those who question its legitimacy; between local structures (like the LWC and the LPSC); and along lines of age (most community structures are dominated by older people. Since LPSC formation was led by the Community Authority, some have questioned its legitimacy.</p>
<p>Team Building</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Team building took place around atask orientation. Workshops were held to define planning tasks, roles and deadlines. The workshops were highly participatory, highlighting the need for a team approach and allowing the LPSC to influence tasks and roles in ways that were appropriate to Ga Rasai</li> </ul>	<p>Team building was essential given the initial tensions in the LPSC, and the complexity of the planning task in an institutionally isolated.</p>

**Table 4-6 Capacity Building Approach and Method (Ga Rasai) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
Building Linkages	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Community understanding of the roles and capacity of Magalies Water and Eastern District Council was developed through the LPSC.</li> <li>* A task team was formed specifically to look at communication strategy.</li> <li>* Participation by MW and EDC in LPSC, community and task team meetings has been actively promoted. Bilateral meetings have also been held with MW and EDC, and in-principle agreements on modes of support have been reached.</li> </ul>	<p>Given the isolation of Ga Rasai and the technical complexity of the water system, the establishment of support linkages was identified early on as a top priority. The effectiveness of the relationships secured during the JICA project will have to be monitored post-JICA.</p>
Planning and Management Awareness Building	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* An emphasis on frequent interaction between the Study Team, the LPSC and the community.</li> <li>* Community involvement in decisions such as the adoption of the Bambamanzi system, and the details of implementation of the management plan</li> <li>* A public display with photographs and text explaining the Bambamanzi system was mounted in the Community Office.</li> <li>* Training courses by Bambamanzi and Lister engines have transferred skills, but have also broadened awareness of the management issues associated with these technologies.</li> </ul>	<p>Prior to JICA involvement, the community had to manage the RDP water supply system (including technical inputs and cost recovery). This activity formed a base of awareness, but among a small group of people (the Community Authority and the LWC). Broader awareness has been very limited.</p>
Planning Process	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Task team approach as in Kameelboom. A specific task team tackled the important issue of forming and sustaining support linkages.</li> <li>* Participation of the community in planning was particularly emphasised.</li> </ul>	<p>A planning culture does not exist in many rural communities. For this reason, the process has to be carefully designed to permit maximum participation whilst producing viable and sustainable plans.</p>

**Table 4-6 Capacity Building Approach and Method (Ga Rasai) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
<p>Technical Understanding</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* The proposed tariff was discussed in detail with the community, and accepted by them.</li> <li>* Bambamanzi display described above.</li> </ul>	<p>Wherever possible, technical understanding has been conveyed in an interactive manner, and against a the background of a broader understanding of the entire water system and its management implications.</p>
<p>Specialist Training</p>	<ul style="list-style-type: none"> <li>* Discussed in Section 5.2.</li> </ul>	
<p>Best Practice Sharing</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Institutional and capacity building techniques developed in the other pilot projects were shared with the LPSC. Also, Ga Rasai experiences were transferred to the other pilots.</li> <li>* Best practice sharing has been facilitated through the regular meetings and workshops, and by the participation of MW and EDC in these.</li> <li>* The Study Team regularly informed the LPSC about developments in local government, and community members shared local socio-political developments.</li> <li>* The Ga Rasai LPSC visited Modderspruit (where a Bambamanzi system is operating), and discussed the system with its operators.</li> </ul>	<p>The installation of a Bambamanzi system has permitted a specific focus for best practice sharing. Ga Rasai has learned from Modderspruit, and others should be encouraged to learn from these two villages (one peri-urban and the other rural).</p>
<p>Monitoring and Evaluation Culture</p>	<p>Similar general approach to Kameelboom. See Table 4.4.</p>	<p>Systematic monitoring and evaluation of the RDP project has not been undertaken in Ga Rasai. Given the mix of a rural context and a complex supply system, M&amp;E is essential.</p>

#### 4.4.4 Difficulties and Countermeasures

Many of the difficulties encountered have been discussed above. Some of these are discussed in more detail below:

- (1) **System Breakdowns.** The RDP water supply system in Ga Rasai has been subject to numerous breakdowns, some relating to mechanical failures (for example the failure of the main supply pump), and others to managerial and operational difficulties (for example the depletion of chemicals for the purification plant). The reliability of the system is critical to cost recovery and the sustainable management of the entire system, so the Study Team has sought to address system breakdowns where possible:

Countermeasures have been the following:

- (a) **Short-term.** These have included securing a supply system for chemicals, technical assistance to pump and purification plant operators, and the provision of a back-up main pump.
  - (b) **Long-term.** The long term countermeasures have emphasised the establishment of support linkages (discussed in Section 4.4.3 above). The link with MW has had practical results in that the defective pump has been repaired. MW is also monitoring the purification plant and assisting where necessary. The next step will be to formalise a support agreement between MW and the Ga Rasai LWC/LPSC.
- (2) **LPSC tensions.** The LPSC tensions have already been described. These are likely to be common in settings such as Ga Rasai, because rifts are common between traditional authorities and elected bodies; between organisations sharing a broad development mandate; and along gender and generational lines. Guidelines for PSC establishment can deal with these to some extent, but process-oriented countermeasures are often necessary. Among those deployed in Ga Rasai, the following may have more general application:
    - (a) **Team building** around clear development objectives and acceptance of local responsibility to achieve the objectives.
    - (b) **Development of a collective understanding** of the underpinnings of the tensions, and obtaining a commitment to resolve differences for the sake of development.



- (c) Neutral mediation and conflict resolution by the Study Team. Conflict resolution has been recognised by DWAF as a key capacity required by communities. Ga Rasai does not yet have this capacity.

#### **4.4.5 Strategic Evaluation and Lessons**

The Ga Rasai pilot is important, because it is a test of the viability of relatively complex technological solutions in isolated rural communities. In this context, local management and O&M capacity is critical, together with support linkages. Progress on the latter is promising, but sustainability remains to be tested. Despite the development of a detailed and mandated management plan, the ability of the community to keep the system running is not guaranteed. It is clear that a monitoring and mentoring presence will be required for some time to come.

Many of the capacity building lessons to be drawn from the Ga Rasai pilot are similar to those from Kameelboom (see Section 4.3.5). However, the following have particular relevance in situations like Ga Rasai:

- (1) Internal capacity building should be matched with the development of networks of support. This is particularly true where communities are institutionally isolated, and/or where water systems are technically complex. The notion of service cooperatives was discussed in the Phase 1 report, but this idea has yet to be fully explored.
- (2) Frequent interaction between PSCs and communities is always desirable. However, it is particularly necessary where:
  - (a) The legitimacy of the PSC is not fully secured.
  - (b) Unfamiliar systems are being introduced.
  - (c) Levels of local water management knowledge are low.

#### **4.4.6 Monitoring and Evaluation**

Internal M&E has taken place throughout pilot project implementation. The primary agents have been the Study Team, the LPSC, and forums such as the PEG and the PEF. Ongoing M&E will be required after the conclusion of the JICA study. Recommendations in this regard are contained in Chapter 6.

## 4.5 Capacity Building in Segokgo

### 4.5.1 Challenges

The Segokgo/Semohlase pilot project has features that add complexity to the capacity building and institutional development initiative:

- (1) The Semohlase infrastructural development project involves one small village in a cluster of villages. Despite sharing one local government structure, these villages differ in terms of development history (some were in the former KwaNdebele and others in the former Bophutatswana), and the level and quality of service infrastructure. With reference to water, the village of Loding has had access to a surface supply for some years, and lack of regulation has permitted the proliferation of illegal connections. Segokgo has an RDP-level scheme which only serves a portion of the village, and the pilot project will install a similar RDP-type system in Semohlase. The implications for the pilot project include the following:
  - (a) It will be difficult to control illegal connections in Semohlase and Segokgo, when the practice is tacitly accepted in Loding.
  - (b) It will be difficult to generate and sustain cost recovery in Semohlase when costs are not recovered in Loding and Semohlase. Further, tariffs set for Semohlase will have limited credibility if a similar process is not followed in Loding and Segokgo.

Ideally, the problems outlined above should be resolved on an area basis. The necessary resources are not available to the study team, but it will be necessary to initiate an area-wide process to consider integrated water management as soon as possible. Within the ambit of the pilot project, a first step toward integrated management has been taken in the election of a LPSC which has members from communities proximate to Semohlase. The LPSC has limited jurisdiction, however, and can do little more than recommend integration strategies to the TLC, or other appropriate agencies. The capacity of the Mbibane TLC to implement such integrated water management is presently severely limited. A priority after the JICA study is build such capacity. Without it, the pilot will be unsustainable..

- (2) The particular context of the pilot project has led to the formation of a LPSC which has broad representation from Semohlase and surrounding communities. The advantage of this form of LPSC is the possibility of coordination and integration, discussed above. The disadvantage is the possible lack of motivation among those members of the LPSC

that are not working directly for their own communities. Evidence of a possible lack of motivation has been noted in the erratic attendance of some LPSC members. This (together with the restructuring of the LPSC following a change in the technical option) means that the LPSC has required active mentoring by the study team.

- (3) The ongoing Highveld Watsan process means that there is continuing uncertainty about role-players charged with regional water management.

#### **4.5.2 Resources**

Positive attributes of the Segokgo institutional environment are an identifiable and involved local authority (the Mbibane TLC), a supportive District Council (HDC provided funding for the Segokgo water project), and a link between the project and local government in the form of the Councillor responsible for Segokgo/Semohlase.

#### **4.5.3 Approach and Method**

As with Kameelboom, the institutional component of the Segokgo/Semohlase pilot project moved through a series of phases, each designed to build on preceding work:

- (1) Awareness building and LPSC Empowerment.
- (2) Capacity Building and the Development of Linkages.
- (3) Participatory Water Management Planning.
- (4) Training in Required Skills.
- (5) Implementation of Water Management Plans.

Apart from the specific capacity building task, elements of capacity building were required throughout the pilot project programme. The table outlines the approach and method deployed to build capacity in Segokgo. As in Section 4.3.3, the table is thematically organised, describing key areas of capacity building. The table does present material in chronological order.

**Table 4-6 Capacity Building Approach and Method (Segokgo)**

Capacity Input	Approach and Method	Contextual Issues
General Awareness Building	<p>Similar general approach to Kameelboom. See Table 4.4.</p> <ul style="list-style-type: none"> <li>* General awareness building was informed by a key informant survey, which investigated local government and local community-based structures.</li> </ul>	<p>The Semohlase community was relatively uninformed about water provision and water management prior to the JICA input. The provision of water to neighbouring Segokgo helped build awareness to a certain extent.</p>
Mandated Management	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* The establishment and consolidation of the LPSC was promoted by a local government councillor. The Study Team supported this to build links with the TLC. The composition of the LPSC was changed through a process of consultation when one of three possible technical options was selected.</li> <li>* Because Semohlase is situated in a complex of villages, representatives of neighbouring villages are represented on the LPSC. This facilitates communication in a complex institutional environment</li> <li>* Regular meetings have been held with the Mbibane TLC to convey progress and to get support for key decisions.</li> </ul>	<p>The LPSC has a strong mandate from the Semohlase community. However, since it operates in a complex institutional environment, other levels of mandate are required: for example in the Segokgo/Semohlase context and in the context of the broader Mbibane TLC.</p>
Team Building	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* The activities of the LPSC had to be specifically tailored to suit the schedules of the women involved.</li> </ul>	<p>Team building was essential given the need to restructure the LPSC, and the fact that participants come from different villages.</p>
Building Linkages	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Links with the TLC are critical for the sustainability of the project. These links have been maintained and consolidated through the involvement of a councillor in the activities of the LPSC, and through regular meetings. In addition, the TLC has been encouraged to attend PEF and PEG meetings (which they have done).</li> <li>* Contact has been established with the Highveld Watsan initiative</li> </ul>	<p>The TLC has jurisdiction over the villages in the Semohlase/Segokgo area, and hence it has the potential to integrate water planning, implementation and cost recovery. The Semohlase pilot might prove to be the catalyst for such an initiative.</p>

**Table 4-6 Capacity Building Approach and Method (Segokgo) (Continue)**

Capacity Input	Approach and Method	Contextual Issues
<p>Planning and Management Awareness Building</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* Awareness building around planning and management has had to reach an audience wider than the Semohlase community. Vehicles have been community meetings, information meetings set up by the TLC, and interaction in the LPSC.</li> </ul>	<p>The Semohlase community has very limited prior knowledge of water supply management.</p>
<p>Planning Process</p>	<p>Similar general approach to Kamboom. See Table 4.4. Specific points of note</p>	<p>A planning culture does</p>
<p>Technical Understanding</p>	<p>Similar general approach to Kameelboom. See Table 4.4. Specific points of note are:</p> <ul style="list-style-type: none"> <li>* The proposed tariff was discussed in detail with the community, and accepted by them. The TLC debated the tariff, even when given the details of the calculations. They have now provisionally accepted the proposal, following several facilitated meetings.</li> </ul>	<p>Wherever possible, technical understanding has been conveyed in an interactive manner, and against a the background of a broader understanding of the entire water system and its management implications.</p>
<p>Specialist Training</p>	<ul style="list-style-type: none"> <li>* Discussed in Section 5.2.</li> </ul>	
<p>Best Practice Sharing</p>	<p>Similar general approach to Kameelboom. See Table 4.4.</p> <ul style="list-style-type: none"> <li>* The Mbibane TLC and the LPSC have participated regularly in the PEF and the PEG.</li> <li>* Technical information (especially on tariffs) has been shared with the TLC.</li> <li>* The Segokgo pilot has used approaches and innovations developed in Kameelboom. It has also informed activities in the other pilots.</li> </ul>	<p>The Semohlase water project is not technically complex. The major area in which best practice needs to be shared (particularly with the TLC) is around water management and the setting and administration of tariffs.</p>
<p>Monitoring and Evaluation Culture</p>	<p>Similar general approach to Kameelboom. See Table 4.4.</p>	<p>Given the complex institutional context, M&amp;E is essential.</p>

#### 4.5.4 Difficulties and Countermeasures.

The following difficulties were encountered:

- (1) **Maintaining focus and commitment in the LPSC.** Focus and commitment have been eroded by changes in the technical options and subsequent reformulation of the LPSC. In addition, focus is more difficult to promote when the membership of the LPSC extends beyond the area to be supplied with water. In this regard, the committee has promoted broad membership for the sake of area communication, but has probably sacrificed cohesion and full commitment. If the relationship between Semohlase and surrounding communities becomes difficult over issues of water, this might threaten the cohesion and commitment of the body that succeeds the LPSC.

Countermeasures have included:

- (a) Team building around clear development objectives and acceptance of LPSC responsibility to achieve the objectives. In this regard the LPSC has developed remarkable confidence in the ability of the Semohlase community to manage the water supply system.
  - (b) Exposure of the LPSC to Mbibane councillors. In this context the LPSC has had to argue for its management plan (facilitated by the Study Team). This process has produced striking solidarity.
  - (c) Countermeasures still have to be formulated to deal with the sustainability of the Semohlase project and its local institutions in an areal context of non-payment and limited management and regulation. This is extremely urgent, but will have to be taken up beyond the present JICA project.
- (2) **Lack of coordination around water supply provision and administration in the Mbibane TLC.** This lack of coordination is reflected in a number of ways:
    - (a) Further extensions to the Loding pipeline are being proposed by the TLC and consultants, despite the already excessive demands on the available resource.
    - (b) The TLC has promoted a general flat water tariff of R5 per household per month. The Semohlase tariff is around four times that amount, and it is clear that a carefully calculated area-wide tariff will be more than the R5 proposed.

It has already been argued that the sustainability of the Semohlase project is threatened by the lack of coordinated water management in areas surrounding it. Countermeasures have been limited in the context of the JICA project, but must be taken up urgently by a champion yet to be identified.

#### **4.5.5 Strategic Evaluation and Lessons**

As an exercise in capacity building around local water delivery and management, the Segokgo/Semohlase project may be adjudged a qualified success. In a broader context, the task of capacity building has barely begun. Lessons from the pilot are the following:

- (1) The DWAF-supported areal approach to water supply provision and management avoids (or at least mitigates) problems like those that are likely to bedevil the Semohlase project in future. In this context a criterion for the implementation of the pilot projects should have been the selection of communities that are either self-contained (like Kameelboom) or relatively isolated (like Ga Rasai).
- (2) Area-wide implementation of water projects in areas like the Mbibane TLC will have to deal with limited capacity, limited planning, historic preconceptions about subsidies for water, and local political dynamics. Whilst the notion of area implementation has the merits discussed in (1) above, it has to be accepted that the capacity building and institutional development task will often be much more complex than it might be in a single community. Further, institutional work may have to precede infrastructural inputs to ensure the environment for sustainability. In retrospect, this should have happened in Segokgo/Semohlase.

#### **4.5.6 Monitoring and Evaluation**

Internal M&E has taken place throughout pilot project implementation. The primary agents have been the Study Team, the LPSC, and forums such as the PEG and the PEF. Ongoing M&E are urgently required after the conclusion of the JICA study. Recommendations in this regard are contained in Chapter 6.

## **4.6 Capacity Building in Bapong**

### **4.6.1 Challenges**

The Bapong pilot project is entirely institutional in nature. Bapong offers many institutional challenges, some of which are probably common to many peri-urban settlements in former homelands:

- (1) Treated surface water is available to the community. However, cost recovery is very low, despite household income levels that are generally higher than those typical of rural communities in the same region. In the case of Bapong, a small number of metered house connections exist, but most households with meters have ceased paying, and are not penalised in any way.
- (2) The incidence of illegal connections is very high (an estimated 90% of households). This contributes to the low level of cost recovery.
- (3) Local government and local institutions are in a state of flux, reflecting a number of institutional legacies. For example, the traditional authority remains a significant presence, but its legitimacy and role are widely questioned. This authority is presently the subject of a Mmabatho-led Commission of Enquiry. An interim Administrator is currently in place, and Eastern District Council seems willing to assist with local government functions where required. Elements of the local civic association are advocating continued non-payment for water, claiming that the village has a contract with nearby Eastern Platinum to provide free water. There is no evidence that such a contract exists. Some local organisations, including the local branch of the ANC, seem keen to plan for cost recovery, and to get the necessary systems in place. There are few local organisations focused on water. There are no RDP structures and a Local Water Committee does not exist.

The key objectives selected for the Bapong pilot are those of promoting a cost recovery plan and its implementation, and promoting the regulation of unauthorised connections. For reasons explained later, these objectives have not been met.

### **4.6.2 Resources**

The pilot project has been supported by Rand Water, DWAF North West Province and Eastern District Council. All believe that the solution of cost recovery and unauthorised connection problems in Bapong will provide valuable lessons for similar situations.



Latterly, the project has also been supported by community-based organisations, notably the local ANC.

### 4.6.3 Approach and Method

The table outlines the approach proposed for the Bapong pilot. This approach has been discussed with several community actors (including the Administrator), but no firm mandate to proceed has been given. The elements of the capacity building approach are:

- (1) Establishing relationships.
- (2) Awareness building.
- (3) Water management planning through a programme of workshops and task team activities.
- (4) Development and implementation of actions plans, especially around cost recovery and illegal connections.

**Table 4-8 Capacity Building Approach in Bapong**

Process Step	Approach and Method
Establish relationships.	The envisaged approach is to make early contact with key stakeholders in Bapong (including the nominal local government), possibly through local contacts. This cautious approach is necessary because of the unsettled and volatile nature of Bapong.
Awareness building	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.
Community workshops and strategic planning.	The proposed approach has several steps: <ul style="list-style-type: none"> <li>* Formation of a Representative Forum (RF), with local government or suitably mandated representation</li> <li>* First RF workshop agrees programme and elects a task team</li> <li>* Task team embarks on a strategic planning process by investigating obstacles and opportunities</li> <li>* Second RF workshop considers TT feedback, and works through a process which defines the water management challenges in Bapong. Also mandates the task team proceed with its work.</li> <li>* TT formulates strategies to address the identified management problems</li> </ul>
Strategy testing.	<ul style="list-style-type: none"> <li>* TT tests strategy proposals with local stakeholders</li> <li>* TT presents proposals to RF, and roles and responsibilities are agreed</li> <li>* TT prepares an action plan</li> </ul>
Reporting and strategy implementation.	<ul style="list-style-type: none"> <li>* Local government (or an appropriately mandated body) implements the action plan.</li> </ul>

#### 4.6.4 Difficulties and Countermeasures

The mobilisation of the Bapong project has proved difficult. This is primarily so because of the lack of a body prepared to tackle the water management task. EDC has the mandate, but limited capacity and sensitivity to the political dynamics of Bapong may have persuaded them to take a cautious approach.

Initial meetings with external stakeholders such as Rand Water and EDC were very positive, but gaining access to the community has been problematic, for the following reasons:

- (1) Local government and local management in Bapong is in a state of flux.
- (2) Poor attendance at relationship-building meetings. A number of meetings have been scheduled but none have included the full spectrum of local stakeholders. A number did not happen at all.
- (3) It was originally envisaged that the Five Villages Development Forum (FVDF - charged with facilitating a subregional water supply project which will supplement supply to Bapong and neighbouring Modderspruit, and bring water to three previously unserved villages) would facilitate access to Bapong, but Bapong informants indicated that the FVDF had limited credibility in the village, and that FVDF sponsored activities would not be welcome in Bapong.

The team finally obtained permission to address a large community meeting in August (around 160 participants), and made a presentation illustrating the need for the Bapong community to develop a plan for water management and cost recovery (see Annex B.3).

The following are key points emerging from the meeting:

- (1) A small but vocal lobby is resisting efforts to initiate cost recovery in Bapong. The lobby appears to include contractors responsible for illegal connections, and members of the local civic association. Community informants fear the power of this group to disrupt a cost recovery planning initiative.
- (2) The above lobby tried to stop the community meeting, but were not allowed to do so. They presented their views and then left. Of the 160 participants, around 15-20 left the meeting.
- (3) Following the presentation, a number of community members spoke in favour of paying for water. These views were greeted with applause, suggesting majority support

for cost recovery. The study team was thanked for making the presentation.

- (4) It was agreed that the community should carefully consider the offer of support made by the JICA team. Representatives undertook to contact the team, and to consider the formation of a task team to take the matter forward. EDC offered to assist with this, and also to talk to the interim Administrator.

Emerging from the meeting, the Bapong branch of the African National Congress invited the institutional team to a meeting to discuss water services planning, and the possible contribution of the JICA project. This meeting was held on the evening of Friday 12 September. At the meeting, the ANC agreed to assemble a task team, and to contact the study team within a week. The study team offered assist the team to start a water management planning process, and to take this as far as time would allow. Three further meetings were held with this group (and some civic participants), but discussion remained at the level of information sharing. The impact of these contracts is unknown, since the team were again warned of possible interference from the anti-payment lobby.

The sole countermeasure adopted has been to persist with efforts to make contact with interested people in Bapong, and to respond to requests for further information. Every opportunity has been taken to present a case for cost recovery planning and unauthorised connection regulation.

This strategy is consistent with Option 1 in the following table. The options were discussed by the PEG and the PSC.

**Table 4-9 Mobilisation Options - Bapong**

Option	Description	Advantage	Disadvantage
1: Continue with current efforts to gain access.	In this option, the study team would continue working with the EDC and local stakeholders to gain access to the community.	<ul style="list-style-type: none"> <li>* No change to study team, pilot project budget or study TOR required.</li> <li>* Builds on slow but promising groundswell of support in some quarters.</li> <li>* Allows time for local government matters to settle, whilst retaining contacts.</li> </ul>	<ul style="list-style-type: none"> <li>* This process will be slow and may delay the project further.</li> <li>* Provides no guarantee that the further pilot project programme will be supported.</li> </ul>

**Table 4-9 Mobilisation Options – Bapong (Continue)**

Option	Description	Advantage	Disadvantage
<p>2: Recruit a locally-credible facilitator/organiser</p>	<p>Hire someone in the community or with community links to set up meetings and to mobilise community interest. RW, EDC and North West Local Government might be asked to add impetus to the project.</p>	<ul style="list-style-type: none"> <li>* Will speed up the process of making contact, and will add credibility to the pilot project.</li> <li>* No change to TOR required.</li> </ul>	<ul style="list-style-type: none"> <li>* Additional (but relatively modest) cost implied.</li> <li>* Facilitator may be difficult to find. possibility.</li> <li>* Provides no guarantee that the further pilot project programme will be supported.</li> </ul>
<p>3: Redefine or redirect the Bapong pilot project.</p>	<p>Possibilities might be to build capacity in organisations serving Bapong (such as the EDC or the FVDF), or to work intensively with specific stakeholders in Bapong (e.g. youth groups or women's groups).</p>	<ul style="list-style-type: none"> <li>* External options provide an easier context for the pilot project, and hence the possibility of doing something effective in the time available. Internal options may also be easier than the presently envisaged project, but are more risky than the external options.</li> <li>* Change in budget and study team not necessarily required.</li> </ul>	<ul style="list-style-type: none"> <li>* Change in TOR required.</li> <li>* Stakeholder support will have to be renegotiated.</li> </ul>
<p>4: Postpone or cancel the Bapong pilot.</p>	<p>The Bapong pilot might be postponed until the local government position is clearer, or cancelled entirely.</p>	<ul style="list-style-type: none"> <li>* The key advantage of the first option is that sufficient time will be allowed for local circumstances to settle down and for negotiations with the wide spectrum of community interests to take place.</li> <li>* Cancellation might permit the redirection of human and budgetary resources to the other three pilot projects.</li> </ul>	<ul style="list-style-type: none"> <li>* The original pilot project TOR would have to be changed.</li> <li>* Cancellation would disappoint the various stakeholders who have supported the Bapong pilot (e.g. RW, EDC, DWAF).</li> <li>* The opportunity to test capacity building and community-based planning approaches and methods in a challenging environment would be lost.</li> </ul>

#### 4.6.5 The Way Ahead

Key stakeholders such as Rand Water and Eastern District Council have indicated that progress in Bapong would set a wider precedent on the management of cost recovery and illegal connections, and that it is worth pursuing for this reason. EDC has limited capacity, yet it faces the challenge of acting as service authority for a number of peri-urban and rural communities. In addition, EDC might be called on to be the service provider in some areas where local capacity is absent. In this context, it is vital for EDC to build the ability to manage water projects like that in Bapong. For this reason, some EDC officials probably see Bapong as an important test case. Rand Water has recently established a retail organisation called Odi Retail. Odi Retail will act as a regional service provider in the Bapong area. The organisation is still relatively new, and cost recovery is probably the greatest challenge it will have to face. A successful project in Bapong would assist Odi Retail to extend the lessons learned to other settlements in its jurisdiction.

Against this background, it seems worthwhile to pursue the Bapong pilot. The following is the proposed strategy to be followed:

- (1) Investigate the incorporation of the Bapong pilot into the Danida North West support programme. Danida has a cost recovery sub-programme incorporating DC s and some communities. The Bapong project should link well with this initiative. If Danida funding is not available, other sources should be investigated (EDC, RW, DWAF). Continuation of the project will depend on the availability of support. Danida has pioneered co-funding arrangements on pilot projects, and this option might be worth pursuing.
- (2) Await the resolution of local government debates before formally initiating the process, but continue developing contacts with local officials and interested organisations. Also secure the committed support of the EDC, and agree on EDC counterparts to work on the project.
- (3) Once preparatory arrangements (1) and (2) have been completed, the project should proceed through the steps originally planned (see Section 2.3.4). Best practice developed through the Danida cost recovery sub-programme should be incorporated wherever possible.

## **4.7 Capacity Building Structures Linking Communities**

### **4.7.1 Approach**

The capacity building approach adopted for the pilot projects has emphasised the sharing of best practice and of resources. This strategy was proposed in the Phase 1 study, recognising the lack of institutional capacity at local level, and the merits of an exchange of experiences, people and systems. The pilot project programme did not explore the theme of best practice and resource sharing fully, but some lessons are evident.

### **4.7.2 Role of the Study Team**

The study team served as the primary vehicle for best practice sharing among the pilot communities. In this context, capacity building methodologies and planning approaches tested in one community were transferred to others. The study team also introduced best practice from outside, where appropriate. For example, DWAF policy thinking around service authorities and service providers was used to motivate the early discussion of service provider roles in the LPSCs. Since the study team was involved in all aspects of local planning this role was appropriate, but temporary. The challenge is to consider more durable vehicles for best practice sharing at community level.

### **4.7.3 Role of the Project Execution Forum**

The PEF proved to be an effective vehicle for the exchange of views and best practice among stakeholders in the Magalies expansion project. The forum drew representatives from DWAF, the DC s, MW, Mbibane TLC and the pilot communities. The LPSCs were encouraged to report progress and to share experiences, and they did so on occasion. DC s also expressed views on various matters, and compared approaches to planning, capacity building and support to local communities. PEF attendance remained steady throughout 1997, and community participation was consistently satisfactory. This suggests that the PEF was valued by the stakeholders.

It has been proposed that the PEF should remain in place during the mentoring phase of the pilot projects. No final decision has been taken in this regard.

### **4.7.4 Proposals for Best Practice and Resource Sharing**

Based on the pilot projects, the following are proposals for further mobilising best practice and resource sharing:

- (1) Area Forums should take on the role of the PER. Agendas should provide space for the sharing of practices and experiences, and communities should be encouraged to participate.
- (2) The notion of a District Council Forum should be pursued. This would align with the recent emphasis on growing the capacity of district government.
- (3) All monitoring and evaluation undertaken by DWAF, DC s, MW, NGOs and project implementing agents should generate lessons that can be easily disseminated. DWAF should formulate guidelines in this regard.
- (4) Consultants should be encouraged by DWAF or other clients to generate accessible reports on project experiences.
- (5) NGOs should be encouraged to become agents of best practice sharing in certain areas. The Mvula Trust has played this role to a certain extent in the past.
- (6) Service cooperatives might be pursued by groups of villages. These could be mobilised by the villages themselves, by DWAF, a water board, District Councils or local authorities. The service cooperative idea is discussed in the Feasibility Study reports.

## **4.8 Guidelines for Capacity Building in Communities**

### **4.8.1 Summary of Pilot Project Experiences**

The capacity building guidelines presented below are based on lessons drawn from the pilot projects. In many cases, these are similar to procedures already in use on RDP projects, but a number extend existing guidelines. Among the latter are guidelines relating to community-based planning, and the development of management plans (see Section 5.1.1 for a detailed discussion of the management planning process).

The table summarises key capacity building lessons from the pilot projects.

**Table 4-10 Key Capacity Building Lessons**

Project Context	Lessons
Kameelboom (significant institutional capacity before the pilot project)	<ul style="list-style-type: none"> <li>* Capacity is often available but not recognised. Capacity audits should be conducted to identify existing capacity.</li> <li>* Capacity building is facilitated if the community and its structures are cohesive and have experience with development projects.</li> <li>* The effectiveness of awareness building is increased if it is linked to the management requirements of existing and proposed water systems.</li> <li>* The promotion of local planning capacity underpins a problem-solving and proactive approach to water management, and it equips community-based service authorities and providers to engage planning forums in dialogue.</li> <li>* Community based structures can engage technical issues if the transfer process is well designed.</li> <li>* A task team approach to LPSC functioning enables the LPSC to undertake management planning roles and to co-opt appropriate expertise.</li> </ul>
Ga-Rasai (isolated community with limited capacity)	<ul style="list-style-type: none"> <li>* Capacity building has to be more intensive if the community and its structures are not cohesive and have limited experience with development projects.</li> <li>* Internal capacity building should be matched with the development of networks of support (for example from DCs or water boards). These networks are particularly important where communities are institutionally isolated and/or where water systems are technically complex.</li> <li>* Intensive interaction between LPSCs and the community is particularly important where the legitimacy of the LPSC is questioned, where unfamiliar water systems are being introduced, and where levels of water management awareness are low.</li> <li>* Best practice sharing is an effective capacity building tool. The Ga-Rasai visit to the Modderspruit pre-payment metering project exposed community members to the realities of managing such a system.</li> </ul>
Segokgo (community in an institutionally and politically complex environment)	<ul style="list-style-type: none"> <li>* An areal (or district) approach to water supply provision and management planning is necessary where communities are part of a wider institutional and political framework. The nature of this context should be investigated before project planning proceeds.</li> <li>* An areal approach to capacity building and planning has merits in the context described above, but where capacity and awareness are limited in the broader areal context, the capacity building and institutional development task may be more complex than it might be for a single community.</li> </ul>
Bapong (local government and local structures in a state of conflict and flux)	<ul style="list-style-type: none"> <li>* Sustainable water supply planning is very difficult where there are ongoing debates about the legitimacy and role of local political actors and community-based organisations. In this context, capacity building should be delayed (pending local political resolution), or it should be focussed on people and organisations likely to play a role in local water supply management. Another approach to capacity building in this context might be to embark on general awareness building.</li> </ul>
General	<ul style="list-style-type: none"> <li>* A number of capacity building vehicles were tested in the context of the pilot projects. LPSC task teams are discussed above. Another vehicle is the Project Execution Forum, where LPSCs were given the opportunity to share experiences and best practice. The PEF worked well, and alternatives might be considered in other contexts. Area Forums might be redirected somewhat to accommodate best practice sharing.</li> </ul>



## 4.8.2 Guidelines for Capacity Building around Water Supply Management

### (1) Contextual Surveys

From the pilot projects, it is clear that capacity building must be informed by a clear understanding of the institutional, social, economic and political context. This contextual picture is necessary to ensure appropriate, well targeted and sustainable capacity building; to detect flaws in project and management planning as early as possible; and to relate capacity building to resources already available in communities and in supporting organisations. Three forms of contextual research are proposed:

- *Socio-Economic and Capacity Survey.* This would investigate affordability, willingness to pay, payment history, community cohesiveness (and conflict), the presence and contribution of community-based structures, and sources of capacity for infrastructural development and management. The latter task may assist in the formation of locally based service providers.
- *Support Network Survey.* This survey would look at possible sources of extra-community support. The JICA study concluded that support networks are particularly critical for sustainability where communities are institutionally isolated, and where the technology of the water system is complex. The support network survey should investigate the following:
  - DWAF (central and in the region). Forms of support that might be offered by DWAF are: guidelines on management, operations and maintenance, and monitoring and evaluation; policy on roles and responsibilities in the water sector; RDP-based funding; and Area Forum mentoring. The survey should ascertain which of these are available.
  - Water Boards. Support possibly offered by Water Boards includes: willingness to develop bulk resources and to be a bulk service provider; willingness to act as a regional retail service provider; cross subsidisation of bulk tariffs (where applicable); technical and operations and maintenance assistance. The survey should ascertain which of these may be available.
  - District Councils and various forms of Transitional Local Authority. Forms of support that should/might be offered by DC s and TLCs are: formal operating agreements with service providers; the provision of an enabling political and governance environment for service providers;

coordination and facilitation of Area Forums (and hence possibly of best practice sharing); willingness to act as a service provider in some circumstances; technical and administrative support. The survey should ascertain which of these may be available.

- NGOs. These may be able to offer capacity building, training, mentoring and technical support. The survey should investigate the availability of such support.
- *Risk Analysis.* The above research should inform the identification and analysis of problems that might undermine the sustainable management of the water system. Countermeasures and remediation can be designed early on the basis of this analysis.

## (2) PSC Establishment and Service Provider Handover

The JICA pilot projects have adhered to RDP principles in terms of PSC establishment. However, the pilots have deployed the LPSCs (Local PSC - as distinct from the JICA project PSC) in roles that are not typical in RDP practice. These roles include the development of water system management plans, the establishment of support networks, and the clarification of service authority and service provider roles and responsibilities. The following guidelines reflect this shift in emphasis:

- *Dealing with the Planning Role.* Where LPSCs are to undertake management planning, it is necessary to include management and planning expertise in the membership. The Study Team provided this input in the pilot projects, but it may be possible to use Water Board or District Council expertise in other contexts.
- *Teambuilding.* A lesson from the pilot projects is that PSCs cannot be assumed to be viable teams. The viability comes in part from a secure community mandate, but it may also be necessary to make specific team building inputs. Teamwork is especially important where planning is to take place.
- *Clear Sequence of Activities.* When LPSCs have a planning role, it is necessary to pursue a clear and iterative sequence of activities. The pilot projects proceeded through the following steps:
  - LPSC empowerment and awareness building.
  - Capacity building and confirmation of linkages.

- Development of management plans for cost recovery and operations and maintenance.
- Management and technical training.
- Operationalising management plans.
- Handover to service provider and sharing best practice.

It has to be very clear throughout the process that the objective is to develop sustainable management plans, which are to be implemented by sustainable service providers. It must also be clear that the LPSC is not necessarily the service provider.

- *Service Provider Mobilisation.* It is important that the service provider is identified as early as possible. If the identity of the provider is clear from the outset, then it is appropriate for this body to participate in the management planning. If the SP does not exist at the outset of the project, the LPSC should proceed with planning, whilst also pursuing SP options. The Service Provider should be identified before training begins, so that the training can be appropriately targeted.
- *Task Teams as a Planning Vehicle.* Typical PSCs are not suited to a management planning role. Task teams are an effective way to deal with a variety of planning tasks. These should have a defined task and life, and should be able to coopt members as required by particular planning tasks. Coopted members might be included by virtue of technical expertise, or they may be representatives of the service authority and/or service provider. Planning tasks undertaken by the task teams may include:
  - Cost recovery administration.
  - Operations and maintenance.
  - Communication and customer relations.
  - Securing support networks.
  - Training.
  - Community-based monitoring and evaluation.

The brief for the task teams will be determined by the management requirements of individual schemes, and the systems and capacity already in place.

### (3) Infrastructure Development and Capacity Building.

Capacity building is often pursued to facilitate the management of new infrastructure. However, it is possible to use the installation of infrastructure as a capacity building

tool. The pilot projects experimented with this approach, and the following guidelines are proposed:

- ***Defining Management Tasks.*** LPSCs should develop a detailed understanding of the infrastructural development, and particularly of the tasks that will be required to operate and maintain it. This understanding may have to be facilitated by consultants, or by coopted expertise from water boards or local government. The schedule of tasks can be used as a base for capacity building and management planning.
- ***Matching Tasks to Capacity.*** The schedule of management tasks should also be related to the capacity audit, to determine which of these might be handled by existing organisations and appropriately skilled individuals. Negotiations might have to be undertaken with these as part of the process of service provider identification.

#### (4) PSC Involvement in Construction Works

RDP guidelines are clear on PSC and community involvement in construction works.

The pilot projects followed the guidelines closely, but unlike typical RDP projects, the LPSCs were not directly involved in the management of contractors. From the pilots, guidelines for LPSC involvement in construction works are the following:

- ***Understanding the Contract.*** LPSCs should be fully briefed on the nature of the contract, and especially those clauses that have to do with community / contractor relationships.
- ***LPSC Roles.*** Specific LPSC roles are:
  - Assisting with the labour desk and with the identification of local labour.
  - Ensuring compliance with contractual employment, liaison and training requirements.
  - Facilitating community / contractor relationships and mediating conflicts.
  - Coordinating the process of management planning so that it links with and draws on infrastructure development.
  - Discussing practical system management issues with the contractors and engineers.

(5) Preparation of Cost Recovery and O&M Management Plans

A weakness in current RDP project implementation is the emphasis on project and infrastructure planning, and the relative neglect of management planning. As discussed earlier, the pilot projects emphasised management planning; a task coordinated by the LPSCs and undertaken by focused task teams. The following are guidelines for the management plans themselves:

- *Appropriate Scope and Focus.* The management plan should address all the tasks required for the sustainable management of the water system. It is not necessary to go beyond these. The management solutions should recognise service provider capacity (and community capacity if the community is to be involved in service provision). Typical themes in a management plan are:
  - Characteristics of the scheme.
  - Tariff components and agreed tariff.
  - Tariff administration and O&M management structure.
  - Management capacity building and mentoring.
  - Roles and responsibilities of support institutions.
- *Purpose of Management Plans.* Management plans should serve three key purposes:
  - A detailed and accessible water management manual for the service provider.
  - A document securing agreements between service authorities and service providers, and between service providers and sources of infrastructural and institutional support.
  - A reference and quality control document for consumers / customers.
- *Testing of Management Plan.* Prior to implementation, the management plan should be tested. This can be done by simulating operating conditions and dealing with hypothetical problems. Another way of testing management plans is to discuss them with the communities involved.
- *Mentoring.* After implementation, a period of mentoring is required as is the case in RDP projects.

(6) Agreeing a Water Tariff.

The pilot projects tested a community-based process of tariff build-up, facilitated by a dedicated task team. This process was included in the preparation of the management plan, and the agreed tariff is included in the plan. The following are guidelines for community-based tariff setting and approval:

- *Tariff Task Team.* A tariff task team should be established, with the appropriate technical skills coopted.
- *Base for Tariff Setting.* The tariff setting should be based on a thorough understanding of the scheme. O&M costs should be obtained from the project engineers. Management costs should be calculated against the background of the detailed cost recovery and O&M plans. Typical tariff components are (in an RDP-level project) :
  - Energy costs.
  - Maintenance, service and repairs.
  - Operating costs.
  - Administration.
  - Replacement fund.
  - Allowance for possible cost recovery shortfalls.
- *Tariff Setting Process.* The process for tariff setting should include preliminary tariff calculations by the task team, testing in the context of simulated operating conditions, and refinement of the tariff.
- *Gaining Community Approval.* The refined tariff should be presented to the community for comment and approval. The presentation should demonstrate clearly the components of the tariff, and the consequences of differing levels of cost recovery.

(7) Training.

The pilot projects made use of limited but focused formal training in the fields of O&M and administration. The following guidelines underpin this approach:

- *Task Based Training.* The training curricula were based on job descriptions for the identified management tasks. Trainees were selected to fill positions identified in the management plans.

- ***Planning as Training.*** The planning process itself is a form of training. Participants in planning are better equipped to place detailed formal training in a management context.

**(8) Tariff Collection and Administration.**

This is detailed in the management plan. The effectiveness of the plan must be monitored for a period, and changes must be made if necessary.

**(9) Best Practice Sharing.**

An effective form of capacity building is best practice sharing. Proposals for the mobilisation of best practice and resource sharing are contained in Section 4.7.4.





## **CHAPTER 5**

### **BUSINESS PLAN AND TRAINING**

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## CHAPTER 5 BUSINESS PLAN AND TRAINING

### 5.1 Management Plans and Water Tariffs

#### 5.1.1 Nature of Plans

The Study Team has been using the term "business plan" to describe the water supply management plans produced by the LPSCs in each pilot project. Typical DWAF RDP business plans are far more complex, because they deal with infrastructural and institutional planning. These plans precede implementation, and are a base for judging the viability of projects before funding approval is given.

In the case of the JICA pilots, there was no bidding process. The infrastructural inputs were simply negotiated with the LPSCs before installation. In this context, the "plans" produced are more correctly called *management plans*, because they focus exclusively on ways to install and sustain local water supply management in the pilot projects. It should also be noted that the management plans were produced by the LPSCs themselves. In many RDP projects, the preparation of business plans is lead by consultants, with limited planning input from communities or their representatives.

The purpose of a pilot project management plan is the following:

- (1) A management manual for community use. The MP has to be accessible to the community, and is written with this in mind. Once finalised, the MP will be translated into an appropriate local language.
- (2) A document formalising relationships between community-based service contractors and broader service authorities and providers. Contracts sealing these relationships will be based on the management plans.
- (3) A reporting document. In this context the MP serves as an information source for JICA, DWAF, MW and local government.

### 5.1.2 Planning Approach

The planning approach has been described in earlier sections (eg 2.1, 2.3, 4.3, 4.4 and 4.5). The essential features are:

- (1) A community-based approach.
- (2) The mobilisation of LPSC task teams with specific planning tasks.
- (3) The production of accessible and simple management plans.

### 5.1.3 Summary of Management Plan for Kameelboom

#### (1) Details of Operation and Maintenance Plan

In Kameelboom the allocation of tasks to members of staff differs from section to section, depending on the specific needs of each section. Each section has a pump operator who will be responsible for the section's pump and reticulation system. In some sections the pump operator will also undertake maintenance. In other sections there is an assigned maintenance person. Their responsibilities are as follows:

**Table 5-1 Responsibilities of O&M Personnel - Kameelboom**

Employee	Tasks
Pump Operator	<ul style="list-style-type: none"><li>• Operation of the pump</li><li>• Obtaining diesel.</li></ul>
Pump Operator/ Maintenance Person	<ul style="list-style-type: none"><li>• Maintenance of the pump and the reticulation system</li><li>• Minor repairs</li><li>• Request assistance from Magalies Water if necessary</li></ul>

#### (2) Administration

##### (a) Financial administration

Finances are administered centrally by the Community Authority Clerk. In each section a treasurer has been appointed to collect tariffs from each household and to deposit the money with the Community Authority Clerk. The Community Authority Clerk maintains financial records of each section and these records determine whether the clerk can order parts or services for the section.

(b) Administration of diesel

The diesel controller is responsible for administering diesel including:

- Distribution to the sections= pump operators (with the approval of the Community Authority Clerk
- Stock control

(3) Cost Recovery

Each section operates as a single financial entity and is required to generate enough income to obtain diesel and spare parts, cover other maintenance costs and pay the pump operators and security personnel. In addition a surplus is built into the tariff to cover the eventual costs of replacing hardware. The tariff is set at R19 per household per month.

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

#### 5.1.4 Summary of Management Plan for Ramoshibitswana

Ramoshibitswana is closely connected to Kameelboom and much of the management plan for Ramoshibitswana follows that for Kameelboom. The Kameelboom Community Authority makes joint decisions with the Ramoshibitswana community. However as it forms part of a different administration it has not been included in the Kameelboom management plan.

(1) Summary of Operation and Maintenance Plan

Ramoshibitswana has both a pump operator and maintenance personnel. Their duties include:

**Table 5-2 Responsibilities of O&M Personnel - Ramoshibitswana**

Employee	Tasks
Pump Operator	<ul style="list-style-type: none"><li>• Operation of the pump</li><li>• Obtaining diesel.</li></ul>
Pump Operator/ Maintenance Person	<ul style="list-style-type: none"><li>• Maintenance of the pump and the reticulation system</li><li>• Minor repairs</li><li>• Request assistance from Magalies Water if necessary</li></ul>

(2) Financial Administration

Finances are administered centrally by a clerk at the Zonal Office. A treasurer has

been appointed to collect tariffs from each household and to deposit the money with the Community Authority Clerk. The Community Authority Clerk maintains financial records and these records determine whether the clerk can order parts or services for Ramoshibitswana.

(3) Cost Recovery

Ramoshibitswana operates as a single financial entity and is required to generate enough income to obtain diesel and spare parts, cover other maintenance costs and pay the pump operators and security personnel. In addition a surplus is built into the tariff to cover the eventual costs of replacing hardware. The tariff is set at R23 per household per month.

5.1.5 Summary of Management Plan for Ga-Rasai

(1) Details of Operation and Maintenance Plan

Operation and maintenance is carried out by the three paid employees of the Water Committee (ultimately to be employed by the Eastern District Council). The allocation of tasks is as follows:

Table 5-3 Responsibilities of O&M Personnel- Ga Rasai

Employee	Tasks
Administration Clerk	Operation and maintenance of the prepayment meters: <ul style="list-style-type: none"> <li>• Replacing batteries</li> <li>• Minor repairs</li> <li>• Bleeding air from the system</li> </ul> Operation and maintenance of the computer.  Working times: Mondays, Wednesdays and Fridays from 8 am to 4 pm, and Sundays between 8 am and 9 am.
Plant Operator	Operation and maintenance of the filtration plant: <ul style="list-style-type: none"> <li>• Daily purification of water</li> <li>• Back washing plant</li> <li>• Administration of chemicals</li> </ul> Working times: When necessary B to follow those of the Pump Operator
Pump Operator	Operation and maintenance of pump: <ul style="list-style-type: none"> <li>• Transporting pump daily between the storage facility and the river</li> <li>• Pumping water daily</li> <li>• Servicing and minor repairs to pump when necessary</li> </ul> Working times: 32 hours in morning (including 2 hour=s break), 12 hours in afternoon, 7 days a week

**(1) Administration**

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

- (a) Finances**
  - Registration of new users
  - Receiving money and updating coupons
  - Making payments
  - Documentation of daily finances
  - Banking
  - Completion of month-end finances (cash book and bank reconciliation)
- (b) Prepayment meters**
  - Recording usage
- (c) Operation and Maintenance issues**
  - Ordering supplies from Magalies Water
  - Recording usage of diesel

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

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

**(3) Cost Recovery**

Costs are recovered through the prepayment system. Prepayments are made at the administration office, where the Administration Clerk receives cash and records prepayments electronically upon consumer tokens. These tokens are inserted into the prepayment meters located at each standpipe, which release water as needed and reduce the prepaid amount recorded on the cards as necessary.

The tariff is set at R2.44 per kiloliter. This is calculated to cover the operating costs of the system and to build up a reserve to cover the eventual replacement costs of hardware. It is subject to review by the Eastern District Council, in conjunction with Magalies Water and the community.

**(4) Institutional Linkages**

Ga Rasai is dependent upon Magalies Water for supplies and any repairs which cannot be carried out by community members. The village also needs to contact the Eastern District Council (EDC) on occasion as the EDC is the legal authority for water for the village.

Historically communication has been problematic, as there are no telephone connections in Ga Rasai and communication channels were not clear. The former problem remains B there is no indication that telephone lines will be installed at Ga Rasai in the near future. However communication channels have been improved. Ga-Rasai now deals directly with the Vaalkop office of Magalies Water, which is better suited to dealing with any issues that may arise than was the Themba office which previously served the village. Magalies Water has provided contact details for a number of personnel at the Vaalkop office who are familiar with Ga Rasai. Over the course of the project Magalies Water personnel have become more sensitive to the challenges facing Ga Rasai. Now a single telephone call from a nearby village is enough to ensure rapid and efficient support.

It is still difficult for the community to communicate with the Eastern District Council. However contact details have been provided which have improved the situation somewhat. Fortunately matters which require the attention of the Eastern District Council are rarely as urgent or as common as those which require the attention of Magalies Water.

**5.1.6 Summary of Management Plan for Semohlase**

**(1) Details of Operation and Maintenance Plan**

Operation and Maintenance are carried out primarily by the O & M Officer, who works in close co-operation with the technical administrator. The allocation of tasks is as follows:



**Table 5-4 Responsibilities of O&M Personnel**

Employee	Tasks
O & M Officer	<ul style="list-style-type: none"> <li>• Routine inspection of the reticulation system</li> <li>• Operation of the electric pump</li> <li>• Replacement of broken/old parts/pipes</li> </ul> <p>Working Hours: 8 am B 5 pm B the hours will be flexible to allow for emergencies</p>
Technical Administrator	<p>Administration/management of technical components of the scheme:</p> <ul style="list-style-type: none"> <li>• Routine inspection of the electric pump and reticulation</li> <li>• Ensuring that replacement components are always available</li> </ul> <p>Working Hours: 8 am B 5 pm</p>

**(2) Administration**

Administration is carried out primarily by the Financial Administrator and the Technical Administrator. The tasks to be carried out are as follows:

**Table 5-5 Responsibilities of Administrator - Semohlase (Segokgo)**

Employee	Tasks
Financial Administrator	<ul style="list-style-type: none"> <li>• Collecting service charges from households</li> <li>• Issuing receipts with an official stamp</li> <li>• Compiling a register with all household identifications</li> <li>• Issuing electricity coupons</li> <li>• Developing daily balance statement</li> <li>• Authorisation of statement</li> <li>• Sending the money to the TLC for banking</li> <li>• Document the amount of monies send to the TLC</li> <li>• Debt collection</li> <li>• Paying salaries to staff</li> <li>• Developing monthly financial statements</li> </ul> <p>Working Hours: 8 am B 5 pm (inclusive of 30 minutes tea-time and 1hour lunch)</p>
Technical Administrator	<ul style="list-style-type: none"> <li>• Requesting external maintenance support</li> <li>• Development of monthly statements in terms of cost of repairs spares and replacement components</li> <li>• Informing community about technical problems relating with the scheme.</li> </ul> <p>Working Hours: 8 am B 5 pm</p>

**(3) Cost Recovery**

Cost recovery is administered by members of the community, under the direction of the Financial Administrator. A flat rate of R20 per month is collected from each

household. This is calculated to cover the operating costs of the system and to build up a reserve to cover the eventual replacement costs of hardware.

**(4) Institutional linkages**

In the Mbibane TLC the process of developing government institutions to deal with water issues is underway. This process has been lacking behind institutional development and empowerment initiatives at village level. As a result of this, the implementation of the Management Plan for the Semohlase water scheme might receive little support from the local government.

**5.1.7 Lessons**

The following lessons can be drawn from the management planning process:

- (1) Communities are able to plan, with appropriate assistance.
- (2) Sustained and self-sufficient local planning capacity may be difficult to achieve.
- (3) Conditions favouring community-based planning are community cohesion, experience with development projects, stable and mandated community structures and clear development objectives.

**5.2 Training Programmes**

**5.2.1 General Training Approach**

The training approach adopted for the pilot projects combines the experiential training facilitated by the Study Team during the capacity building and planning processes and specialist training in specific areas. Elements of experiential training have included:

- (1) Institutional and organisational training in the form of ongoing monitoring and evaluation, team building, awareness building around water management, organising and undertaking planning processes and implementing communication strategies.
- (2) Technical training in the form of interaction with contractors, contractor monitoring, evaluation of technical water supply options, calculation of water tariffs and planning

for O&M management.

Against this background, specialist training inputs can be highly focussed and relatively compact. The advantages of prior experiential training are:

- (1) Specialist training has a context.
- (2) Participants are prepared for the training.
- (3) A wide spread of training inputs avoids the risk of failure.

Areas where specialist training has been used are in operation and maintenance, and in the area of administration and financial management.

### **5.2.2 Training Needs**

Training needs were determined through the management planning process. Specific administrative and technical tasks were identified and defined. Job descriptions were then developed for particular jobs. These job descriptions provided a base for outlining training needs. This approach to training needs is both practical and focussed. The management plans are included in the Annex B.7. Brief job descriptions are given in these plans.

Time did not allow full exploration of the job description approach to training needs assessment. The approach should be fully tested elsewhere.

### **5.2.3 Selection of Training Providers**

- (1) Administration and Financial Management. Nine training providers were shortlisted, using the Training and Capacity Building Directory developed by the Department of Water Affairs and Forestry. The shortlisting was based on reported experience in the water sector and in the training area required. The shortlisted companies were the following:
  - (a) Bosele - DWAF Ref: 170
  - (b) Black Integrated Development Consultants - DWAF Ref: 197
  - (c) Care - DWAF Ref: 198

- (d) Siyakhula Trust - DWAF Ref: 199
- (e) BKS Technoskills - DWAF Ref: 200
- (f) Build South Africa - DWAF Ref: 224
- (g) Community Development Services and Management - DWAF Ref: 230
- (h) Madisha and Associates - DWAF Ref: 303
- (i) Africon - DWAF Ref: 309

The nine companies were then asked to fill in a questionnaire (see Annex B.5), which explored the following more carefully:

- (a) Relevant experience.
- (b) Appropriate training modules and manuals.
- (c) Ability to train in SeTswana.
- (d) Ability to accommodate the JICA implementation schedule.

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.

- (2) Operations and Maintenance. In this case trainers associated with the contractors and suppliers were selected. This was done to retain a close link between the installed infrastructure and the training. Basic training was thus provided by Roadcrete, and specialised training by Lister Engines and Bambamanzi prepaid metering systems (see Section 3.4.3 for more detail.

#### **5.2.4 Operations and Maintenance Training**

Technical training was conducted in three broad contexts:

- (1) Operation and maintenance of basic water supply infrastructure.
- (2) O&M of special equipment (pumping plants).
- (3) In Ga Rasai - operation and maintenance of the prepaid water meters, including the associated computer system.

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 GaRasai. See Section 3.4.2 for details of technical training.

#### **5.2.5 Administrative and Financial Training**

The administrative and financial training was undertaken by the Bosele and Olympus consortium between 22 and 24 October. Nine trainees were present for the entire course:

- Kameelboom : 3 representatives
- Ga-Rasai : 2 representatives
- Segokgo/Semohlase : 4 representatives

The training programme was organised as follows:

<u>Day 1</u>	<u>Day 2</u>	<u>Day 3</u>
Office / staff administration	Cashbook management	Cash flow projection
Cost recovery and receipts	Operating a bank account	Budgeting and budget monitoring
Requisition methods	Bank reconciliations	Break-even analysis
Case study	Case study	Case study

The training consultants noted that the Ga-Rasai delegates were more advanced than the others, because they were already running an office at the time of the training. The following recommendations were made by the trainers:

- (1) Training in life skills should be added to the training already completed, to increase the confidence of the trainees.

- (2) Aftercare service comprising two visits per community should be undertaken, preferably in November and December.
- (3) Certificates will be issued after final evaluation / performance appraisal by the trainers.

### **5.2.6 Monitoring and Evaluation**

Evaluation of the specialist training has not been possible, since technical training has only recently been completed, and financial and administrative training has not started. However, both monitoring and evaluation are essential, to ensure effective follow-up where needed, and to identify the lessons to be learned from the training approach adopted.

Post- JICA monitoring and evaluation is seen to be a priority, mobilised by a proposed strategic task group (see section 6.3). It is proposed that this group should draft a comprehensive M&E programme. In the case of training, this will refer to guidelines provided by DWAF. Experiential training has been monitored and evaluated routinely. Some of the lessons are outlined below.

### **5.2.7 Lessons**

Key lessons from experiential training are the following:

- (1) Benefits are difficult to measure, because training is relatively unstructured.
- (2) Such training can have a major impact. An example is the visit of the GaRasai LPSC to the Modderspruit prepayment project. Following the visit, the LPSC felt confident to move ahead with prepayment metering.
- (3) Experiential training can be cost effective, especially if it is community motivated and led.
- (4) The resources available for experiential training are enormous. Every project is potentially a training

### 5.3 Service Authority and Service Provider Agreements

#### 5.3.1 Steps in the Handover Process

The pilot projects will be handed over to the relevant Service Authorities at the end of October. At this time, Service Providers will also have been identified and secured. The table outlines the guidelines used for the handover process:

**Table 5-6 Guidelines for the Handover Process**

Step	Description
1:Develop an understanding of and a commitment to the project within the community.	* The project will not be sustainable if it does not have wide community support. The pilot project programme places great emphasis on awareness building.
2:Obtain agreement in principle on the key points of the future handover agreement.	* The in principle agreement is important, since capacity building and training programmes will depend on the identity and roles of the identified service providers.
3:Obtain formal agreement on roles and responsibilities post-handover. This might take the form of a handover contract.	* Formal agreement is a key step, but sustainability must have been built in the preparatory work.

Each of the three infrastructural projects (Kameelboom, Ga Rasai and Segokgo) required a different strategy leading to the finalisation of handover arrangements. In the case of Segokgo, a series of meetings with the Mbibane TLC has failed to achieve consensus on the service provider role. The TLC wishes to take on this role, but it has limited capacity to do so. It also proposes a low tariff which will undermine the sustainability of the Semohlase project. For the short term, however, the TLC have agreed that the Semohlase LWC can act as service provider.

#### 5.3.2 Present Arrangements and Long Term Possibilities

The table outlines present service authority and service provider arrangements, and lists longer term options. These are based on service provider recommendations for the implementation of the feasibility studies.

**Table 5-7 Present Arrangements and Long Term Options**

	<b>Short Term</b>	<b>Long Term</b>
<b>Kameelboom: Service Authority</b>	Rustenburg District Council.	Rustenburg District Council.
<b>Kameelboom: Service Provider</b>	Kameelboom LWC with support from RDC and MW	Magalies Water / RDC Joint Venture, supported by block service cooperatives.
<b>Ga Rasai: Service Authority</b>	Eastern District Council.	Eastern District Council.
<b>Ga Rasai: Service Provider</b>	Ga Rasai LWC, with support from Magalies Water.	EDC/MW Joint Venture supported by block service cooperatives.
<b>Segokgo: Service Authority</b>	Mbibane TLC. In the absence of capacity at local level, Highveld District Council is empowered to play the SA role.	Mbibane TLC.
<b>Segokgo: Service Provider</b>	Semohlase LWC. No formal support secured from outside sources.  An important issue is the integration of service provision among the villages surrounding Segokgo and Semohlase. The TLC is best placed to mobilise such integration, with appropriate support.	Mbibane TLC, or some larger local authority, such as a Highveld District Council / Highveld Water Board Joint Venture.  The JV may be assisted by the BoTT contractor or block service cooperatives.

### 5.3.3 Viability of Community-Based Service Providers and Implications for Feasibility Studies

A number of lessons relevant to the feasibility studies have emerged from the pilot project programme:

- (1) 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.
- (2) From the pilot projects, local service provision is believed to be a viable route, if planning capacity is entrenched and support networks are secured. In the longer term, local service providers may be linked under the umbrella of a regional organisation, or joined in some less formal cooperative arrangement.