2.7 Institutional Development

2.7.1 Current institutional Environment

(1) Background to the Organisation of the Water Supply Sector in RSA.

There are briefly three levels of organisation of water supply sector in RSA as illustrated in Figure 2-2. The followings are summary of the current structure of each levels, and details describe in items (2) to (4) of this section.

- DWAF (National government level): DWAF has mainly three Chief Directorates, i.e. as Water Resources Development, Water Utilisations and Community Water Supply and Sanitation (CWSS) and nine regional offices in respective province.
  Under the Chief Directorate of CWSS, there are three key divisions of Planning, Implementation Promotion and Organisation Development.

- WB(Water Board as Semi-government structure):WB will continue bulk water supply function to the urban / rural area and industrial complex, and provide technical and administrative training to local authorities.

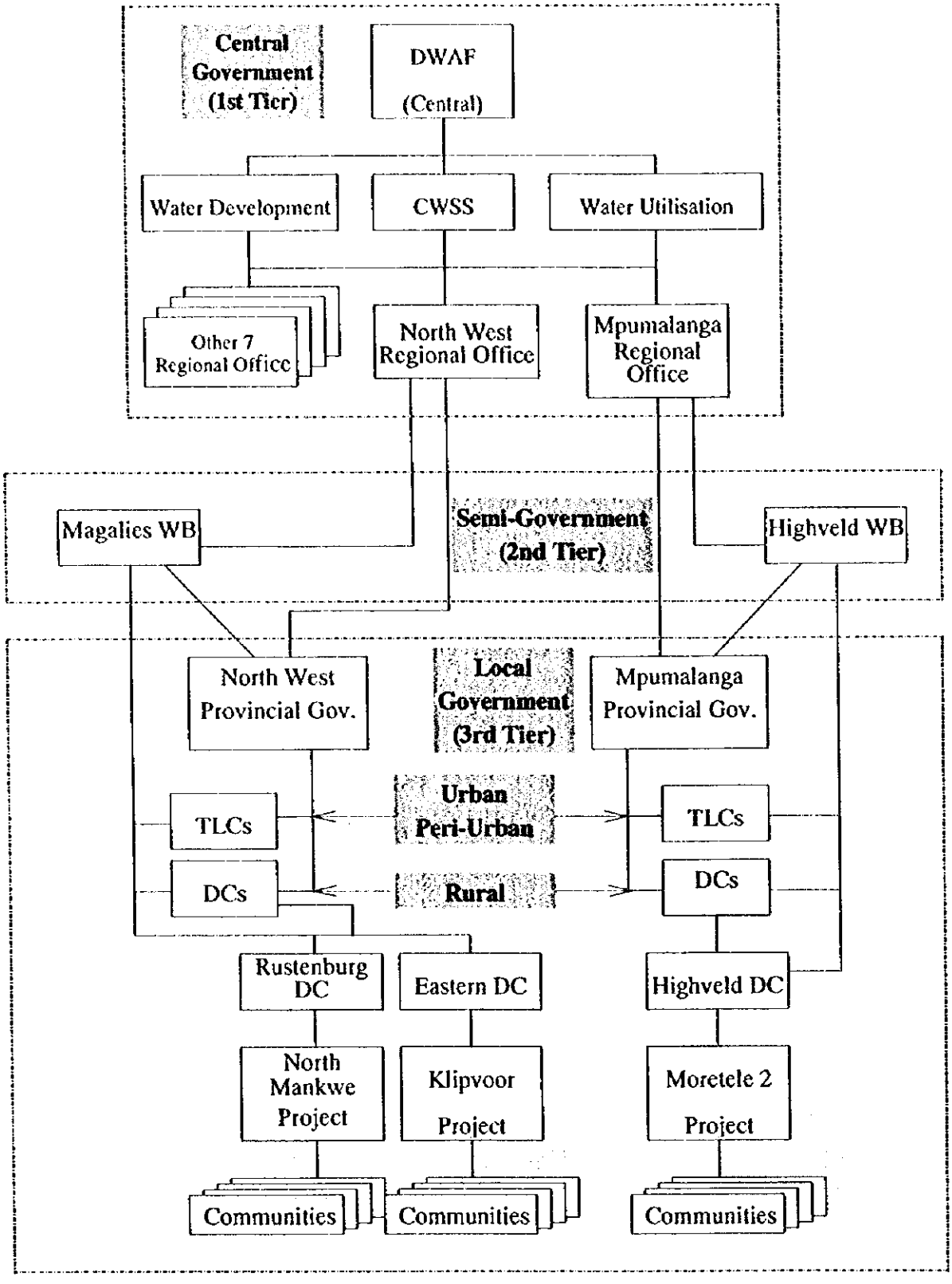
- TLG (Transitional Local Government):TLG consist of two level of organisation briefly, one is TLC (transitional Local Council) in the urban and peri-urban area, and other is DC (District Council) in the rural area.

(2) DWAF

DWAF has the national responsibility for ensuring that the water supply and sanitation needs of the people and of the economy which sustains them are met effectively. As part of the reform process within DWAF, a new Chief Directorate of Community Water Supply and Sanitation was established to promote water supply and sanitation. The responsibilities of the Chief Directorate are to:

- Assure effective on-going operation of potable water supply systems for which DWAF is responsible;
- Plan and promote the expansion of services in collaboration with provincial governments;
- Develop organisations at the local and regional level to achieve the goals of the RDP; and
- Monitor and regulate water supply and sanitation activities in accordance with the constitution.

Figure 2-2 Overview of Organisation of Water Supply Sector



The White Paper on water supply and sanitation is geared towards the establishment of a clear framework to enable Third Tier institutions to play their role in implementing service provision at the local level.

As concerns the Study Area the regional office of DWAF are located in Mmabatho and Nelspruit which are distant from the FS Areas. It should not therefore be expected that any significant support can be provided in the Feasibility Study Areas. The DWAF regional office has however contributed actively to the Study process.

(3) Water Board

Major functions and roles of the Water Board (WB) are summarised as follows:

- Establish a system of communications with communities within their area and explain the services and capabilities that the water board can offer;
- Establish procedures for the establishment of LWCs, including application for funding, technical assistance and training;
- Make funds available to LWCs including the provision of technical assistance in the planning of any local water supply and sanitation schemes; and
- Monitor the expenditure and application of funds for projects.

Current situation of WBs within the Study Area are summarised in Table 2-25, and discuss the followings.

Table 2-25 Agency and WTW of Bulk Water Supply

	North Mankwe	Klipvoor	Moretele 2
Water Board	Magalies Water	Magalies Water	No current Water Board.
Service Area	Western Region	Eastern Region	No current structure
Bulk Supply Source	Vaalkop WTW	Klipvoor WTW	Weltevreden WTW

(a) Magalies Water

MW has recently revised its organizational structure to cater for assistance / support for the process of community service i.e. retail as well as bulk water supply. The absorption into this function of staff in the area who were formerly employed by NWWA has changed the whole profile of the MW organization which is now a relatively large organisation with some 400 employees. As a result of the NWWA staff secondment some 60% of MW staff are in community water services.The figure above illustrates the considerable capacity which MW has, which could be tapped to support service delivery in the Feasibility Study Area.

(b) Highveld Water Board (Proposed)

In terms of the same process of rationalising boundaries which was the motivation for the JICA Study on Magalies Water, the British Department for International Development has sponsored a project to look at the boundaries and options for the Upper Olifants River basin. The area currently has no single bulk water supplier. A key question from the start of the JICA Study has been whether KwaNdebele and Moretele 2 will form part of the Magalies ESA or part of some, yet to be created, board / authority in the Highveld region. Considerable progress has been made and it has been unanimously agreed by the stakeholders to request the Minister to establish a new Water Board (Highveld Water Board) in the Upper Olifants River catchment area. The process of doing this has now commenced.

(4) TLG

The current structures of the transitional local government have been set up in November 1995. There are many unclear roles and responsibilities on the managing different parts of the water supply and sanitation network, and also the factors underlying the poor performance of the current institutions in water supply sector.

In 1999 under the new consititution, local goverment bodies will be establshed seeking with well function of structures and staffing.

There are three DCs involved in the area covered by the study and outlines of the institution are shown in Table 2-26.

Table 2-26 Current Situation of DCs

	North Mankwe	Klipvoor	Moretele 2
District Council	Rustenberg District Council	Eastern District Council	Highveld District Council
Number of staff	Limited size (48 Posts)	Limited size (31 Posts)	Limited size
OM experience	No O& M Capacity	No O& M Capacity	No O& M Capacity
Area Planning Forum	Area planning forum in place.	Area planning forum in place.	

(a) Rustenberg District Council

The North Mankwe Feasibility Study Area comprises four discrete groups of communities lying within the Mankwe District of North West Province, which in turn falls under the jurisdiction of Rustenburg DC.

A Technical Planning and Service Delivery Department has been created to serve the need to become involved in facilitating service delivery has been created.

RDC has also promoted significant planning capacity by dividing the area of its jurisdiction into planning zones, allocating a councillor to each zone (Zonal Councillor) and appointing a Zonal Engineer (a firm of consulting engineers). Together with the councillor, these engineers are responsible for developing an integrated service delivery program.

(b) Eastern District Council

The Moretele 1 and Odi Districts within which the Klipvoor Area lies, fall under the jurisdiction of Eastern District Council. EDC is a small organisation and there are only a small number of posts directly related to the service delivery process.

(c) Highveld District Council

The Feasibility Study Area falls within the Moretele 2 District of Mpumalanga Province, which in turn falls under the jurisdiction of HDC. HDC has its offices at Middleburg which is distant away from the FS Area. HDC has limited resources and capacity to become directly involved in water supply in the area. As a result of this lack of capacity, zonal planning structures have not been implemented in the HDC area of jurisdiction.

(d) Overall Assessment

In the Feasibility Study Areas very little capacity is in place at district and local authority level to execute the function of future project implementation, operation and maintenance. Also the administrative capacity necessary to ensure effective cost recovery is not present. The local government structures are all transitional.

In contrast, MW (including the operations absorbed from NWWA) has sufficient capacity in the Klipvoor and North Mankwe areas.

2.7.2 Requirements of the Water Services Bill

The Bill was published for comment in May 1997 and will have a significant impact on the institutional structures in the water supply sector. The Government requested comments on the bill and to date a large number of submissions requesting modifications have been received. These response do not challenge the main provisions of the bill but rather deal with aspects of detail. It can, therefore, be assumed that the bill will pass through parliament without any major changes. For the purpose of this study its main provisions have been used as the basis for institutional planning.
The objectives of the bill include inter alia the requirements for:

- Setting national standards and norms for tariffs.
- Preparation of water service development plans.
- A regulatory framework for water service institutions.
- Establishment of water boards
- Monitoring of water services.
- Financial assistance to water services institutions.
- A national information system on water services.

The Bill lays down two major requirements:

- Firstly that everyone has a right of access to basic water supply and basic sanitation.
- Secondly that Water Services Authorities must take reasonable measures to realise this right and plan to achieve it.

A Water Service Authority is essentially a municipality. In terms of the bill these institutions have a legal obligation to meet service requirements.

The main duties as set out in the Bill are:

- Subject to certain conditions, to progressively ensure that all consumers and potential consumers in its area are provided with efficient, affordable, economic and sustainable water services.

- To prepare a water services develop plan for their area of jurisdiction. Key aspects of this plan are identification of the Water Services Providers, proposed infrastructure, water sources, capital outlays and operating costs.

- To provide the water services itself or to contract Water Service Provider to provide water services.

Water Services Provider is the function of actually providing the service as distinct from the legal obligation to do so which resides with the Water Services Authority. The obligation to provide the services cannot be delegated. The actual provision of the service can be delegated by means of a contractual relationship. The draft Bill clearly specifies the terms and conditions for contracting the Services Provider function.

Water boards are also dealt with in the Bill . These are not new structures and their primary function is to provide water to other water service institutions. The role of the water board as the bulk supplier is largely unaffected by the type of institution which is the Water Services Provider.

It is noted that bulk water is provided with the proviso that the board must not financially prejudice itself or other consumers in doing so.

Water Services Committees, are corporate bodies which can be established by the Minister in terms of the Bill to provide water supply within a service area where there is no Services Authority to perform the function.

It is necessary that formation of a Water Services Committee has the support of the community or area served.

2.7.3 Institutional Framework created by the Bill

Institutional options need to be built around the possibilities provided for in the proposed Water Services Bill. In summary there are four distinct institutional structures which could be involved in the service delivery process:

- Water boards providing bulk water supply.
- Water Services Authorities which must give effect to the right of all people to basic water and sanitation services.
- Water Services Authorities acting as Water Service Providers and delivering services directly to consumers.
- Water Services Providers are third party institutions which the Authority contracts to deliver services on its behalf.

In areas that there are no municipalities and therefore no Services Authorities; by default this role will then fall on the district council. Because of the lack of capacity of district councils this creates another set of problems to be addressed.

2.7.4 Needs Identified from Pilot Project Experiences

The findings and lessons learned from the pilot projects are fully dealt with in a separate volume of the report. The intention here is to simply list the key lessons which must be taken into account in the planning form of the feasibility studies:

- Identification of the WSA and WSP roles are essential first steps in setting up a project.
- The identified WSA and WSP (if not the community) should be involved in the planing process from the start.
- Proper social, institutional and training assessment are essential parts of the planning process.
- The community must be assessed in the context of the wide area in which resides taking into account factors in the area / other communities which may impact on the project e.g. illegal connections in neighboring communities and payment history.
- In the context of the above item some area planning initiatives may be necessary if the project is to succeed.
- The establishment of PSCs need to be carefully coordinated and can be a time consuming process. An effective PSC is however an essential ingredient for success. Requirements include:

  ※ Involving all existing committees.
  ※ Ensuring representivity of all groups in the community e.g. women and young people.
  ※ Initial training of the PSC in its role is essential.
  ※ Ongoing monitoring of the dynamics in the PSC is important.
  ※ The PSC must have decision making authority.

- The last point above is particularly important and key decisions such as appointment contractors must be seen by the community to be made by the PSC.
- Business planning must start early in the project life style and directly involve the community. This should be a very practical form planning focusing on how key aspects of the project will be handled e.g. tariff collection, operation and maintenance. RDP type business plans have in the past been to high level and generally be prepared by outsiders.
- Some up front financial commitment from the community should be encouraged as a means of strengthening commitment to the project and ensuring sustainability.
- Generally the amount of time to achieve sustainable plans is under estimated. This will also vary from community to community and the assessment referred to in (3) above is essential before time frames and budgets are finalised.
- Training and mentoring be prominent in plans and require a substantive budget.

- Institutional and development cost will vary from project to project and should therefore not be generalised without taking into account the needs of the particular community. These may be as low as 3% of total project cost or as high as 15%.

The implementation of pilot projects has therefore provided some very useful lessons which need to be taken into account in planning.

The communities in the pilot projects are demonstrating a capacity to organise and plan. Planning teams are now being formed which will address all aspects of the institutional development process and articulate specific needs.

2.7.5 Options for Institutional Structures

(1) Bulk Water Supply

There are no choices for bulk water supply institutions. This is defined as the responsibility of the proclaimed water board in a particular area

Table 2-27 Bulk Supply Institutions

North Mankwe	Klipvoor	Moretele 2
Magalies Water	Magalies Water	Highveld Water (to be established.)

The role of the water board as the bulk supplier is largely unaffected by the type of institution which is the Services Provider (i.e. retail supplier) provided such supplier can meet the contractual commitments entered into in the bulk supply contract.

(2) Retail Water Supply

In all areas it has been indicated that there are no established local authorities and therefore no Services Authorities; by default this role will then fall on the district councils. In practical terms because of the DC's lack of O&M capacity this role will be difficult to achieve. The two main possible institutional options are therefore as follows:

(a) DC as Services Provider

In terms of this option the DC would need to become directly involved in service provision by setting up the necessary sub-structures within its organization to take on the functions of implementation, operations and maintenance.

(b) DC Contracting with a Services Provider

There are two possibilities: Firstly contracting with an existing institution to fulfill some or all the functions of service provision. Secondly contracting with a new institution. RDC / EDC and MW have discussed the formation of a new institution for this purpose in the form of a joint venture partnership which would be a corporation with the functions of:

- Acting as Services Provider or to ensure that the role is fulfilled, (Main function).
- Providing support for small municipalities and contractors.
- Facilitating redeployment of former NWWA staff into service delivery in the area.

Formation of this structure will resolve issues relating to responsibility for implementation, operation and maintenance. This could also be applicable in the HDC / HW area.

(c) Transitional Local Institution as Services Provider

While the options outlined above assume a higher level institution in the role of Services Provider, the possibility of a community taking on the functions should not be ruled out. This seems unlikely in the short term given the lack of capacity and structure amongst communities in the Area. However in the medium to long term this option should be encouraged. It is not precluded by the two options above which should all have as an ultimate goal the transfer of the functions to local government institutions.

Assessment of the options against selected criteria, and discussion of the possibilities with key stakeholders, has led to the conclusion that there is no single option which will provide a solution to meet the needs in the FS Area. Rather that a solution which integrates the different options has the best probability of success. The approach which has been adopted is therefore to develop a comprehensive solution integrating the different possibilities with particular attention given to the criteria of delivery, capacity, financial viability, sustainability and acceptability to stakeholders.

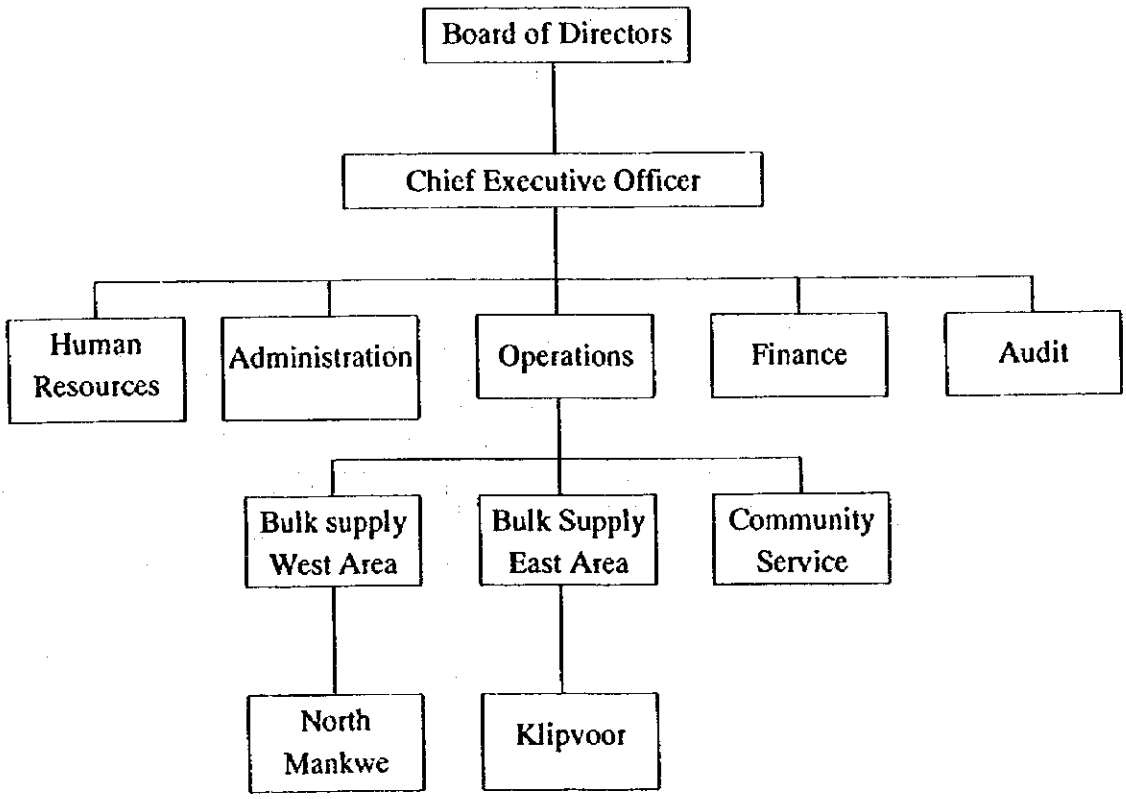
2.7.6 Proposed Institutional Structures

As the results of previous discussion on the assessment of current conditions of communities and institutional frame work under water service bills, Table 2-28 indicates realistic proposals of the project organisations.

(1) Bulk Water Supply

Bulk water supply of the FS areas are Magalies Water for North Mankwe and Klipvoor and Highveld Water for Moretele 2 project, respectively. Figure 2-3 illustrated proposed structures of MW.

Figure 2-3 Proposed Structure of Magalies Water Board



(2) Retail Water Supply

(a) WSA (Water Service Authority)

As indicated in Table 2-28, each DC shall be the WSA for respective project.

Table 2-28 Proposed Retail Water Supplier

	North Mankwe	Klipvoor	Moretele 2
Service Authority: (WSA)	Rustenberg DC	Eastern DC	Highveld DC
(1)First and Second Stage			
Service Provider: (WSP)	RDC – MW JV	EDC - MW JV	HDC - HW JV (Possibly Supported by BoTT Contractor)
	Supported by Block Service Cooperatives	Supported by Block Service Cooperatives	Supported by Block Service Cooperatives
(2)Third Stage			
Service Provider: (WSP)	Area Service Cooperative	Area Service Cooperative	Area Service Cooperative

(b) WSP (Water Service Provider)

i) Water Services Provider (Area)

A DC-MW Joint Venture and Partnership which is in the process of discussion could become the Services Provider in the FS Areas as a whole. This role will require the JV to provide water services directly to communities or to intermediaries which may be created.

The advantages of this JV functioning as Services Provider are that it can be put in place relatively quickly and therefore can address the need for urgency. It will through links with its parent organisations also have considerable capacity to draw on.

ii) Intermediary Level Structures (Block Service Cooperatives)

There are a large number of communities in the FS Areas with which the JV will need to interact in the process of service delivery. This presents a major challenge and given capacity limitations may lead to some communities being less well served than others. It is proposed that introducing an intermediary level structure may be important in co-ordinating service delivery. The form of such intermediary structures may range from simple co-ordinating committees, through formal constituted co-operatives (partnerships) , to registered companies. Furthermore the need for such intermediaries will vary from one supply block to another and the form may change over time.

iii) Community Level Structures (Local Services Provider)

It has become clear from the findings of the pilot projects that the sustainable supply of water to communities cannot be achieved unless some institutional capacity is in place at community level. Thus while it has been strongly noted that there is no capacity at local level, the development of some capacity is essential to meeting service needs and therefore must be an integral part of the proposed solution.

2.7.7 Staged Institutional Development Plan

(1) General

The plans of institutional development and capacity building in water sector shall be prepared taking into account current situation of communities, project implementation plan and operation and maintenance schedules. In particular, institutional development of 3rd Tier in the project will be carried out by the following agencies concerned.
The master schedules of such development plan for the project divided into three stages, i.e. first, second and third stage. Table. 2-26 tabulated staged development plans.

- Agencies : Project Implementation Agency (infrastructure development) and Water Service Provider (operation and maintenance) is JV between DC and WB or BOTT, and Water Service Authority is District Council

- Staged Development :
  - ※ First (1st) Stage(1998-2002) : Implementation of construction work and establishment of 3rd Tier institution for Water Service Level A
  - ※ Second (2nd) Stage(2003-2007) : Implementation of up-grading of infrastructures and re-structuring of 3rd Tier organisation
  - ※ Third (3rd) Stage(Beyond 2008) : Continuation of O&M and water tariff collection

The concept charts of institutional development for each stages are illustrated in Figure 2 - 4 and 2 - 5.

Table 2-29 Master Schedule of Institutional Development

Desvription	1998 - 2002					2003 - 2007					2008 - 2012				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A. Construction Schedule															
(1) Level A Facility															
(2) Upgrading (1) Facility															
(3) Upgrading (2) Facility (if any)															
B. Water Supply Service															
(1) Service Level A															
(2) Service Level B (1)															
(3) Service Level B (2)															
C. Institutional Development															
C1. Stage 1 Development															
(1) Contracting JV															
(2) Appointment of WSP															
(3) Establishment of LWCs															
(4) Preparation of Action Plan															
(5) Formation of BWSCs															
C2. Stage 2 Development															
(1) Strengthening of LWCs/BWSCs															
(2) Operation of Basic Level Service															
(3) Consensus of Upgrading															
(4) Mentoring/Strengthening OM															
(5) Formation of AWSCs															
(6) Fund / Loan Management															
C3. Stage 3 Development															
(1) Consolidation of AWSCs															
(2) Permanent Operation															
(3) Tariff Collection/Loan Payment															
(4) Mentoring/ Strengthening OM															
C4. All Stages															
Capacity Building Activities															

Figure 2-4 Institutional Structure (First and Second Stage)

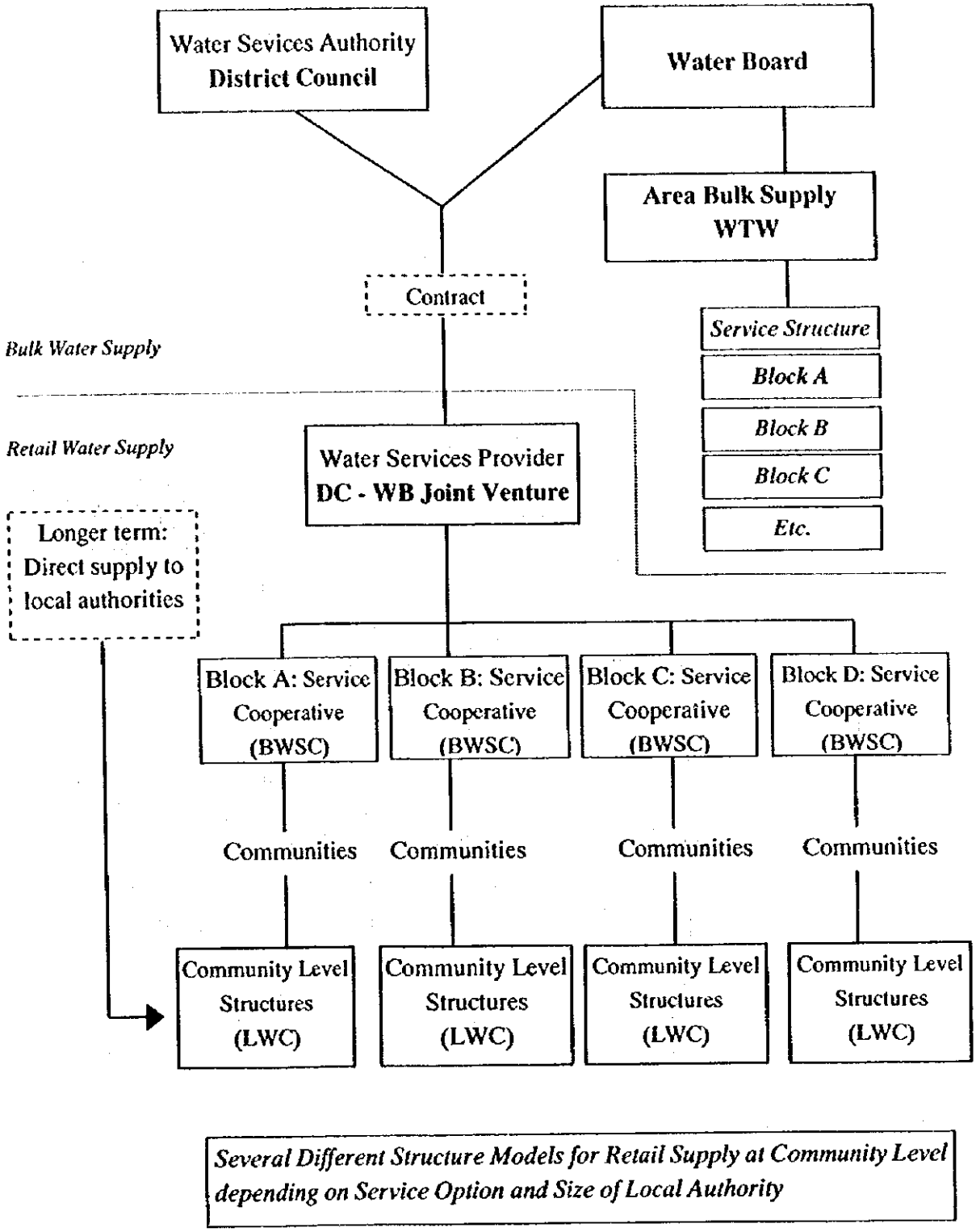
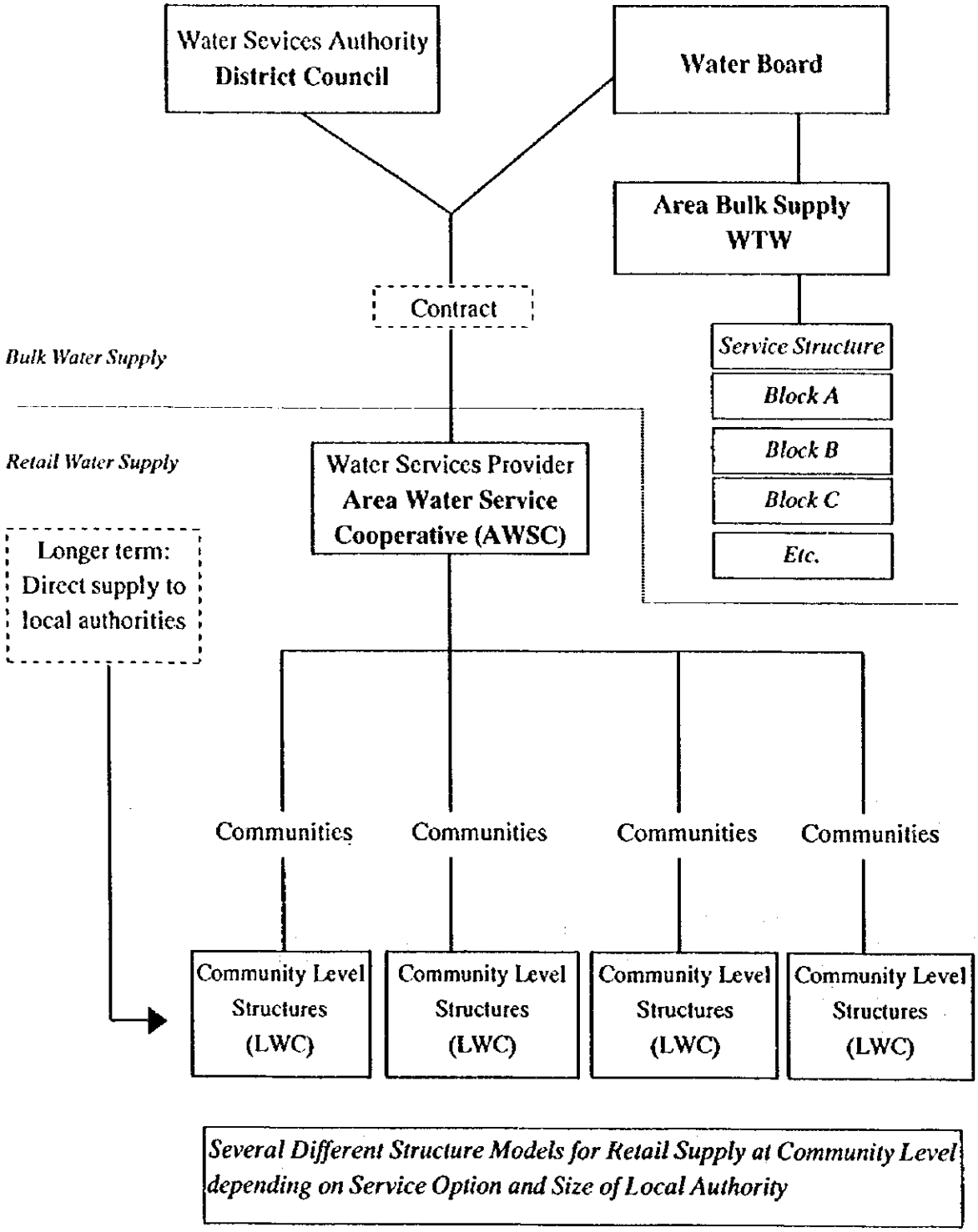


Figure 2-5 Institutional Structure (Third Stage)



(2) Stage 1:1998 - 2002

(a) Step 1: Preparatory Work

The main purpose of this step of the work is to get the policy decisions made necessary for project implementation to proceed, put in place the necessary institutional infrastructure and commence the process of engaging communities in planning.

Table 2-30 Action Plan (St.-1/Step-1)

Requirements	Notes	Responsibility
1) Formulation and achieving agreement on implementation and funding policy.	Policy responsibility for the sourcing of funding is essential.	DC
2) Establishment / designation of project implementation agency i.e. water service provider (WSP)	Establish JVs which is the key institution in the proposed structure. Once established these entities can take on the role of services Provider in the FS Areas and also the role of implementing agent for the FS projects.	Water Board and District Council.
3) Preparation of basic work plan.		JV
4) Develop project initiation / promotion schedule and financial plan / budget.		JV
5) Recruitment of local consultants or private company to assist implementing agent with execution of work.	It is anticipated that due to lack of capacity identified amongst the key role players that outside assistance will be sought.	Implement. Agent or delegated party
6) Preparation of Short, Medium and Long Term Action Plans by local consultants.		Implement. Agent or delegated party
7) Conduct basic socio-economic survey and institutional environment assessment.	This is the first step in the process of project implementation.	Implement. Agent or delegated party
8) Establish / identify Local Water Committee / LPSC in each community providing for project promotion strategies and community awareness building.	Given that the proposed solution requires a level of institutional capacity to be developed at community level, it is essential that a programme is put in place in the short term to achieve this. Such a programme will need to draw heavily on the experiences of the pilot projects.	Implement. Agent or delegated party

(b) Step 2 : Initiation of Construction of Water Supply Infrastructure

The key focus during this step is to achieve the institutional development and functioning necessary for the implementation of the basic (i.e.RDP) level of service.

Table 2-31 Action Plan (St.-1/Step-2)

Requirement	Notes	Responsibility
1. Capacity building with LPSCs.	Ongoing capacity building to develop the foundations laid during Step 1 is essential.	Implement. Agent or delegated party. Handover to WSP
2. LPSC engagement of project planning and participation in decision making on project design and selection of contractors.	Active involvement by communities in all key decisions is necessary.	WSP
3. Assistance with and involvement in the construction process.	Communities will participate in the construction process.	Contractor
4. Development of Operation and Maintenance plan for service level A.	In preparation of for the commissioning of the basic level of service infra structure. Plans must detail the requirements in terms of: • Processes / systems. • Resources • Funding	WSP
5. Establishment of Block Water Supply Cooperatives (BWSC).	A lack of capacity within communities lead to the need identified in the pilot projects for a support infra structure beyond the boundaries of each project. This has been addressed in the Study recommendations by the concept of BWSCs whereby communities can share capacity and scarce resources.	WSP
6. Development of area support networks.	This is the first step in the process of generating the interaction necessary for the ultimate formation of area water supply cooperatives which may take over the role of the JV.	WSP
7. Preparation of a policy in respect of the proposed reserve / accumulation fund for higher levels service and the promotion of a project to achieve this to the communities.	Necessary for transition to medium term planning.	WSP

(c) Step 3: Commissioning and Trial Operation of Initial Projects

This step is concerned with the operationalising the initial basic level of service infrastructure which has be constructed and developing the necessary operations and maintenance strategies and plans necessary to ensure sustainability.

Table 2-32 Action Plan (St.-1/Step-3)

Requirement	Notes	Responsibility
1. Review, evaluation and amendment of operating and training manuals as necessary.	Contractors have a history of not providing for hand over nor preparing adequate operations manuals. Monitoring is thus essential.	WSP
2. Capacity building with LPSCs and local operating structures which have succeeded them. Focus on operations and maintenance.	Ongoing capacity building to develop the foundations laid during Step 1 and 2 is essential.	WSP
3. Finalise and implement local operating structures.		WSP
4. Conclusion of hand over agreements.		WSP
5. Trial operation of infrastructure and mentoring of operations, maintenance and administration staff.	A major barrier to sustainability in the past has been the lack of mentoring involved in projects post handover.	WSP
6. Formalise area service network and formulate plan with JV for transition to a cooperative to combine BWSCs into an overall organisation performing WSP role.		WSP
7. Set up of reserve / accumulation fund for higher levels of service and commencement of collection of reserve contributions.	Establishment and accumulation of reserves from initial steps is essential if adequate reserves are to be built up to achieve the higher level of service.	WSP

(3) Stage 2: 2003 - 2007

(a) Step 1: Preparatory Work and Implementation of Process for Higher Service Level

Local structures developed during Stage 1 will need to be developed to play a full role in project implementation, commissioning and operation and maintenance. Also in the development of the process of planning and providing for up grading of service levels.

Table 2-33 Action Plan (St.-2/Step-1)

Requirement	Notes	Responsibility
1. Capacity building with local operating structures. Focus on operations and maintenance sustainability.	Ongoing capacity building to develop the foundations laid during Stage1 is essential.	WSP
2. Formulation and achieving agreement on implementation and funding policy for upgraded level of service.	Policy responsibility for new / additional sources of funding is essential.	WSA
3. Preparation of basic plan.		WSA
4. Develop project initiation / promotion schedule and financial plan / budget.	Up-graded level of service	WSP
5. Recruitment of local consultants or private company to assist with execution of work.	It is anticipated that due to lack of capacity identified amongst the key role players that outside assistance will be sought.	WSP
6. Preparation of detailed Action Plans by local consultants.	Implementation of up-graded level of service	For WSP
7. Strengthening of BWSCs	Undertaking OM and fees collection	WSP

(b) Step2: Implementation of Higher Level of Service Projects

Table 2-34 Action Plan (St.-2/Step-2)

Requirement	Notes	Responsibility
1. LPSC engagement in project planning and participation in decision making on project design and selection of contractors.	Active involvement by communities in all key decisions is necessary.	WSP
2. Assistance with and involvement in the construction process.	Communities will participate in the construction process.	Contractor
3. Development of Operation and Maintenance plan for service level B.	In preparation of for the commissioning of the basic level of service infra structure. Plans must detail the requirements in terms of: • Processes / systems. • Resources • Funding	WSP
4. Deposit of reserve funds and disbursement of credit loan	Management of reserve fund and loans	WSP

(c) Step 3: Commissioning and Trial Operation of High Service Level Projects

Intermediary structures necessary will need to transformed to cater for long term needs by rationalisation of BWSCs.

Table 2-35 Action Plan (St.-2/Step-3)

Requirement	Notes	Responsibility
1. Review, evaluation and amendment of operating and training manuals as necessary.	Contractors have a history of not providing for hand over nor preparing adequate operations manuals. Monitoring is thus essential.	WSP
2. Capacity building with local operating structures. Focus on operations and maintenance higher service level infrastructure.	Ongoing capacity building to develop the foundations laid during previous stages / steps is essential.	WSP
3. Finalise and implement revised local operating structures.	Preparation of new water tariff system by used volume of water.	WSP
4. Conclusion of hand over agreements.		WSP
5. Trial operation of infrastructure and mentoring of operations, maintenance and administration staff.	A major barrier to sustainability in the past has been the lack of mentoring involved in projects post handover.	WSP
6. Re-structuring of BWSCs and JV organisations.	Objectives will be to: • Utilise local capacity built up during Stages 1 & 2 • Delegate to local authority level as much of the WSP role as possible. • Reduce the umbrella role of the JV.	WSPs and JV
7. Funds management		WSP

(3) Stage 3: 2008-2012

Roles and responsibilities will change over time and realignment will necessarily need to take place. To illustrate this it is noted that in the medium term the JV structures may fall away with the intermediary structures amalgamating to fulfilling this role. In the long term as capacity is developed the local structures will take full responsibility for service provision themselves with no intermediary structures.

Table 2-36 Action Plan (St.-3)

Requirement	Notes	Responsibility
1. Capacity building with local operating structures. Focus on sustainability.	To achieve the situation where local structures assume responsibility for the Services Provider role there will need to be significant strengthening of these structures in the medium to long term.	WSP
2. Enhancement operations and maintenance performance on a continuous basis.		WSP

2.8 Implementation Plan

(1) Overall Schedule for Stepd Development

The proposed project (Case C-1) will be implemented in three steps starting at year 1998 and ending 2012, comprising step 1 (1998 – 2002), step 2 (2003 – 2007) and step 3 (2008 – 2012). The step 1 involves preparation of water supply facilities under the service level A with necessary establishment of LWCs (Local Water Communities) and BWSCs (Block Water Supply Cooperatives). The Step 2 includes commission and operation of the Level A services and preparation of upgrading the service level as well as restructuring of WSCs (Water Supply Cooperatives). The step 3 does commission and operation of the Level B services (See Figure 2-6).

(2) Implementation Schedule for Service Level A (Sage 1)

An initial cost estimate has been prepared for both the A and B level of service, however detailed design would make it possible to arrive at more accurate costs. Strengthening the institutional capacity of the proposed Water Services Authority and Provider would commence during the implementation period through maximum mobilisation and involvement of the beneficial communities. The overall implementation will require a 5-year period. The first two years will be used for arranging the loan and finalising the detailed design while the remaining three years will be for construction works as shown in Figure 2-7.

The implementation schedule shows the first three quarters of 1998 during which arrangement of the loan funding will take place; the detailed design will follow and is scheduled for completion by late 1999. The first tenders for construction will be called at the beginning of 2000.

It is also envisaged that the construction work will be separated into two packages each corresponding to two of the four Supply Blocks in the Area. This arrangement will increase the amount of admitrtion required but is necessary to ensure the completion of the project by the end of 2002, the target year for providing the RDP minimum level of services.

(3) Implementation Schedule for Service Level B (Stage 2)

The overall implementation will require about a 5-year period. The first two years will be spent for arrangement of loans, operation of reserve fund and detailed design, while the remaining three years will be for construction works and partial commissioning.

Figure 2-6 Overall Implementation Schedule

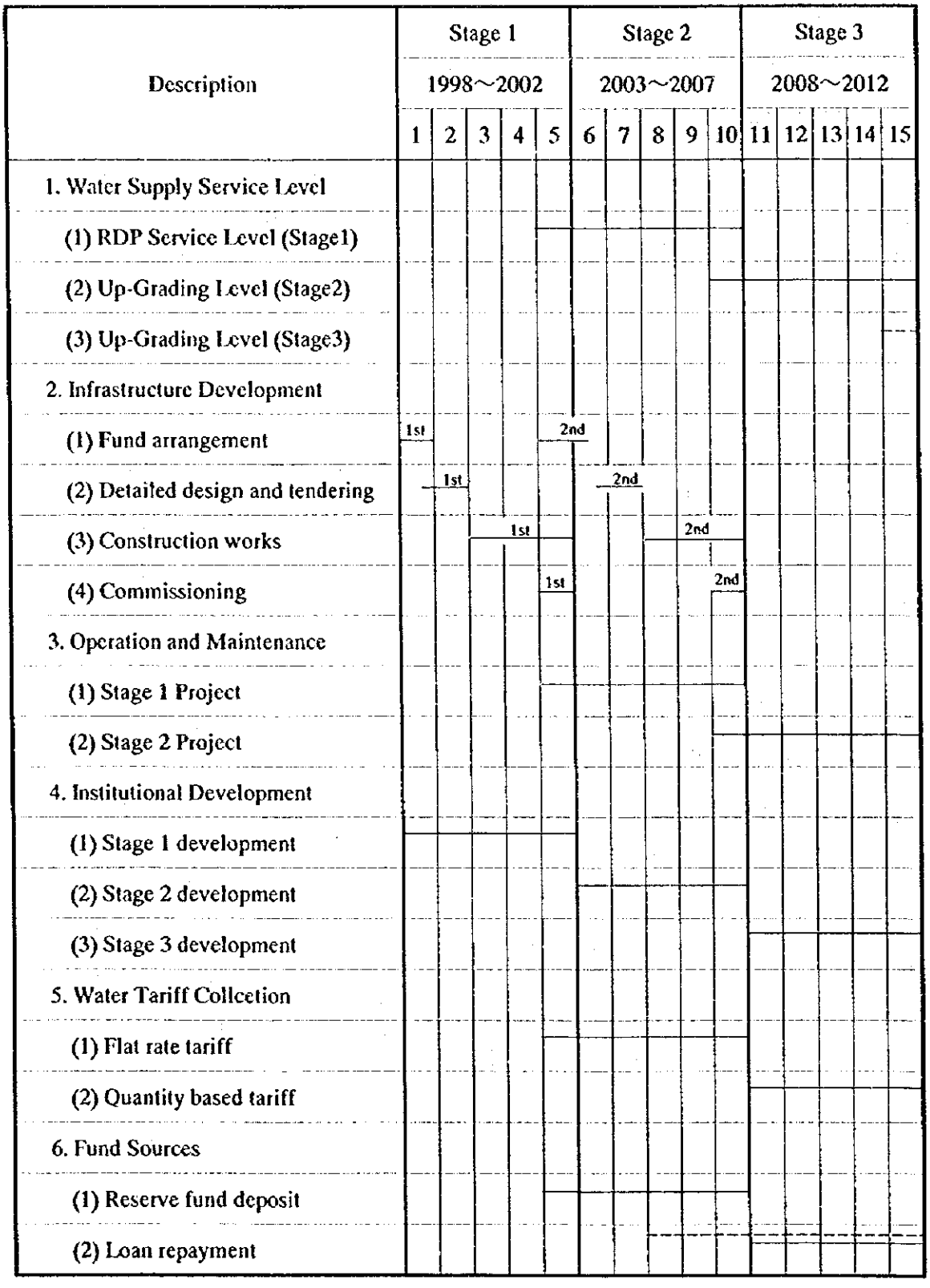
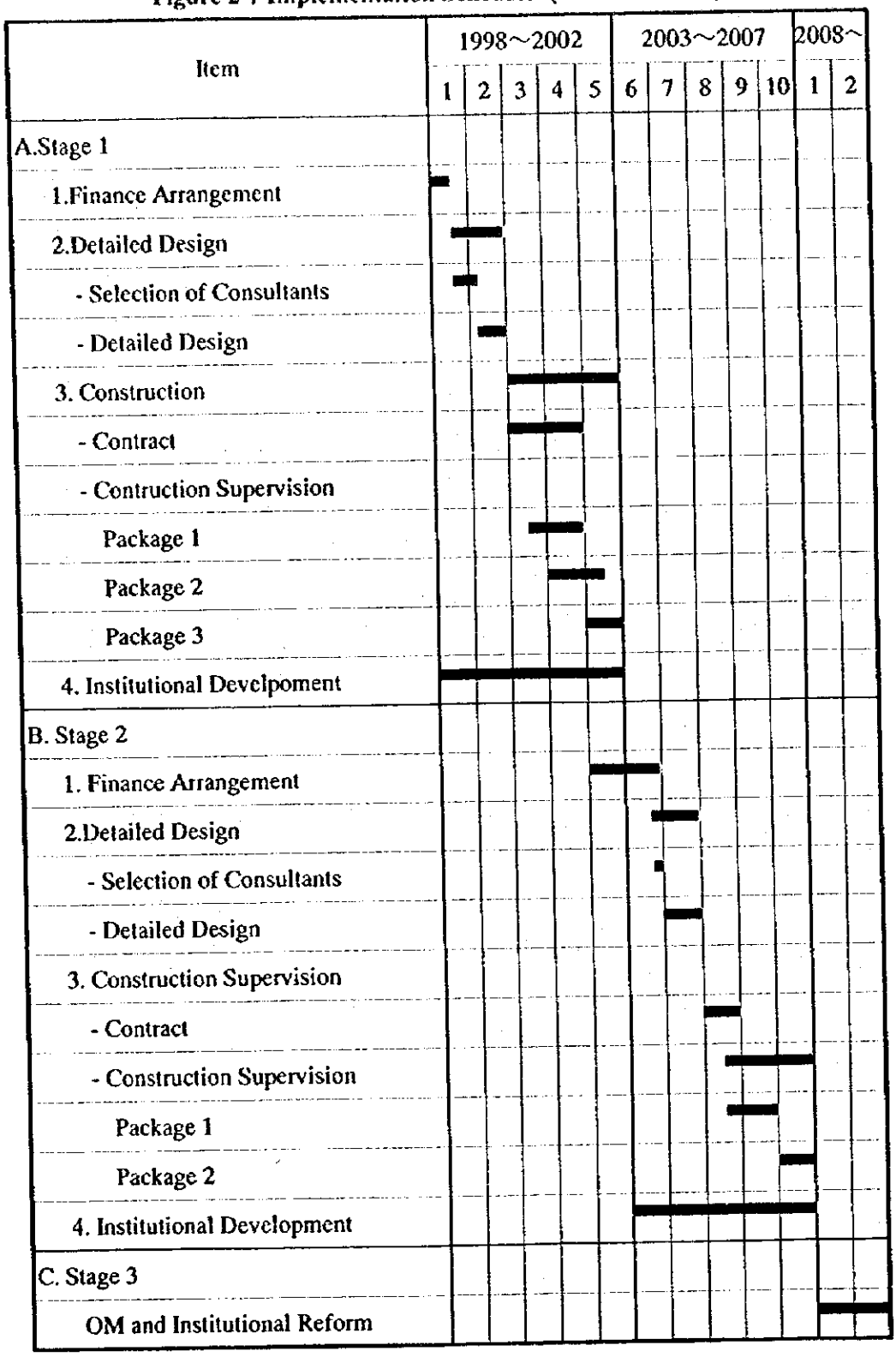


Figure 2-7 Implementaiton Schedule (Infrastructure)



2.9 Environmental Assessment

2.9.1 Method of Assessment

Environmental assessment methods of development project in the RSA are as follows in general.

- ROIP 1(Relevant environmental impact prognosis stage 1) : This survey is conducted as " IEE (Initial Environmental Evaluation)" in the Master Plan stage. The contents of the reports describe summaries of environmental impact of the project implementation and items to be surveyed during feasibility study stage .

- ROIP 2 : This survey is carried out as " EIA (Environmental Impact Assessment)" in the Feasibility Study stage. The survey consists of two steps, firstly ROIP 1 report shall be carefully reviewed when location and its dimension of the proposed water infrastructures was determined preliminary, secondly detailed additional survey and investigations shall proceed if it confirmed necessary. The ROIP 2 reports shall be tabled in the EIA meetings which members of committee comprise representatives of DWAF of both central and regional , Provincial Environmental Department and National Park Board. It is noted that the items to be considered in order to mitigate negative impacts during construction or development step of the project should be identified and incorporated in the specifications of the contract documents.

2.9.2 Borakalalo Nature Reserve

The Borakalalo Nature Reserve is located within the Klipvoor FS Area and the environmental sensitivity of the proposed water supply infrastructure development within this area requires particularly careful consideration.

2.9.3 Important Environmental Impacts

The important environmental impacts for the project were discussed and incorporated in the ROIP 2 Report. The following is a summary of the major negative and positive impacts of the proposed development on the environment.

(1) Negative Impacts

The major negative impacts include the disturbance of an already highly disturbed area of low ecological value, coupled with a low conservation status and aesthetic value (with the exception of the Borakalalo Nature Reserve). Another negative impact may be the effect of increased water consumption which, in view of the low level of sanita-

tion, could have an impact on groundwater as a result of the disposal of wastewater. The potentially negative impact on the tourism potential of the Borakalalo Nature Reserve is also very significant.

(2) Positive Impacts

The major positive impacts are related to the availability of a reliable and safe water supply to an increase number of people in the project areas. Construction activities could cause temporary economic upliftment in the immediate vicinity.

2.9.4 Conclusions

No fatal flaws were identified during the environmental impact assessment that would prevent the scheme from going ahead although the proposed development within the Borakalalo Nature Reserve must be addressed paying careful attention to environmental considerations. The environmental impact of the proposed development must be carefully managed both during and post construction and proper mitigation measures put in place to minimise potential negative impacts.

2.9.5 Recommendations

The issues to be determined in the detailed design stage of the scheme are summarised as follows :

(1) Social impacts

- The social and economic impacts associated with construction disturbance on farming activities along the pipeline routes should be investigated.
- This investigation should include meetings with the local communities to determine the preference of the communities to any options or alternative developments, especially in the siting of regional and service reservoirs.
- The lack of adequate sanitation facilities needs to be investigated with respect to higher water consumption.

(2) Ecological impacts

- Consultation with the North West Province Department of Environmental Affairs and Tourism and the North West Province Parks Board must be continued to reach consensus regarding the proposed development in the Borakalalo National Park.
- An Environmental Management Plan should be compiled for the construction

stage and appropriate rehabilitation guidelines should be prepared to mitigate the disturbances and aesthetic impacts caused by construction of the pipelines and associated infrastructure.

- Landscaping requirements for river and canal crossings as well as the permanent access roads should be properly specified.

2.10 Project Evaluation

The proposed projects in the three FS Areas have been comprehensively evaluated from an engineering, institutional, financial/economic, social and environmental viewpoint.

2.10.1 Engineering Aspects

Due to the limitations in terms of quantity and quality of groundwater in the three FS Areas, the proposed water supply systems have been planned and designed on the basis of utilising surface water. In addition, the planning and design of facilities has paid due consideration not only to the avoidance of excessive cost as well as the maximum use of the locally applicable technology and available resources, but also the possible future upgrading of the facilities' capacity due to higher demand arising from the need for a higher level of service at the step of Level A planning, on the basis of DWAF's technical guideline.

Specific remarks on each FS Area are summarised as follows.

Table 2-37 Engineering Remarks

North Mankwe	Klipvoor	Moretele 2
In the Project Area, several RDP projects are currently being implemented or planned by MW and DWAF. Necessary adjustments and consultation has been made to take this existing planning into consideration and to consolidate it in the project formulation.	Since the service area is rather wide and beneficial communities scatter, three main pipelines from the treatment works were planned, taking into account easier operation and mainatenance. The intake point of raw water was selected at which river stream is stable and intake is easier even drought period.	The proposed project includes the expansion of the existing Weltevreden WTW which will be operated by HW in future. Through provision of new pipeline different from the main pipe in KwaNdebel area, it is planned to attain easier operation and maiantenance as well as stable water supply to the project area.

2.10.2 Institutional Aspects

The proposed institutional development approach envisaged in this report is conforming with the present condition of the central and the local government administration in RSA, and planned to introduce a stepd development taking long-range perspective into consideration. This approach meets with the implementation of the proposed project and is judged appropriate.

2.10.3 Financial and Economic Aspects

The proposed three projects (Case C-1) were analysed both financially and economically by calculating a net present value (NPV) and a rate of return on investment. The results are summarised below:

Table 2-38 Financial and Economic Analysis

	Units	North Mankwe	Klipvoor	Moretele 2
1. Financial Analysis				
- NPV at 8%	R1,000	1,038	1,735	1,616
- FIRR	%	9.2	9.2	9.3
2. Economic Analysis				
- NPV at 8%	R1,000	-15,299	-29,555	-24,525
- EIRR	%	5.5	5.3	5.9

It was concluded that all three of the sub-projects are financially viable. However, they are all very sensitive to the risk on the tariff collection rate. If the rate of collection decreases by 10%, the projects will not achieve the financial rate of return of 8%, which is considered to be the real rate of interest in South Africa.

The economic benefit is estimated based on time-saving benefit arising from water collection and cartage activities under service level B (Yard Connection). And also improved quality and quantity of water will contribute the public health conditions (Service Level A and B).

2.10.4 Social Aspects

Usually, a water supply project is examined from the supply side approach in its tariff setting which only focuses on average income groups within communities. In the three sub-projects, tariff setting has been carefully carried out taking into consideration low income group having an average monthly income ranging from R305 in North Mankwe to R337 in Moretele 2, which is equivalent to about 20 to 30% of average income.

The provision of Service Level B (90% yard connections) would be one solution to overcome illegal and/or unauthorised connection, because the tariff would be imposed on individual consumers and be based on the amount of water consumed. In this connection, Case B will provide a much fairer supply system to communities than the RDP minimum level where a flat tariff structure is applied.

2.10.5 Environmental Aspect

The environmental impact assessment (ROIP2) in each Area indicated that there are no serious environmental impacts associated with implementation of the project. The most significant potential adverse impacts are in the Klipvoor Area, where it is proposed to construct a new water treatment works and regional reservoir within the Borakalalo Nature Reserve. This will be the subject of further discussion between DWAF, the Environmental Department of North West province and the Parks Board during who are the key stakeholders concerned.

2.11 Conclusions and Recommendations

2.11.1 Conclusions

Since groundwater was found not to be a sustainable alternative source to meet the basic requirements of community water supply in the three FS Areas, the conclusion of the Stage 1 Study was to supply water to the communities using a surface water system, which is rather costly but will be more reliable and sustainable, taking into consideration the socio-economic situation in the FS Area. The proposed infrastructure plan has been prepared on the basis of two levels of services; Level A covers 100% of beneficiaries with the RDP minimum level as Case A, and Level B covers 10% and 90% of beneficiaries with the RDP level, and with the higher service level of yard connections, respectively as Case B.

The project planning and design had taken into consideration the DWAF policy that allows spare capacity to be provided to meet future demand growth and upgrading of service level, in main pipelines and other basic facilities which cannot be readily expanded later so as to avoid excessive cost when demand increases and upgrading becomes necessary.

From an integrated engineering, institutional, financial and socio-economic viewpoint, it would appear that neither simply implementing Case A nor Case B would be the best alternative considering the viability and sustainability of the project. To this end, it is proposed that a stepd development approach, "Case C-1", be introduced that will start the project with Case A in the early years and then upgrade the system towards Case B. Under Case C-1 the tariff during the first five-year period will not only cover the O&M cost but will also allow a reserve

fund to be established for future upgrading of the service level. It is anticipated that the accumulation of the reserve fund will greatly improve the financial position of the Services Provider, to reduce the financial burden on the third tier and to motivate positive participation of beneficiary communities.

2.11.2 Recommendation

In order to realise the three proposed projects in North Mankwe, Klipvoor and Moretele 2 on a sustainable basis, the following recommendations should be taken into account:

(1) Full co-ordination, mutual understanding and communication among the role players over all three tiers shall be secured concerning their respective roles and responsibilities. In terms of institutional reinforcement and strengthening:

- Full technical support of the second tier is essential in the case of the North Mankwe and Klipvoor projects, and the first tier's must provide full support to the Moretele 2 Project including through the establishment of the new Highveld Water Board.

- Efficient utilisation of the private sector, especially consultants, for capacity building within beneficiary communities is important and the lessons and experiences learned from the implementation of the pilot projects should be fully reflected.

(2) As experienced during the pilot project implementation, positive participation of women in the planning and design of the project must be assured.

(3) Within communities, due attention should be paid to low-income groups.

(4) Beneficiary communities should be motivated to recognise that the water supply facilities are their property by contributing to payment to a reserve fund for future upgrading of the service level.

(5) Under the RDP the first tier shall bear fully the initial capital cost to be required for Service Level A (RDP minimum level).

(6) The second tier shall mobilise either the internal or external financing required for upgrading the service level from A to B in the bulk portion of the infrastructure.

(7) The third tier shall mobilise either internal or external financing for the balance of the upgrading cost of the retail water supply infrastructure although part of the total cost of this will be offset by a reserve fund contributed to by the beneficiaries.

(8) Specific technical recommendations for each sub-project are summarised below:

Table 2-39 Technical Recommenfations

North Mankwe	Klipvoor	Moretele 2
Since the proposed bulk supply facilities under the project will utilise a proportion of the facilities that will be constructed by MW, it is necessary to adjust and co-ordinate the timing of implementation of both projects. In implementing the proposed project, it is necessary to continue to adjust and co-ordinate the project components with other RDP funded projects as the ongoing planning process in each Area develops.	The operating rules of Klipvoor impounding reservoir shall be reviewed considering the additional releases required for abstraction for water treatment and the required security of supply and shall be duly revised prior to project implementation. The location of the proposed water treatment works shall be confirmed through close consultation between the authorities concerned.	There exist possibility that out-migration from the project area will be accelerated, due to government policy of cutting subsidy for transportation of laborers to capital areas. Upon commencement of detailed design, it is necessary to review and confirm the water demand through prospect of demography in the project area.

CHAPTER 3

BOUNDARY ISSUES

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CHAPTER 3 BOUNDARY ISSUES

3.1 Background of the Issues

In order to rationalise and extend the activities of various water boards based on the policy contained in the White Paper on Water Supply and Sanitation, the Minister of Water Affairs and Forestry approved and gazetted the proclamations of former Bophuthatswana territories and additional former RSA areas in favour of Magalies Water on 12 April 1996, and the proclamations of the Ga Rankuwa and Mabopane region in favour of Rand Water on 21 June 1996.

Trilateral discussions and negotiations regarding the boundary issues were held in which DWAF and the respective boards participated. These discussions were based on the newly proclaimed areas, specifically the Rand Water (Hartbeeshoek Reservoir) Supply Area and the Barnardsvlei Supply Area. This process is still on going.

During the final presentation of the Master Plan Report in November 1996, DWAF requested the Study Team to provide a suitable water resources allocation plan for the Rand Water and Barnardsvlei supply areas.

The terms of reference of this study were to provide the technical and financial information required by stakeholders to make long term decisions regarding the boundary between Rand Water and Magalies Water. Specific information on the cost of RW supply options (marginal cost level) compared with the cost of alternative local supply options was also requested in the TOR.

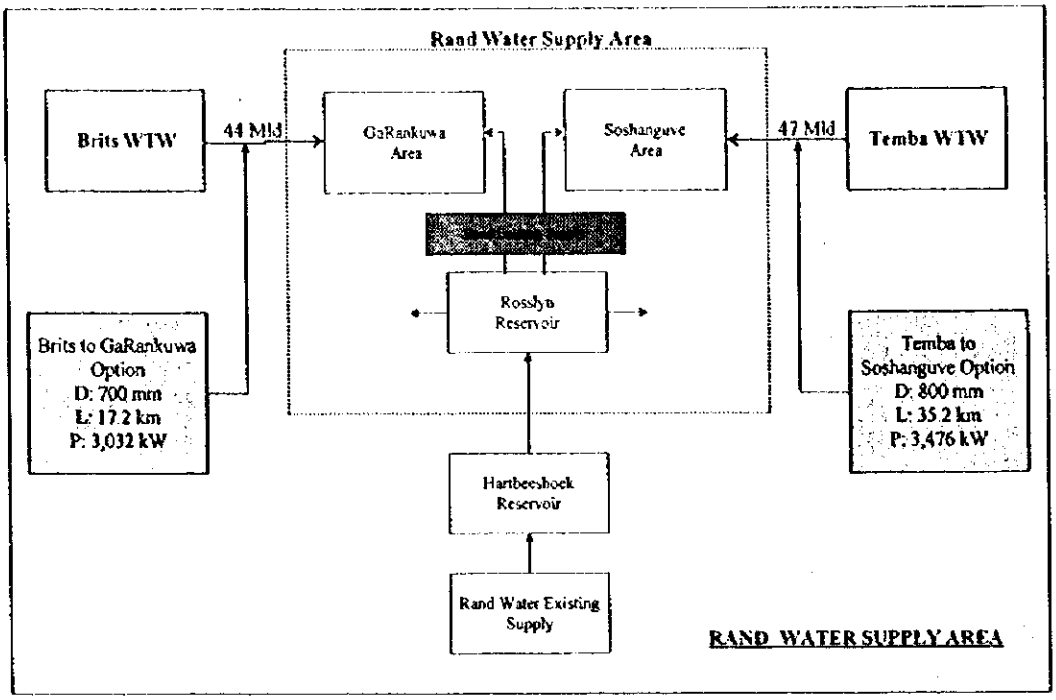
3.2 Technical Options

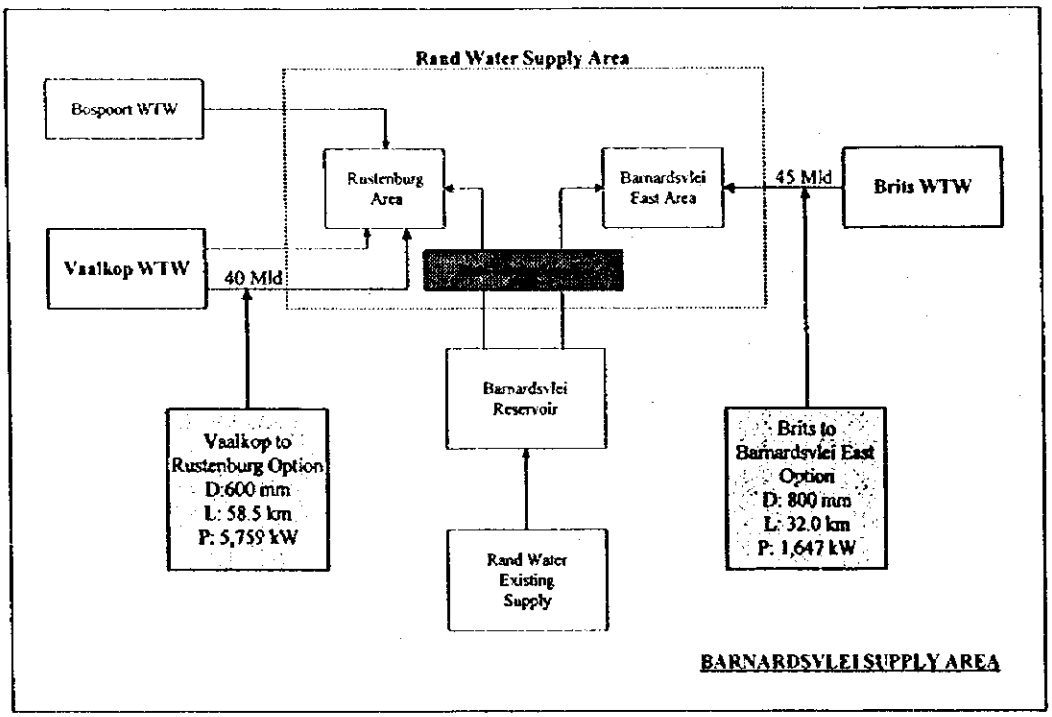
In order to compare the marginal cost of the water supplied by Rand Water, the following options were considered for the two subject areas, and schematic of options is illustrated in Figure 3-1.

(1) Rand Water (Hartbeeshoek) Supply Area :
- Supply from Temba to Soshanguve with 47 Mld capacity
- Supply from Brits to Ga Rankuwa with 44 Mld capacity

(2) Barnardsvlei Supply Area :
- Supply from Brits to Barnardsvlei East with 45 Mld capacity
- Supply from Vaalkop to Rustenburg with 40 Mld capacity

Figure 3-1 Schematic of Option





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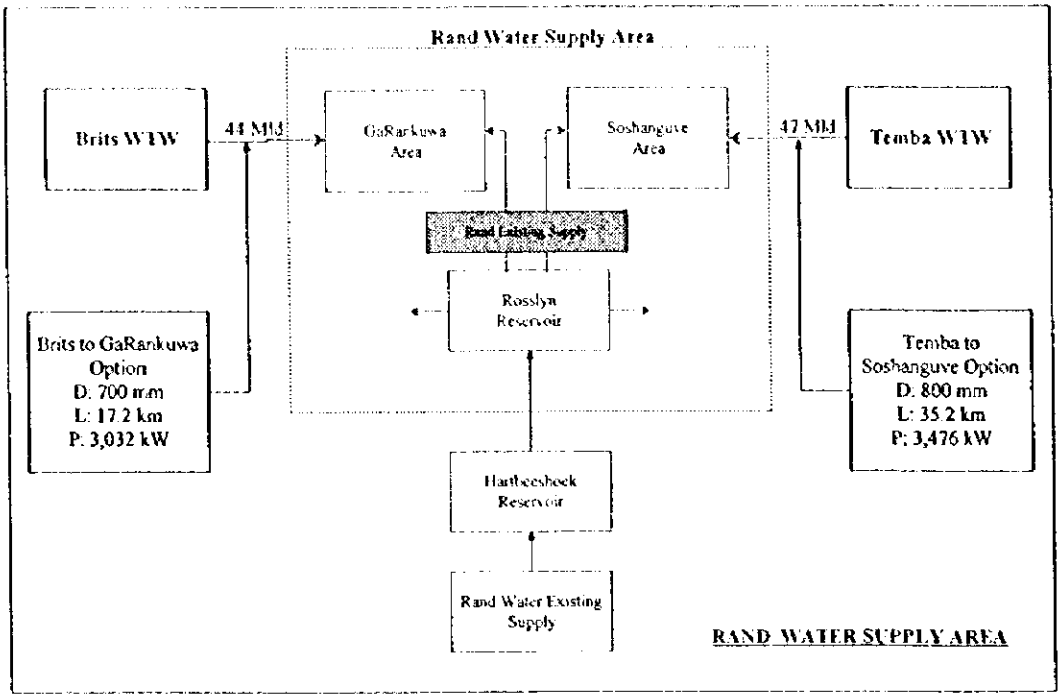

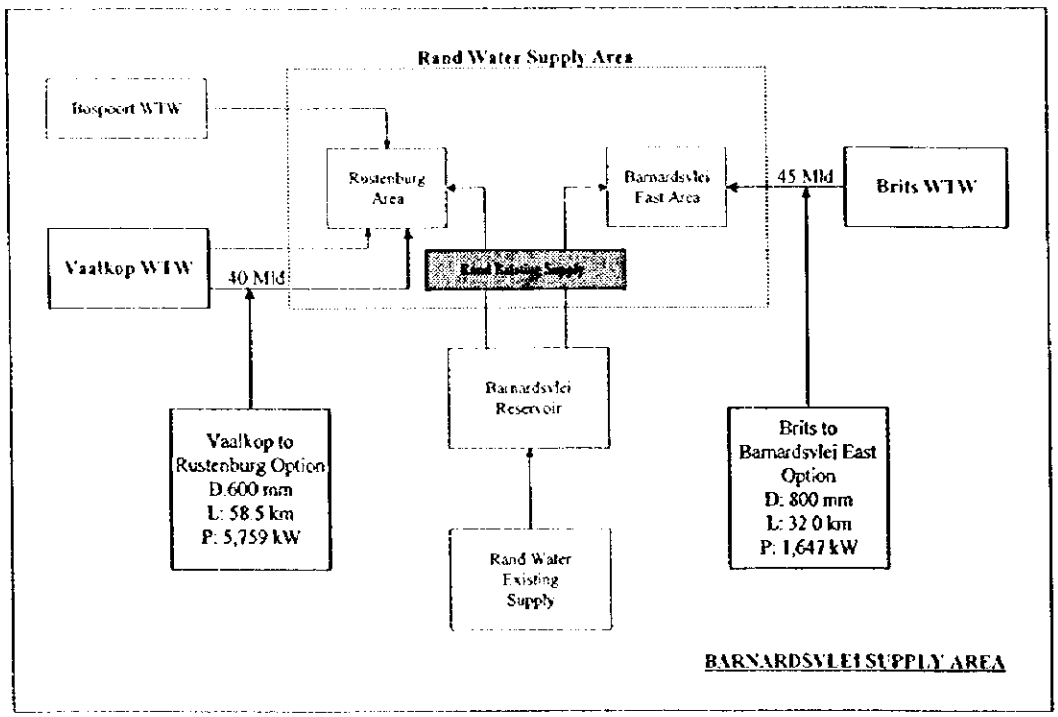

3.3 Economic Evaluation

The results of an economic comparison to derive the cost per kilolitre for the above options can be summarised as follows. The costs comprised capital and replacement costs, energy, purification and administration costs.

Table 3-1 Unit Water Cost for Water Supply Options (Unit : c/kl)

Supply Area	Option	Production Cost	Raw Water Cost	Total Cost
Rand Water	Temba	115.00	14.70	129.70
	Brits	144.00	2.00	146.00
Barnardsvlei	Brits	142.00	2.00	144.00
	Vaalkop	167.00	23.00	180.00

The least cost options are therefore 129.70 c/kl for the Rand Water Supply Area and 144.00 c/kl for the Barnardsvlei Supply Area.

These figures were compared to the Rand Water marginal costs. The projected raw water costs for Rand Water were based on proposed increases in the raw water charges levied by DWAF in 1998, 1999 and 2000, and the comparison are tabulated in Table 3-2.

Table 3-2 Projected Rand Water Marginal Costs

Supply Area	Cost Items	Unit Costs (c/kl)		
		1998	1999	2000
Rand Water	RW Marginal Cost	129.2	155.1	165.2
	Temba Option Cost	129.7	129.7	129.7
	Difference (Gap)	(-) 0.5	25.4	35.5
Barnardsvlei	RW Marginal Cost	139.2	165.1	175.2
	Brits Option Cost	144.0	144.0	144.0
	Difference (Gap)	(-) 4.8	21.1	31.2

The results of comparatives study indicate that the Rand Water marginal cost will become higher than that of Temba Option and Brits Option for both Rand Water and Barnardsvlei supply areas.

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3.4 Conclusions

The Boundary Issues Study has considered technical alternative to the existing Rand Water supplies to the two areas and the economic implication of these options. The final decision on long term strategy for water supply to these areas must also be based on political and institutional aspects (such as the existing customer base of the boards concerned) which were outside the scope of this study.

The analysis indicated that there is a need to formulate appropriate public policy towards water supply sources in the two zones in near future. There are economic and political incentives for DWAF policy makers to consider the implications of these alternatives for the future. Future public policy towards water supply in these two areas should be designed around those incentives.

In order to accurately reflect the true cost of water it is important that there is a consistent strategy and policy regarding raw water tariffs. At present there do appear to be some anomolies (such as the very low cost of raw water purchased by Brits TLC) that could be addressed.

It is important that a clear long term policy is developed by DWAF to enable long term coherent planning to take place and to provide a sufficient level of confidence to allow large scale infrastructure to be developed where necessary. Once decided such policy will impose binding constraints of bulk supply stakeholders in the two areas of supply and significantly affect their business development. The choice of alternatives in the long term must be in the overall economic interest of the country as a whole.

CHAPTER 4

PILOT PROJECTS (PHASE 3)

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CHAPTER 4 PILOT PROJECTS (PHASE 3)

4.1 Background and Development Concepts

4.1.1 Pilot Project Action Plan

(1) Objectives

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

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

(2) Situation

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

Table 4-1 Nature of the Projects

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

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

(3) Action Plan

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

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

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

4.1.2 Project Context

(1) Implementation of Capacity Building Plan

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

- General awareness building.
- Ensuring a mandated management structure.
- Team building.
- Building institutional linkages.
- Building awareness of planning and management of water supply.

- Establishing a participatory planning process.
- Facilitating technical understanding.
- Skills training.
- Best practice sharing.
- Feedback to Regional Projects

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

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

4.2. Infrastructural Development

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

Eight contractors were nominated through consultation with the authorities concerned, and six expressed an interest and submitted tenders. The Study Team and the Engineer, (EVN Consulting Engineers appointed by the Study Team), made a thorough evaluation of these tenders and finally the Contract was awarded to Roadcrete Construction after consultation with JICA headquarters and after obtaining their subsequent approval. The selection process was approved by the LPSC and the selection was discussed at a meeting with the LPSC's.

The construction work was completed on schedule by late October 1997. Infrastructure and expenditure for each project is tabulated below.

Table 4-2 Summary of Pilot Infrastructure

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

4.3. Institutional Development

4.3.1 Establishment of Local Project Steering Committees (LPSC)

(1) Roles and Responsibilities

The roles and responsibilities are summarised in the table below:

Table 4-3 Roles and Responsibilities of LPSC

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

(2) Composition and Status

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

4.3.2 Assessment of Capacity Building

(1) Approach and Method

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

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

(2) Targets and Benefits

Targets and benefits are summarised below:

Table 4-4 Target and Benefits of Pilot Activities

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

(3) Bapong Issues

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

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

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

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

Odi Retail will as a regional service provider in the Bapong area. The 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 the jurisdiction.

(4) Lessons from Capacity Building

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

- Intensive capacity building is required in the following circumstances: fast-track delivery (like the pilot projects); Atop down= technical solutions (eg the Ga Rasai RDP project); situations where local politics and structures are in a state of flux; large and institutionally complex areas (like Mbibane TLC, incorporating Segokgo/Semohlase). Conversely capacity building should be easy in situations where none of the above conditions are present. These conclusions should inform the implementation of the feasibility studies, and the institutional development costs associated with them.
- Communities are able to plan with the appropriate support, but sustainability cannot be taken for granted.
- Technical issues can be engaged by laymen with the appropriate support.

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

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

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

Table 4-5 Summary of Lessons from Capacity Building

Phase 1 strategy	Phase 3 Contribution	Capacity Building Lessons	
		Community	District Council/ Magalies Water/DWAF
Capacity building in District Council through a DC forum.	In Phase 3, iteraction between MW, DC's and LPSCs was mobilised through the Project Execution Forum	Through the PEF, communities were able to understand the relative strengths of the DCs in the Magalies area. Interaction in the PEF assisted LPSCs to develop perspectives on the local capacity needed, and the opportunity to cement support linkages.	Limited sharing of DC experiences was possible in the PEF. However, DC approaches to supporting the pilots were shared. The establishment of a focussed DC forum is highly recommended.
Development of planning capacity at local level	The development of planning capacity at local level was a central feature of the capacity building approach adopted in Phase 3. Targets in this context were effective planning processes, viable management plans and structures, and cost recovery.	Community structures are able to plan with the appropriate support, but sustainability cannot be take for granted. With support, technical issues can be engaged by laymen. The durability of local planning capacity established in Phase 3 remains to be tested.	Intensive local capacity building is required in the following circumstances: fast track delivery (like the pilot projects); "top down" technical solutions (like the Ga Rasai RDP project) ; situations where local politics and structures are in a state of flux; large and institutionally complex areas (like Mbibane TLC, incorporating Segokgo/ Semohlase. Local planning capacity will enable LPSCs and LWCs to interact with district planning forms, such as the RDC planning zones, and the DWAF Area Forums. Since Area Forums were being formed during Phase 3, it was not possible to coordinate local and regional planning to any degree.
Institutional support though sharing of resources at third tier level	Phase 3 did not establish formal resource sharing at local level. Some best practice sharing was achieved (among communities and in the PEF), but a more structured approach is possible.	The community based planning process revealed strengths and weakness in the capacity building approach adopted for the various communities. It also uncovered issues around the viability of the technical option chosen, and the need for different levels of extra-community support. These lessons were shared through the medium of the study team. Following the completion of the JICA project, no formal best practice sharing mechanism has been established.	The DCs and MW were able to convey and receive best practice information through the PEG and the PEF. No alternative arrangements have been made, but the Area Planning Forums are a possibility. It is recommended that the DCs allow specific opportunities for best practice sharing in these forums. The newly-established Joint Decentralisation Task Team (in North West Province) might also be a vehicle for vest practice sharing. This possibility must be investigated Best practices sharing should be backed by a monitoring and evaluation programme. M and E proposals are contained in Section 6.5.1 of the main report.

4.3.3 Project Management Plans

(1) Concept and Content of Plans

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

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

(2) Water Services Authority and Water Services Provider

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

Table 4-6 WSA nad WSP of Pilot Project

Pilot Project	Community	Services Authority	Services Provider
Kameelboom	Kameelboom Mphonyoke	Rustenburg DC	Kameelboom Water Committee (assisted by MW and RDC)
	Ramoshibitswana	Rustenburg DC	Ramoshibitswana Water Commitee (Assisted by MW and RDC)
Ga Rasai	Ga Rasai	Estern DC	Ga Rassai Water Committee (assisted by MW)
Segokgo	Semohlase	Mbibane TLC	Semohlase Water Committee (not formally agreed by the TLC)

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

(3) O&M Plan and Tariff

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

Table 4-7 Summary of Management Plan

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

(4) Accounting and Fee Collection

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

Table 4-8 Fee Collection Plan

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

4.3.4 Training

(1) Technical

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

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

(2) Administration and Accounting

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

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

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

(3) Comprehensive Evaluation

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

4.3.5 Monitoring and Evaluation

(1) Sustainability

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

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

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

(2) Monitoring and Evaluation

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

- Routine monitoring and evaluation undertaken by the Study Team and the LPSCs during project implementation.

- A follow-up programme of sustainability monitoring to be undertaken after the conclusion of the JICA project, possibly linked to CWSS. Recommendations are outlined in Section 4.4.3.

4.4 Recommendations

4.4.1 Contribution to Future Projects

The JICA Magalies project will link directly with future projects such as the implementation of the feasibility study projects. Recommendations in this regard are contained in Section 4.4.3.

The less direct contribution to future projects will depend on the extent to which the project material is made accessible, and the manner in which it is disseminated. Recommendations regarding best practice sharing are in Section 4.4.3.

4.4.2 Continuation

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

- Operational Carry Over. Consolidation and refinement of the management and O&M arrangements implemented in terms of the management plans, and full operational testing of water systems.

- Consolidation and Integration of Institutional Arrangements at local and at regional level. This is especially critical for the sustainability of the Segokgo project (Mbibane TLC), and for the implementation of the feasibility studies.

- Best Practice Sharing.

- Feasibility Study Implementation.

4.4.3 Recommendations

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

It is proposed that funding be sought as follows:

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

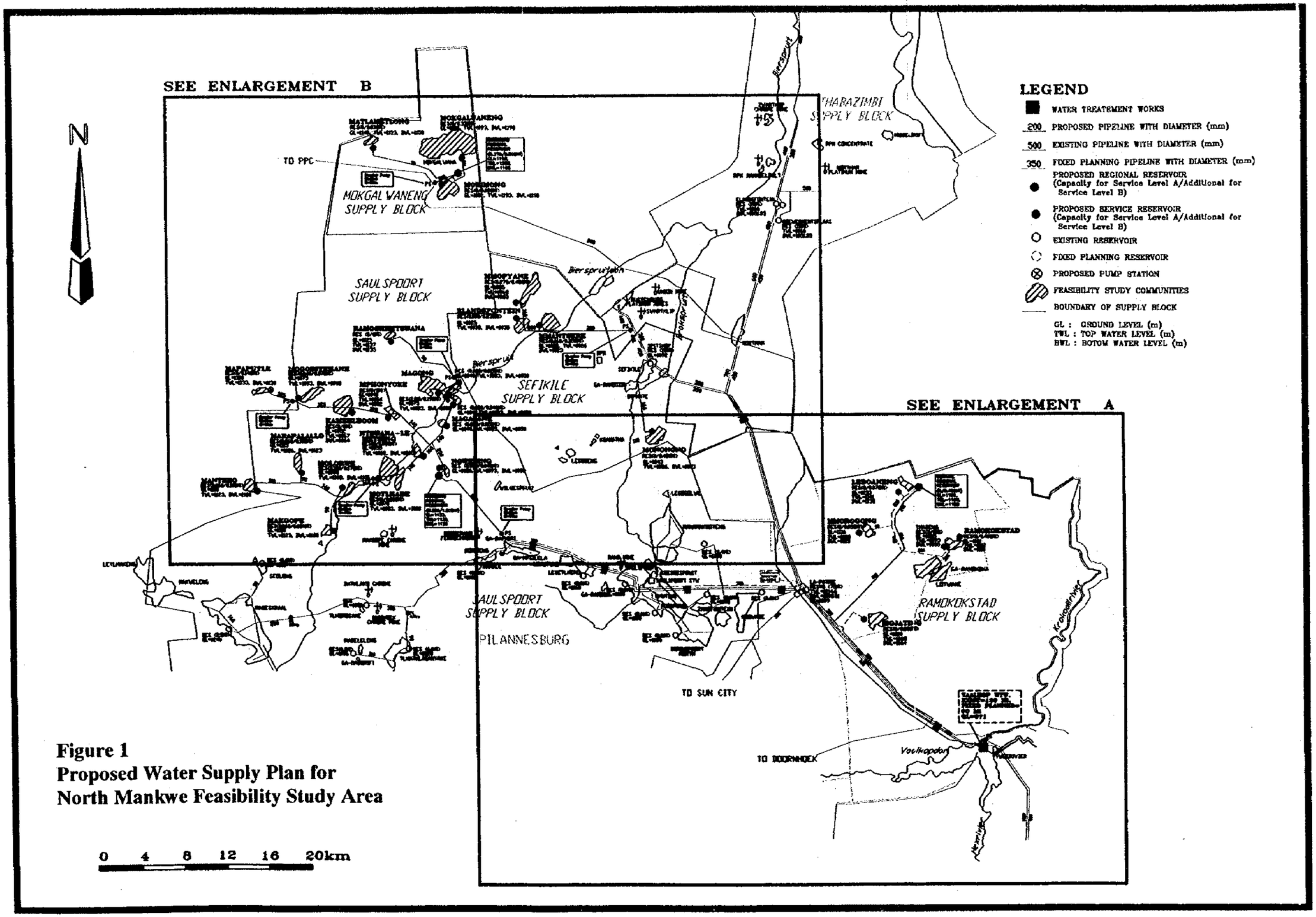


Figure 1
Proposed Water Supply Plan for
North Mankwe Feasibility Study Area

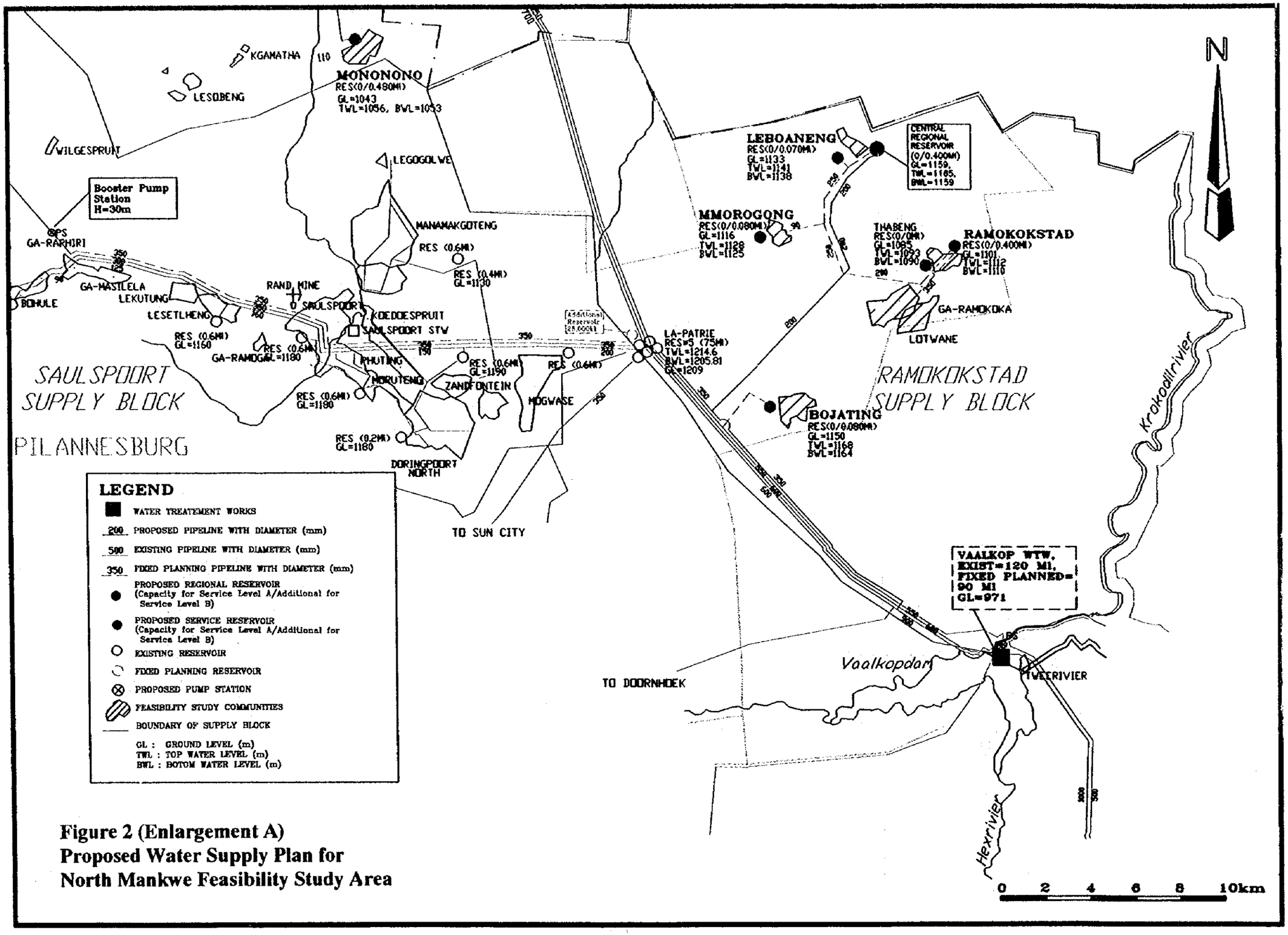
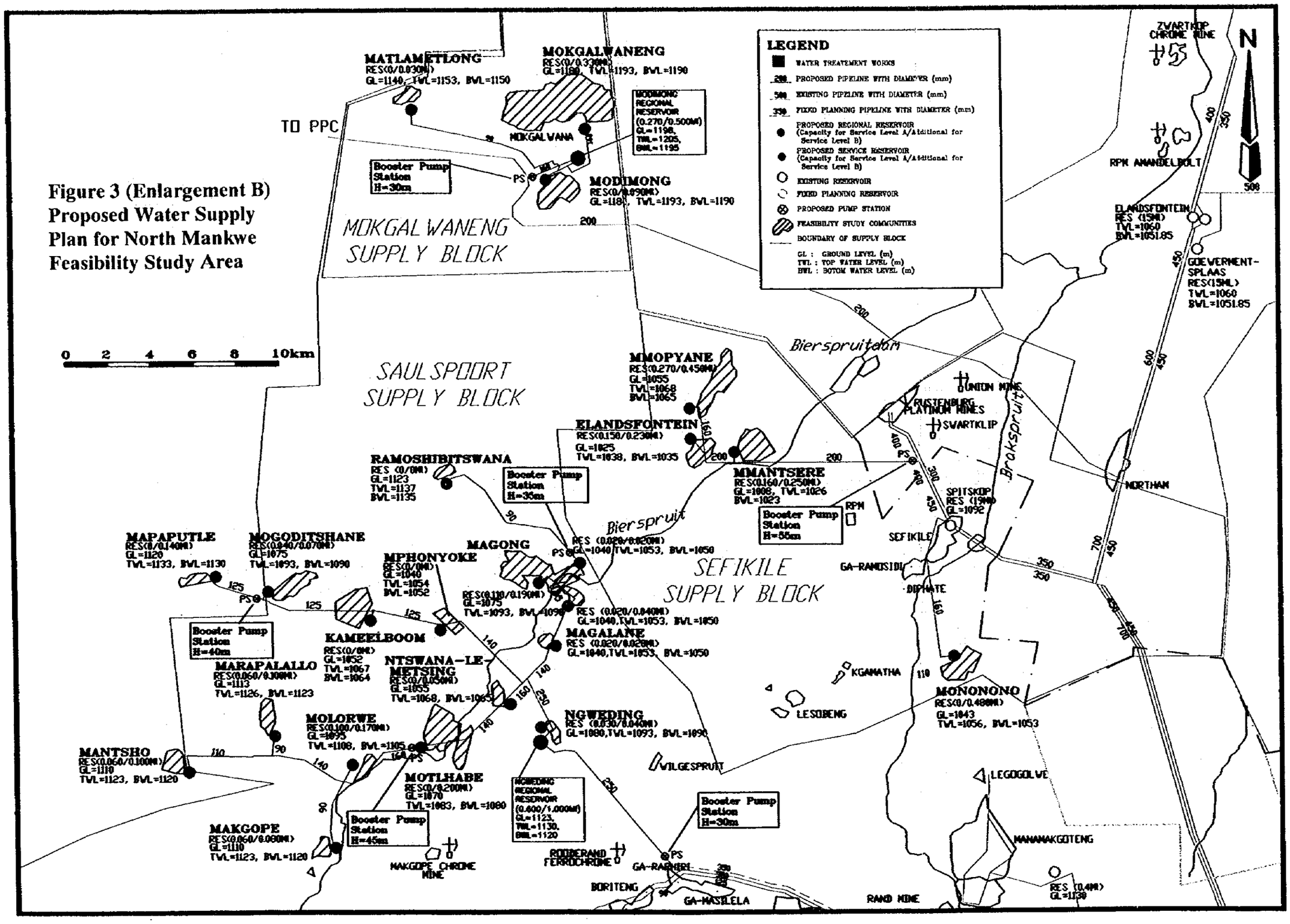


Figure 2 (Enlargement A)
Proposed Water Supply Plan for
North Mankwe Feasibility Study Area

Figure 3 (Enlargement B)
Proposed Water Supply Plan for North Mankwe Feasibility Study Area



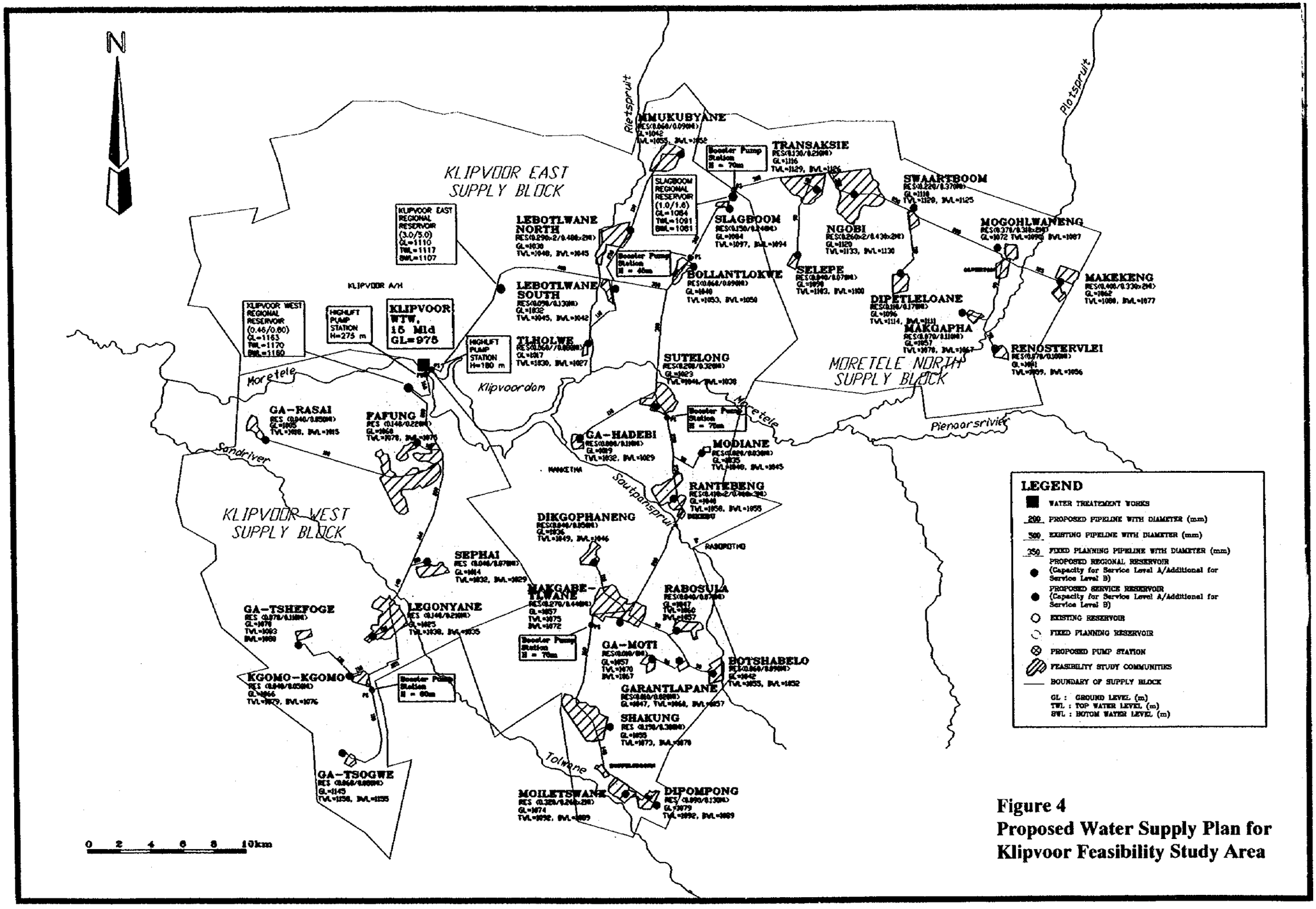


Figure 4
Proposed Water Supply Plan for Klipvoor Feasibility Study Area

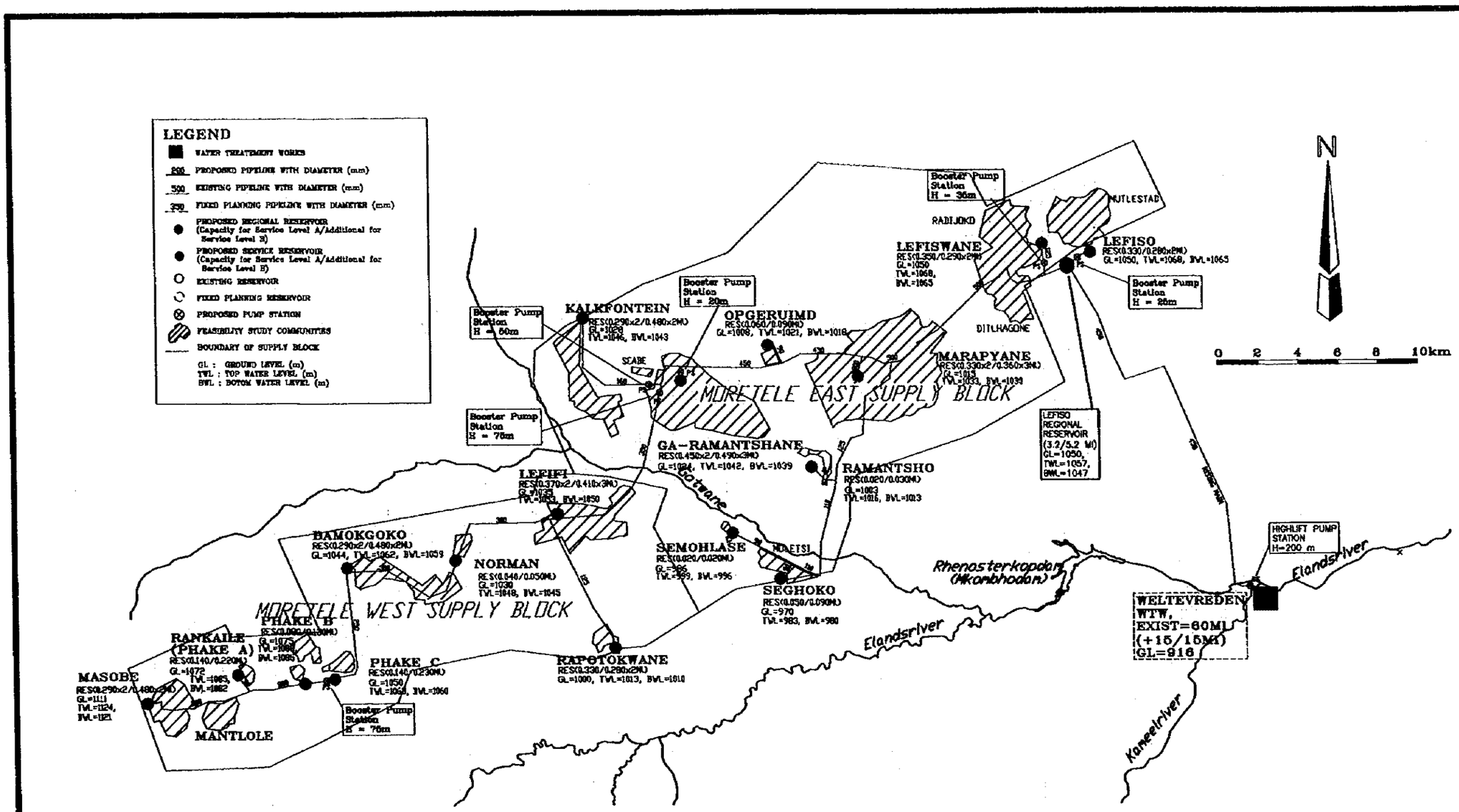


Figure 5
Proposed Water Supply Plan for Moretele 2 Feasibility Study Area