CHAPTER 6 INSTITUTIONAL DEVELOPMENT PLAN

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6.1 Institutional Development in the Water Sector

In the transformation of the water sector, a major task is that of institutional change and development. On the one hand, institutions established under a different water supply and sanitation regime have to be modified. On the other, new institutional arrangements have to be set in place where gaps are identified. The process of institutional reform is often difficult, because change at one level requires or enables change at another. For example the installation of elected local authorities has prompted reconsideration of the roles and powers of local water committees, and the emergence of proactive District Councils could modify the Third Tier support roles envisaged for Water Boards in water supply and sanitation policy.

As discussed in Chapter 3, Water Boards face two challenges in terms of policy. One of these is to provide support to the Third Tier where this is needed. It has been recognised that Third Tier support has several dimensions (Chapter 3). These are:

(1) Interim project implementation where other capacity is not present.

(2) Technical support in the form of training, networking and the development of systems.

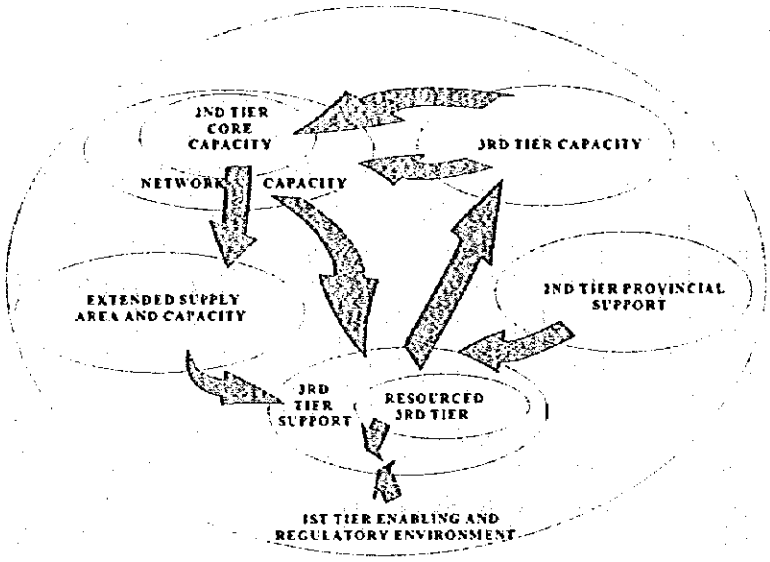
(3) The development of new bulk markets, which implies the creation of permanent relationships with various emerging Third Tier customers.

The policy and strategy options presented in Chapter 3 include initiatives to address various facets of Third Tier support (see Section 3.4).

The second challenge is to extend supply areas, and within these to expand supply capacity and infrastructure in order to serve previously unserved consumers. The technical proposals presented in Chapter 5 represent a framework within which Magalies Water can develop a sustainable response to this challenge.

The implementation of these tasks requires purposeful institutional development. This development cannot look at first, second or Third Tier actors in isolation, because lack of development at one level will impact institutional effectiveness elsewhere. Figure 6-1 illustrates the institutional relationships and capacity that have to be grown if Magalies Water and partners in the water sector are to address the challenges that face them.

Figure 6-1: Institutional Relationships and Capacity Building



The diagram illustrates the following:

(1) Boards like MW are tasked in terms of policy to extend supply areas and supply capacity, and to engage in appropriate forms of Third Tier support.

(2) Unlike the large boards, which have developed considerable internal capacity, smaller organisations like Magalies Water will have to probably have to find the appropriate balance between the development of internal core capacity and the promotion of a network of associations and alliances to increase capability, especially during the transitional phase. Hence it will be noted that the policy and strategy recommendations place particular emphasis on the constructive relationship between Water Boards and District Councils. The lack of capacity in some DC's is addressed later in this chapter.

(3) In the transitionary period various forms of Third Tier support will flow from the First Tier, the Second Tier (including Water Boards and provinces) and the "resourced" Third Tier. First Tier institutional support may take the form of an enabling policy and regulatory framework. Support from the second tier will take a variety of forms discussed later (Section 6.4). There should also be networks of support within the Third Tier (e.g. the large TLC's and TMC's helping smaller local authorities, District Councils assisting rural authorities, and LWCs and LRDCs assisting various forms of local government.

(4) This support will build Third Tier capacity, which in turn will enhance the capacity of the Water Board. It will extend and strengthen the "network" capacity of the Board, for example through coordinated organisational development initiatives between the Water Board and District Councils. It will also secure the core capacity of the board, through the emergence new and financially viable bulk customers.

6.2 Third Tier Focus

This chapter recognises the relationships outlined above. The institutional development plans seek especially to address the links between the Second and Third Tiers. The chapter has three parts:

(1) An evaluation of the capacity of the Third Tier in the study area. This is particularly important because the level of capacity in elements of the Third Tier will determine the nature and priority of support actions by the First and Second Tiers, and by Third Tier organisations able to offer such support. Following from this, the structure and deployment of Magalies Water has to be based on an understanding of the extent and pace of organisational development in the Third Tier.

(2) Issues informing the appropriate structuring of Magalies Water. These issues are developed against the background of the recommendations from Chapters 3 and 5, and they reflect the present and expected short and medium term status of the Third Tier.

(3) Programmes to address institutional development imperatives in the Third Tier. It is recognised that whilst Magalies Water is expected to support the development of the Third Tier in the study area, there are critical arenas of Third Tier institutional development that will require contributions from other parties. The three programmes discussed are:

   (a) A support and development programme for undercapacity and underdeveloped District Councils.

   (b) A support and development programme for isolated and vunerable rural and peri-urban communities.

   (c) A service support network and enabling structure for local authorities.

6.3 The Capacity of the Third Tier

As policy implementation has proceeded, the complexity of so called "Third Tier support" has become increasingly evident. This complexity has led to considerable vagueness regarding the nature of the Third Tier and a wide diversity of views regarding its duties and capabilities. For the sake of clarity in this discussion, a definition of "Third Tier" is provided, and roles that are clearly defined by the constitution, legislation or policy are outlined.

6.3.1 Definition of the Third Tier

A narrow definition of the Third Tier would be confined to government institutions. However, some usage in the water sector also includes various non-statutory government-supported structures with a direct or potential role in water and sanitation provision. The JICA study has adopted this broader definition, and has also included water-focussed NGOs under the "Third Tier" rubric. The broader "for profit" private sector is not included, but it is acknowledged as a significant actor in water supply and water management at local level.

The JICA study did include two private sector "capacity building" organisations in its Third Tier audit (see Supporting Report B), but this was purely to understand the role such hands-on bodies might play.

Table 6-1: Third Tier Structures with Water and Sanitation Roles

Statutory	Government-Supported Non-Statutory	Non-Government (NGO)
District Councils TMCs TLCs TRCs Tribal Authorities* Water-related forums steered by Third Tier authorities, or dealing with Third Tier issues (eg. Provincial Planning Forums, Area Forums)	Local Water Committees Local RDP structures Informal water-related forums (eg. Water Board forums convened by British ODA)	NGOs involved in water supply and local development (eg. Mvula Trust, Independent Development Trust) Informal planning forums

* The relationship between tribal authorities and local government is the subject of much debate. Further, much of the apartheid era legislation supporting them is questioned. The JICA study has included them because they play a de-facto service provision role in some areas, and because they represent capacity that might be useful in some contexts.

6.3.2 Water Sector Roles

Many of the organisations listed in the table above have roles that are defined constitutionally, in supporting legislation, or within some formal institutional structure. It is important to recognise and understand these formal roles for several reasons:

(a) They capture the core accountability of the organisations concerned.

(b) They often include responsibilities that are outside the ambit of the water sector. The champions of water supply and sanitation sometimes fail to recognise this broader spectrum of responsibility. It is important to note that whilst the First and Second Tiers have substantial organisations and infrastructure *dedicated* to water delivery, this is not the case for the Third Tier.

(1) Roles and Responsibilities of District Councils

In the Study Area, District Councils are an evolution of the former Regional Services Councils (established in terms of the *Regional Services Act, No 109 of 1985).* In their new guise, the DCs retain the RSC brief to render local government services on a regional basis, but have the additional responsibility of acting as full local government in situations where this does not exist (new roles defined in the *Local Government Transition Act, No 209 of 1993* and relevant Provincial Proclamations). In practice the District Councils often act as rural local government, or in support of new Transitional Rural Councils. The DCs are responsible to the relevant provincial local government

departments. DC income is still largely derived from levies on business in their areas of jurisdiction. The Development Facilitation Act (DFA) has added a planning role to local government. The District Councils are institutionally well placed to facilitate such planning if they elect to do so, and they now have the necessary enabling legislation. In practice, the various DCs in the study area are taking up their new roles in different ways, and at widely varying rates.

(2) Roles and Responsibilities of Transitional Local Government

Among the many responsibilities of the various forms of transitional local government (established in terms of the *Local Government Transition Act, No 209 of 1993)* is that of providing and managing services such as water, electricity, roads, basic health care (eg clinics), sanitation and refuse removal. Transitional local authorities are also empowered to impose and collect taxes and levies, and to proclaim and enforce by-laws. The transitional process has sought to reform the political component of local government to reflect the multi-racial character of South African towns and cities, and operational transformation has had the objective of ensuring more effective and equitable service delivery. In practice, whilst the political transformation is well progressed, operational transformation is taking place more slowly. In well-resourced TMCs and TLCs, factors retarding progress have largely to do with integrating formerly segregated systems, and overcoming resistance among wealthier sections of the population to increased cross subsidisation. In areas where no formal democratic local government existed in the past, the problem is much more one of creating new operational capacity.

(3) Roles and Responsibilities of Local Water Committees

LWCs were conceived as water-dedicated local structures empowered by statute to undertake local water and sanitation provision and to manage existing supply infrastructure in the absence of established and competent local government. In essence, it was envisaged that they would assume a local government role, but only in the context of water supply and sanitation. LWCs have not been given the statutory muscle envisaged, but they are in place in numerous areas. Many have received training through DWAF and its agents, and have been active in their communities. In some areas the LWCs are well integrated into other planning and service related structures (for example RDP committees), and in others they are relatively isolated. Relationships with newly established local governments are varied, ranging from cooperation to relative hostility.

(4) Roles and Responsibilities of Local RDP Structures

Reconstruction and Development Programme (RDP) Committees are non-statutory organisations operating under the constitutional guidelines of the RDP Commission. They have the following powers:

(a) The right to request information both locally and provincially;

(b) To manage their own projects;

(c) To liaise and consult with local government;

(d) To be representative and inclusive (including civil society, business, labour, political organisations, associations, burial societies, NGOs and development forums).

The specific task of RDP committees is to identify and prioritise development needs. They are not implementing agents, but facilitators of development. Project Steering Committees are established to ensure the representative management of RDP projects once funding has been secured. The PSCs themselves are a source of capacity, having been involved in the practical side of infrastructural development.

6.3.3 Dimensions of Capacity

Among the sixteen gaps identified through the gap analysis process (see Supporting Report C), several relate to a lack of capacity in the Third Tier. Examples are insufficient and ineffectively utilised human resource capacity, limited community involvement, limited communication and coordination, lack of integrated service delivery, limited cost recovery, limited capital resources, poor development of Third Tier planning roles and limited dialogue around RDP standards and community expectations. Among respondents at the gap analysis workshops, limited Third Tier capacity and the related issue of poor cost recovery were listed as the major constraints to the realisation of the vision of the White Paper on Water Supply and Sanitation.

On the whole, the capacity issue is often oversimplified and poorly understood. This has the potential to lead to stereotyping and to inappropriate and wasteful capacity building initiatives. In an effort to avoid these pitfalls, the following discussion examines the dimensions of capacity in some detail. In Chapter 3, institutional capacity was depicted in four categories (see Section 3-4). These categories are summarised in the table below. The table refers specifically to internal capacity, recognising that capacity is also derived from relationships external to organisations.:

Table 6-2: Components of Internal Institutional Capacity

Component	Description
Organisational Capacity	Refers to the human/social system that comprises the organisation. Includes human resources, individual and collective competencies, organisational structures which direct effort and the culture determining interaction and relationships.
Process Capacity	Refers to the macro processes via which the organisation performs its tasks, and the internal systems that underpin measurement, management and control.
Technical Capacity	Refers to the technology employed to convert resource inputs into outputs in the form of products or services. Technology may range from plant and facilities to software and encoded data and processes.
Financial Capacity	Refers to the capital investment necessary to create physical and organisational infrastructure and the financial resources necessary to operate on a day-to-day basis.

Capacity is frequently viewed within the bounds of specific organisations or structures. However, there are also external determinants of capacity. Some of these are presented below:

Table 6-3: External Determinants of Capacity

Determinant	Description
Enabling Framework	This is the legal and regulatory framework that allows organisations to act in particular ways, for example levying fees and acting against defaulters.
Mandate	Delegated power to act which is backed by the relevant higher authorities and key affected parties. It is possible to have an enabling framework, but without the necessary support of (for example) important political actors.
Access to Support Networks	It is sometimes not necessary for organisations to have internal capacity, provided they have access to appropriate external support. Factors determining such access are information, planning capability, financial resources and the availability of the right kind of capacity.
Legitimacy	Similar to mandate. In this case, legitimacy refers to the right to act conferred by a broad spectrum of people and organisations.

In some circumstances, external determinants of capacity can cancel or neutralise internal capacity. So, for example, a well resourced organisation that is perceived to lack legitimacy might be prevented from doing its work in a particular area. Similarly, external factors may cancel each other. In this context, a legitimate organisation with a mandate but no enabling framework might be ineffective in pursuing its brief.

6.3.4 Information from the Situational Analysis

Addressing Third Tier capacity is recognised as a priority by most actors in the water sector. A problem is that the nature and extent of the evident capacity vacuum is incompletely understood. A consequence of this is stereotyping and a tendency toward symptomatic "fire-fighting" solutions.

The Stage 1 situational analysis incorporated two tasks which permit an assessment of institutional capacity in the study area:

(1) The Third Tier audit investigated selected organisations in a variety of categories:

- (a) District Councils.
- (b) Transitional Local Councils.
- (c) Tribal Authorities.
- (d) Local Water Committees.
- (e) Local RDP committees.
- (f) Water-related NGOs.
- (g) Water-related capacity building organisations.

(2) The community case study component of the situational analysis examined the social and organisational characteristics of 30 peri-urban and rural communities, many of which had no formal local authority at the time of the research.

In combination, the Third Tier audit and the community case studies provided fair coverage of the Third Tier in the study area.

6.3.5 Quality of Situational Analysis Data

An overview of Third Tier capacity based on the situational analysis is presented below. However, it is necessary to recognise some of the difficulties inherent in the body of information available:

(1) Capacity is a dynamic issue, and circumstances can sometimes change quickly, particularly as a result of the availability of previously unutilised support. For example, the Rustenburg District Council has appointed zonal planning consultants to serve groups of towns and villages. The presence of these experienced people has the potential to rapidly increase the planning capacity of the communities and authorities involved. The situational analysis provides a time-bound snapshot does not capture such changes.

(2) The mere presence of capacity does not necessarily reflect effective utilisation. In some of the case study villages, RDP Committees and Local Water Committees have substantial membership and have received training. However, they are uncertain of the steps necessary to move from local consultation to project implementation. The information available cannot accurately address the question of effectiveness.

(3) To have meaning, capacity has to be assessed relative to a task or to a series of tasks. Hence a small operation with a simple task (like distributing information on water quality) might have sufficient capacity, whilst a large organisation with a complex task (like managing the full range of municipal services) might not. Water supply and sanitation provision encapsulates a wide variety of tasks (technical and organisational, and spanning planning, installation and operation). Capacity depends on the balance of resources and the spectrum of tasks that a particular organisation is charged to execute. An attempt is made to consider capacity against the background of task, but far more detailed auditing is required if detailed capacity-building programmes are envisaged.

(4) As indicated earlier, capacity has internal and external determinants. Many of the external determinants, such as legitimacy, mandate and access to support networks are difficult to quantify, or even to evaluate with any degree of accuracy. The situational analysis did not specifically address external determinants, but these are taken into account in the discussion below.

6.3.6 Capacity Profiles

The Third Tier capacity profiles presented here are based on two steps:

(a) A broad classification of Third Tier organisations, based on situational analysis material, and using criteria such as internal capacity, the scale of the water sector challenge, and the influence of external capacity determinants.

(b) A profile of each of these groups of organisations reflecting different aspects of Third Tier capacity relevant to water supply and sanitation.

(1) Classification of Third Tier Organisations

Table 6-4 presents a classification of Third Tier organisations and structures covered by the situational analysis. It will be noted that characterising any one of the organisation types homogeneously is incorrect. The example of District Councils illustrates this point. The Eastern Gauteng DC has more internal capacity than other DCs in the study area, and EGDC does not have the scale of rural/peri urban challenge that faces many other DCs. This is in stark contrast with the Eastern District Council, which has jurisdiction over many rural and peri-urban settlements, but which presently has almost no internal capacity. Similarly, whilst the Greater Pretoria, Bushveld, Rustenburg and Highveld DCs are similar in terms of internal capacity, the latter pair appear to face the larger challenge (in the study area, at least).

The classification of "rural authorities" is difficult because of the importance of local political and organisational dynamics. Many rural villages are clustered in a bigger local authority. Their capacity depends in part on the resources available to the umbrella authority, but also on the strength of their relationship to the larger authority. Further, with reference to water supply and sanitation, it is often the case that the most substantial pool of human resources resides in LWCs or in other development-related structures. As indicated earlier, the effectiveness of these structures depends on their external connections, but also on relationships within the community. The case study investigation revealed a number of examples of communities where tension and conflict among local structures is firmly entrenched. The roots of these tensions are multiple, but in many cases they have to do with traditional vs. democratic roles, conflict over access to development resources, or dissatisfaction over the rate of development delivery.

Table 6-4: Classification of Third Tier Organisations/Structures in the Study Area

Organisation Type	Description	Examples
District Council A	Established internal capacity, moderate rural/peri urban challenge	Eastern Gauteng DC
District Council B	Small internal capacity, good networks, moderate rural/peri urban challenge	Greater Pretoria Metropolitan DC, Bushveld DC*
District Council C	Small but developing internal capacity, good networks, substantial rural/peri urban challenge	Rustenburg DC, Highveld DC
District Council D	Very limited internal capacity, limited networks, substantial rural/peri urban challenge	Eastern District Council
Transitional Local Council A	Established and well resourced local authority, with wide spectrum of capacity, substantial peri urban challenge	Rustenburg TLC, Bronkhorstspruit TLC
Transitional Local Council B	Very limited internal capacity, strong reliance on DWAF and/or DC, substantial peri urban challenge	Siyabuswa TLC, KwaMhlanga TLC
Rural Authority A**	Very limited internal capacity, strong community organisations	Kameelboom (NWP), Norokie (NWP)
Rural Authority B**	Very limited internal capacity, capable community organisations, limited interaction	Sehoko (Mpumalanga)
Rural Authority C**	Very limited internal capacity, weak or non-existent community organisations	Mabele-a-Podi (NWP)
Tribal Authority A	Well resourced tribal authority, with a substantial support base and management and (outsourced) technical capacity	Bafokeng (NWP)
Tribal Authority B	Limited internal capacity, uncertain legitimacy and very limited technical capability	Ndzundza (Mpumalanga)
Local Water Committee A	Good capacity due to training and links with RDP structures, CBOs and local government.	Phatsima LWC (NWP)
Local Water Committee B	Limited capacity due to absence of training and relative local isolation.	No examples from the situational analysis
RDP Committee A	Good capacity due to wide participation and good links with higher level RDP structures, local government and CBOs	Saulspoort Village RDP Committee (NWP)
RDP Committee B	Limited capacity due to poor participation and/or relative isolation	No example from the situational analysis
NGO A	National, relatively well resourced development and water-related NGOs	Mvula Trust, Independent Development Trust
NGO B	Local issue-focused NGOs with limited resources	No example from the situational analysis

Notes: * Assessment of Bushveld DC applies only to the Study Area.
** The capacity issue in rural areas is far more complex than this classification suggests.

(2) Capacity Profiles

As argued earlier, it is important to preface any discussion of water supply and sanitation capacity with an assessment of what is needed. For the sake of the impressionistic overview developed here, it is assumed that water and sanitation provision requires skills, human resources, management, organisational structures, systems, technology and finance to deal with different phases in a project or scheme. Hence capacity is considered in the context of planning, installation and operation. Further, the four components of capacity described in Table 6-4 above are assumed to be necessary (to a lesser or greater degree) during each of these phases. Again, it must be noted that the broad brush approach used here might conceal a great deal of detail. However, this is done in response to the information available, and to permit a global view of the much discussed but often misunderstood issue of Third Tier capacity.

Table 6-5 shows the capacity profiles of the 17 organisational categories presented in Table 6-4. The colouring of the cells represents a qualitative interpretation of capacity, with green and red cells reflecting opposite ends of the capacity spectrum (green=good capacity; red=very limited or no capacity). In interpreting the matrix, the following points should be borne in mind:

(a) The classification of cells is subjective, but it is based on the information gathered by the situational analysis. The detailed results of the two relevant investigations are contained in Supporting Report B and in the accompanying Data Book.

(b) Where organisations have been able to access outside resources, this is taken into account. So, for example, whilst most District Councils have a very small core of permanent staff, many make considerable use of consultants and contractors. Access to such additional capacity is itself a function of other forms of capacity; for example the financial resources to hire consultants and contractors, and the technical and managerial capacity to use them effectively.

(c) The scale of the water challenge is considered wherever possible. Hence District Councils classified "C" are considered to have very little or no financial capacity for installation and operation by virtue of the daunting rural and peri-urban hinterlands they contain.

(d) Different forms of capacity interact. Hence while District Council "D" has some process capacity to hire consultants and contractors, its financial resources are inadequate for the challenge its faces. The lack of financial capacity also prevents many other bodies from contracting the operational and technical capacity they require (for example TLCs classified "B").

(e) The external factors determining capacity are difficult to classify. For example, District Councils and TLCs are assumed to have an adequate enabling framework by virtue of the legislation that underpins them. However, it might be argued that they still lack the policy and legal backing to deal with non payment and unauthorised connections. The more qualitative issues of mandate, access to

support and legitimacy are even more elusive, but they still serve to illustrate some important points. An example is that of Tribal Authority "A". It has significant internal capacity, and it appears to enjoy a fair level of legitimacy. However, its capacity in the water sector is limited by the lack of an enabling framework and mandate. In another example, Local Water Committees are present in many communities, but policy flux has left them with an unclear enabling framework and a mandate that is open to a range of local interpretations.

6.3.7 Conclusions

The following are the key conclusions drawn from the above capacity evaluation. These conclusions inform the institutional development plan outlined in Section 6.4:

(1) District Council capacity varies widely in the Study Area. The DCs are assuming an increasingly important role in current institutional development thinking, both as facilitators of local development planning, and as the key interface between DWAF and the Water Boards on one hand, and local government on the other. Many of the policy and strategy recommendations of the JICA study place District Councils in a lead role, echoing the broader thinking in DWAF and in the water sector generally. These approaches are clearly at risk where DC capacity is nominal, as in the case of the Eastern District Council. With this in mind, building the capacity of the weaker District Councils is a priority.

(2) There is an acute lack of local capacity in rural areas, and among some TLCs. This is well recognised, but it is particularly serious where the affected authorities and communities have no access to support networks. Hence a rural village in the area of jurisdiction of the Eastern District Council would be particularly isolated, especially if the local LRDC and LWC have fallen into inaction and have lost legitimacy. Against this background it seems evident that some communities are especially vulnerable, and in need of support through extraordinary institutional channels.

(3) Planning capacity is concentrated largely in well resourced DCs, TLCs and NGOs. The ability to plan locally to meet local needs is the essence of the demand driven water policy articulated in the White Paper. This vacuum is well recognised, and institutional responses are being lead by DWAF and some District Councils. For example, DWAF is pursuing the notion of area planning forums, and Rustenburg District Council has established planning zones. Two priorities in this context seem to be those of ensuring planning capacity in the "vulnerable" communities discussed above, and of remaining alert to the need for local planning capacity to be truly rooted in the communities it serves. In this context, it appears worthwhile to give special attention to structures capable of building and cementing local planning. From the capacity analysis of Table 6-5, these include LWCs, LRDCs and some NGOs.

(4) Some organisations have capacity that might be more effectively deployed in the service of water supply and sanitation. LWCs and LRDCs are discussed above, but it is worth adding that they may be the *only* significant capacity in some areas. Other sources of capacity are the larger TLCs (eg. technical training, technical sub-contracting to smaller

local authorities), some of the NGOs (eg. training in planning skills), and Tribal Authorities such as Bafokeng. Many of these would require limited institutional support to be effective in specific contexts.

(5) Some District Councils are useful models of organisations with limited in-house human resources, but with the technical, process (and sometimes financial) ability to contract others and thereby to build a network of capacity beyond the small management core. The model may merit consideration in many local authority contexts. To do this it would be necessary understand the nature of the core capacity required. Among others, financial capacity would be essential.

(6) Whilst many forms of capacity relate to operational effectiveness, other forms are the foundation for growing capacity itself. The latter might be called "generative" capacity. In the analysis presented above, the two key forms of generative capacity relate to planning and financial resources. If a local authority has the capacity to plan (including planning its own organisational development), and the money to put plans into action, much else will fall into place. From the capacity analysis it is evident that many Third Tier structures lack both forms of generative capacity (especially the rural areas), and are therefore at risk of remaining dependent on external actors.

6.4 Institutional Development Plan

6.4.1 The Appropriate Structuring and Positioning of Magalies Water

(1) Context

It is clear that the appropriate structuring and positioning of Magalies Water cannot be determined out of the context of the broader water sector in the Study Area. Further, decisions around structure and position will have to consider the pace of institutional development in the sector as a whole. Against this background, a clear distinction has to be made between the development of permanent capacity which will allow Magalies Water to execute its long term role as an extended bulk supplier in the Study Area, and the development of transitional capacity, which will enable MW to play various support roles. Many of the support roles should not be considered in isolation of the Third Tier. Some of these might be undertaken in cooperation with Third Tier actors, with a view to the Third Tier taking responsibility for them in due course. The policy and strategy proposals in Section 3-4 outline several possible joint ventures of this nature:

(a) Training coordination. It is envisaged that training resources should be rationalised and optimally deployed, using vehicles such as area planning forums to determine needs and appropriate responses.

(b) Sharing best practice. This too is a shared Second Tier/ Third Tier activity that might be mobilised through area forums or similar interactive vehicles.

(c) Developing systems and key processes (eg metering options, local accounting systems, cost recovery roles for the private sector, local financing systems for

higher levels of service). Again, discussion of such systems and processes might take place in area planning forums, or other suitable venues.

Hence structure and positioning proposals for MW have to be dynamic and flexible. In response to this, Section 3.4.14 proposes the establishment of a Coordinating Forum which, among other things, would consider roles and responsibilities and from this the optimal interactive structuring of MW and partners such as District Councils. As proposed, the coordinating forum is envisaged to include DWAF, MW and the District Councils in the Study Area (see Section 3.4.14 for full discussion).

(2) Considerations for the Structuring and Positioning of Magalies Water

A number of issues will inform the structuring and positioning of MW. These were outlined in Section 3.4.11, and are elaborated below (see Section 8-2 for a more detailed examination of structure options):

Table 6-6: Issues Informing the Structure and Positioning of Magalies Water

Issue	Organisational Implications
The extent and pace of infrastructural development. This will be determined by priorities set by MW, technical and financial feasibility, and the prospects for sustainable cost recovery.	Decisions will have to be made regarding the expansion and deployment of technical, financial and operations and maintenance capacity. With extended infrastructure, the appropriate definition and deployment of business units will have to be considered.
The present status of Third Tier capacity and expected developments in various Third Tier organisations.	This will influence the view taken on the capacity and deployment of project implementation capacity; the nature and focus of Third Tier support (including technical training and organisational development); the nature of partnerships with the Third Tier (especially the District Councils). The view taken on expected Third Tier developments will also have implications for the time horizons set for Third Tier support.
The nature of long term Third Tier support, especially in terms of strategies to develop new bulk markets and to promote the emergence of viable bulk customers.	Decisions will have to be taken regarding the organisational capacity required to develop and sustain long-term relationships with emerging bulk customers. Such capacity might address communication and information, and might incorporate organisational development.
The likely short and long term resolution of issues relating to the definition of the supply area boundary.	Organsational structuring (and especially the definition of business or management units) will have to allow for the likely outcome of deliberations around the formation of a water board in the area of the former KwaNdebele, and for the finalisation of long term options around the present supply agreements between MW and Rand Water. There are implications for the short and long term deployment of MW capacity, and for capital investment and infrastructural development priorities.

(3) Structure Proposals.

Detailed structure options for MW are presented in Chapter 8. These take cognisance of the contextual issues outlined above. The discussion to follow addresses key areas in which parallel Third Tier institutional development will have to take place.

6.4.2 Capacity Building in Lagging District Councils

(1) Problem

The District Councils in the Study Area form an important institutional link between Magalies Water and the broader body of small local authorities. In this way, the District Councils are an important component of the "network capacity" of Magalies Water. They are also ideally placed to promote and facilitate local development planning and demand driven water supply planning.

From this perspective, the broad spread of District Council capacity is a matter for concern. It has consequences for the pace of water provision in many parts of the study area. There are also implications for Magalies Water, in that "emergency" project implementation will continue to be required whilst some District Councils are unable to tackle implementation themselves.

Among the policy and strategy proposals presented in Section 3.4.11, the following would not be effective without full DC participation:

(a) Integration of communication and planning initiatives led by DWAF and by some District Councils.

(b) Coordination of training and training resources.

(c) Integration of water supply with local economic and resource development.

(d) Sharing "best practice".

(e) Development of systems and key processes.

Against this backgound, the development of capacity among lagging District Councils is a priority for institutional development in the Third Tier. A proposed action plan is outlined below.

(2) Action Plan

Provincial departments of Local Government have primary responsibility for District Councils, and this should be recognised. However, there is clearly a need for the accelerated development of District Councils like the Eastern DC. With this objective, it is proposed that the six District Councils in the Study Area join to establish a District Council Institutional Development Forum. There is already a plethora of such bodies,

so the proposed forum should set clearly defined objectives and a definite time limit for its work. Key issues for discussion in the forum might include:

(a) Nature of capacity shortcomings in some District Councils.

(b) Organisational models for District Councils (eg. internal technical capacity; limited core capacity with contracted technical capacity).

(c) Lessons from District Councils that have implemented particular organisational models.

(d) Relationships with Magalies Water.

The appropriate local government departments should sanction the action plan and programme, but initial facilitation will be required from DWAF in the North West Province and Mpumalanga, District Councils such as Rustenburg and Eastern Gauteng, and Magalies Water.

6.4.3 Community Institution Building Programme

(1) Problem

The evaluation of Third Tier capacity in the Study Area suggests that there are communities (especially in the rural areas) that have cumulative capacity problems. In essence, they lack internal capacity to plan and implement water and sanitation services, and they have limited access to external support (for example in areas falling under the jurisdiction of the Eastern District Council). In some of the cases examined under the situational analysis, additional disadvantages related to tension among elected officials and LWC and LRDC structures, or simply to stagnation of LWCs and LRDCs.

The "marginal" communities identified may well fall under the umbrella of capacity building and coordination initiatives such as area forums and infrastructural support programmes, but these are not uniform in coverage. The dual challenge is to ensure that the vulnerable communities concerned do not fall between stools; and to build generative capacity which will enable them to identify and tap the resources available, and to set in motion processes of self-sustaining planning and institutional development.

(2) Action Plan

Ideally, a community institution building programme for the most disadvantaged communities should reside under a District Council. However, it is largely because of the patchiness of DC capacity that such an initiative is necessary. Hence the management dilemma is to find an appropriate champion for the programme.

The proposed District Council Forum might be a suitable vehicle, because it allows District Councils to share ideas and, where possible, capacity. Whilst some of the District Councils have limited organisational and technical capacity, they do have the

advantage of an elected Council with representatives from sub-districts within Council areas of jurisdiction. These representatives should be able to assist in the identification of vulnerable communities, and to facilitate interaction with them.

Initiatives falling under the ambit of a community institution building programme might be the following:

(a) Capacity audits in the identified communities, especially to determine the role and potential of existing structures like LWCs and LRDCs.

(b) Exploration (with the communities and authorities concerned) of capacity needs. The analysis presented in Section 6.3.7 suggests that emphasis might be placed on planning capacity and financial capacity, since the development of these will enable local officials and communities to engage in sustainable and locally relevant institutional development. The JICA pilot projects (see Section 10.4.2) might provide a vehicle to investigate options for the development of such generative capacity.

(c) Design and implementation of an appropriate support programme, incorporating the possible remobilisation of LRDCs and LWCs, training in planning skills, and identification of training agents to act in specific areas. These areas might be the precursor to planning zones such as those established by Rustenburg District Council, and an option may be to use private sector facilitators/ training co-ordinators.

(d) Appropriate use of available resources, such as Organisational Development Officers (or similarly skilled officials) employed by Magalies Water, DWAF, Rand Water and possible the larger TLCs such as Rustenburg, Brits and Bronkhorstspruit.

Where possible, District Councils should fund community institution building initiatives in their own areas. However, an objective of self-generating capacity building would be that of installing cost recovery processes as soon as possible.

6.4.4 Institutional Support Programme

(1) Problem.

Participants in the gap analysis process recognised the need for Third Tier institutions to share resources wherever possible. In fact a key institutional development theme emerging from this study is the imperative of communication and the exchange of experiences and capacity.

The policy and strategy recommendations reflect this theme, and outline a number of initiatives:

(a) Coordination of training and training resources through area planning forums and District Councils.

(b) The possible establishment of training, service and support cooperatives, possibly under the auspices of District Councils or area planning forums.

(c) Sharing of "best practice" among second and Third Tier actors, again through area forums and District Councils.

(d) Joint development of systems and key processes, such as prepaid metering, effective local accounting, community-based collection systems, and local financing systems for higher levels of service. Area forums and District Councils were again envisaged as vehicles for such initiatives.

Taking the variable capacity of the District Councils into account, and acknowledging that area planning forums themselves have limited coverage and capacity, it is evident that an overarching champion is required for the envisaged support networking process. This is particularly necessary if the process is to be extended beyond the Study Area.

(2) Action Plan

There is no obvious institutional home for the institutional support programme, but the facilitation of networking does seem to be an activity well suited to the NGO sector. This possibility should be explored with existing NGOs such as the Mvula Trust and the Independent Development Trust.

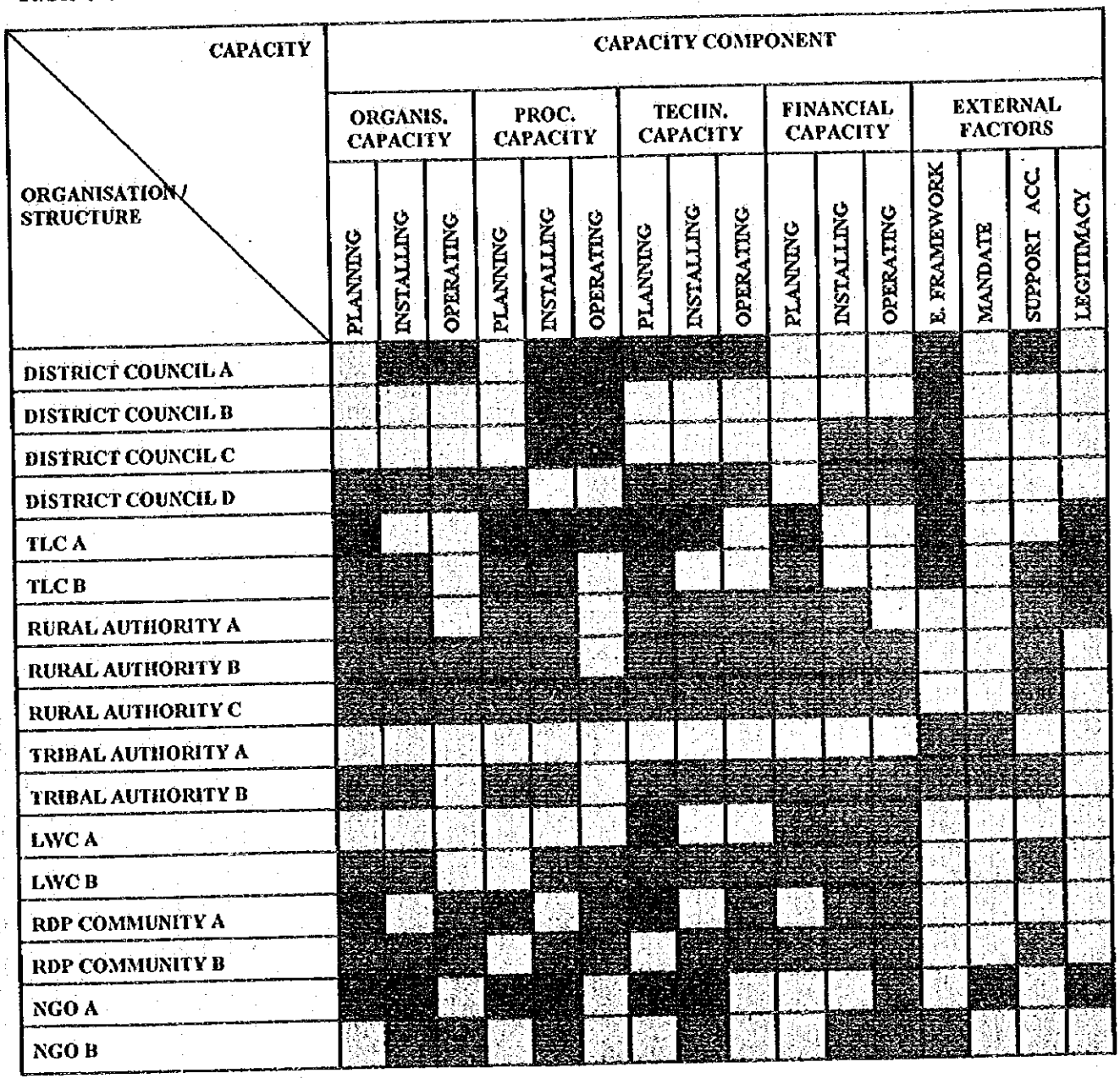
6.4.5 Training Programmes

The three initiatives outlined above have training implications. Table 6-7 summarises the requirements for each of the three support programmes.

Table 6-7: Training Requirements for Support Programmes.

Support Programme	Implementing Agent	Training Type	Training Provider
District Council Capacity Building Programme	District Council Forum	1. Managerial and technical training for core officials of District Councils	1. Possible training providers are the private sector, larger District Councils, provincial departments of local government. If possible, emphasis should be placed on in-service training, and exchange programmes between District Councils.
		2. Technical training for DC project managers and field operatives	2. Magalies Water has already undertaken to train former NWWA staff for roles in the Third Tier. Some of these trained staff might be usefully deployed in undercapacity District Councils. Candidates selected from this group might receive additional project management training from private sector, or from larger TLCs and DCs.
Community Institution Building Programme	District Council Forum	1. Training in planning skills for local officials. These skills should include organisational planning and financial planning.	1. Private sector, DWAF (in the form of mentoring and exchange), bigger DCs and TLCs (also on exchangebasis).
		2. Reinforcement of planning skills in existing LWCs and LRDCs. Particular emphasis on technical and infrastructural planning.	2. Private sector, Magalies Water, Rand Water, DWAF (possibly on an exchange basis)
Institutional Support Programme	Selected Non-Government Organisation	1. The ISP is a networking and facilitation initiative. Training might include project evaluation and communication technology.	1. Private sector

Table 6-5 : Overview of Third Tier Capacity



Legend

- Very Low or No Capacity
- Intermediate Capacity
- Good Capacity

CHAPTER 7 INITIAL CAPITAL INVESTMENT PLAN

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CHAPTER 7 INITIAL CAPITAL INVESTMENT PLAN

7.1 Basic Concept and Framework

7.1.1 Size and Magnitude of Capital Investment

Since the proposed project plans for infrastructure were formulated on the basis of the zoning designed by the Study Team, namely the supply block as the bottom, of which several blocks are merged into a supply area, and the several supply areas form a supply zone. The Study Area consists of three supply zones, namely, Western, Central and Eastern Zones.

The initial investment cost for the infrastructure component was calculated by dividing it into two major supply systems, namely, a bulk supply system for which the second tier is basically responsible, and a retail supply system with responsibilities of the third tier.

Table 7-1 shows a total capital investment of R2.55 billion (in 1996 values) for both bulk and retail water supply infrastructure projects. The cost of bulk supply infrastructure is estimated at approximately R1.14 billion while the remainder (R1.41 billion) is the estimated cost for the retail supply infrastructure. These capital expenditures would be incurred over 20 years span towards the target year 2015 of the master plan. This includes the RDP contribution amounting to R743 million (R188.6 million for the bulk and R554.7 million for the retail), which is about 30 percent of the total cost.

7.1.2 Cash Flow Simulation Analysis

The first stage in the Initial Capital Investment Plan (ICIP) is the identification of potential capital investment projects and the estimation of relevant cash flow associated with the projects. The major emphasis is on relevant net cash flow which is defined as *total cash inflow associated with the capital investment less its net cash outflow*. Estimation of the economic consequences associated with each project is based on the cash flow. There are no income tax implications because the projects are managed strictly on a not-for-profit basis.

In order to make the cash flow analysis, a simplified model has been established, in which several basic assumptions were introduced:

(1) Implementing agency or institution of the proposed project(s) is irrespective of the existing ones;

(2) No initial working capital has been taken into account, and RDP funding is treated as a grant ;

(3) Interest on outstanding of capital investment is accumulated on to the principle and repayment terms are 25 years with annual amortisation; and

(4) Applicable water tariff is 1.20 and 1.30 R/kl for bulk and retail supply, respectively with sensitivity analysis on cost recovery.

A series of simulation has been made in each supply zone by three stages and by supply systems, and it concludes that approximately 10 percent interest rate could offset any negative balance in the cash flow analysis in a certain zone by other zone's positive balance in case of full cost recovery. In case of 30% cost recovery, only Barnardsvlei seems to have a positive rate of 6% (For more details, reference is made to Supporting Report G). In this regards, the cost recovery is considered most key issues to attain the Study objectives on sustainable basis.

7.1.3 Cost of Capital

The second stage in the ICIP is the evaluation of the economics attractiveness of the proposed investment and the selection of projects that will be undertaken. The technique employed in the ICIP for evaluating the profitability of the projects is based on the concept of present value which will enable policy makers to determine which projects are financially worthwhile and affordable to undertake. The cost of capital (discount rate or hurdle rate) is expressed as a percentage in the ICIP and is used as a discount rate applied to cash flows. The ICAP used three different rates for the cost of capital: 18%, 12%, and 6% for the reasons explained earlier.

7.2 Preliminary Tariff Calculation

7.2.1 Basic Principles

Proper water pricing is necessary, but not sufficient, to ensure efficient allocation and improved services. The ability to collect and recover costs should be accompanied by a set of incentives that encourage accountability for cost recovery. Decentralized service delivery can overcome declines with collections making consumers more willing to pay. Preliminary tariff calculations are based on full cost recovery pricing and the *user pays principle* which is the underlying basis for setting the tariff. The *user pays principle* relates to cost recovery, whereby users are required to pay for services received and possible additional measures to make the water supply facilities self-financing. There must be unequivocal acceptance of the *user pays principle* by all stakeholders in respect of cost recovery for services of direct relevance to users. It is absolutely essential that the principle be well understood and accepted because it has a direct bearing on the user's willingness to pay for services. The *user pays principle* is consistent with the long-term vision for bulk and retail water supply and with financial viability and sustainability of the water supply infrastructure projects.

7.2.2 Tariff Calculation (Case Study)

On the basis of an incremental basis in the water demand and the incurred capital and recurrent cost, water tariff both for bulk and retail water supply under user pays principle was calculated on trial basis with three scenarios for repayment of loan borrowed, in terms of interest rate on loan. Three rates under these scenario were selected based on the following rationale: 18% was based on the current rates paid on loan stock by water boards; 12% was based on loans borrowed by public institutions directly from the central government's treasury; and 6% was based on low interest rate or soft loans from multilateral or bilateral agencies through the central government.

Bases for other costs such as purchase of raw water, operating and maintenance cost, overhead and so on, historical information obtained from MW's annual reports is applied for a bulk water

and several assumptions on the basis of capital expenditure is applied for a retail water (For more details, refer to Supporting Report G). Typical case of calculated tariffs in each supply areas are presented below:

Typical Case of Calculated Tariff (R/kl)

	Bulk	Retail	Bulk+Retail
Case 1 (Interest: 18%)			
- Vaalkop North	6.00	1.89	**7.89**
- Vaalkop South	3.53	1.62	**5.15**
- Barnardsvlei	0.68	0.29	0.97
- Koster	1.66	3.97	**5.63**
- Brits	1.53	0.82	2.35
- Klipvoor	6.91	4.30	**11.21**
- Temba	1.27	0.42	1.69
- Rand Water	0.92	0.74	1.66
- Weltervreden	2.25	6.69	**8.94**
- Bronkhorstspruit	1.69	5.06	**6.75**
Case 3 (Interest: 6%)			
- Vaalkop North	3.52	1.14	**4.66**
- Vaalkop South	2.19	0.96	3.15
- Barnardsvlei	0.62	0.22	0.84
- Koster	1.18	2.32	3.50
- Brits	1.08	0.49	1.57
- Klipvoor	4.51	2.92	**7.43**
- Temba	0.95	0.31	1.26
- Rand Water	0.75	0.48	1.23
- Weltervreden	1.52	3.91	**5.43**
- Bronkhorstspruit	1.18	2.97	**4.15**

The case study reveals that except for four supply areas of Barnardsvlei, Brits, Temba and Rand Water in which incremental expenditure for bulk supply infrastructure would not be required, calculated overall tariff with condition of lowest interest of six percent ranges from 3.15 R/kl in Vaalkop South as the lowest and 7.43 R/kl in Klipvoor as the highest.

According to the field investigation made by the local consultants who carried out the situational analysis, it is reported that utmost affordability for water supply seems to be 15 Rands per household as monthly rate in the study area on the average, equivalent to approximately 2 to 3 R/kl. Taking the said affordability into consideration, only four supply areas of Barnardsvlei, Brits, Temba and Rand Water where significant incremental expenditure for bulk supply infrastructure would not be required, show favourable situation, and two areas of Vaalkop South and Koster do marginal situation in case of six percent interest rate only. In the other cases, calculated tariff (bolded) exceeds well beyond the average affordability.

7.3 Fund Mobilization

7.3.1 Sources of Project Financing

Sources of loan capital for the financing of the projects include:

(1) Government Agencies

(a) Central government
(b) Provincial government
(c) Local government
(d) Development Bank for Southern Africa (DBSA)

The central government can provide financing through the capital budget (treasury), by raising loan financing through the issuance of government stock and bonds, and by guaranteeing debt raised by quasi-government organizations (example, Water Boards and DBSA). Provincial and local governments (TMCs and TLCs) can also raise debt financing directly by issuing stock/bonds on the capital market, again with central government guarantees. DBSA is a government agency which focuses on mobilizing financial resources directly through the sale of its own financial instruments.

(2) International Agencies/Multilateral Development Institutions

(a) World Bank
(b) African Development Bank
(c) Asian Development Bank
(d) Arab Development Bank

(3) Bilateral Development Aid Organizations

(a) Japan's Overseas Economic Cooperation Agency (OECF)
(b) European Economic Union
(c) Country-to-Country Grant Aid and low interest rate loans

(4) Domestic Capital Market

(a) Institutional Investors
(b) Major Commercial Banks and Development Finance Institutions
(c) Insurance Companies
(d) Pension Funds

7.3.2 Variations/Types of Project Financing

(1) Low interest rate loans
(2) Concessional loans
(3) Soft loans

(4) Interest free loans
(5) Loans at market interest rates

7.4 Financial Viability of Stakeholders/Role Players

7.4.1 Public Sector (including central, provincial, and local government)

The central government is the custodian of the national water resources and as a 1st tier functionary is responsible for the national water supply infrastructure. Ordinarily, provincial governments do not play a major role in the distribution of water or water supply infrastructure because of: (I) the nature of the management and distribution chain of water supply: i.e. from 1st tier (central/national government), to second tier (water boards), and finally to the third tier structures (local government); and (ii) the limited powers of provincial governments to raise revenues. Provincial governments receive their annual budget allocations from the central government and are therefore not financially autonomous or self-sustaining. Provincial governments could probably assist second and third tier institutions with loan guarantees on their behalf. Loan guarantees can also be provided by the central government which is currently providing similar guarantees to water boards. Local government institutions (TLCs, LWCs, TRCs) still have a long way to go in establishing the required capacity and financial autonomy needed to effectively manage retail water supply services for which they are responsible. They have not yet established a financial track record and would probably have to raise funding through transitional metropolitan sub-structures (TMSS), but even this is questionable. In the final analysis, it seems that under the constitution, only the central government has sufficient financial autonomy to raise or guarantee adequate funding for the undertaking of water supply infrastructure.

Better quality service can be achieved by decentralizing responsibility for the delivery of retail water supply service to local government and transferring some functions to the private sector, financially autonomous agencies, and community organizations. Decentralization, particularly in retail distribution of water makes it easier to ensure financial autonomy and to involve the private sector and water users in the management of water supply infrastructure. Smaller locally managed institutions, whether public or private, have more effective authority to charge and collect fees and more freedom to manage without too much political interference. The move towards greater reliance on financially autonomous entities, private firms, and water user associations (example, community organizations) can open up new sources of financing for investment, especially where central government transfers are no longer possible. Because they are able to achieve higher levels of cost recovery than government agencies, autonomous firms and user organizations will be in a good position to borrow investment capital from local and international markets. Decentralized bulk and retail water supply management is not possible without institutional reforms that are sensitive to traditional practices and local realities and are responsive to the new local government structures.

7.4.2 Quasi-government (Second Tier) institutions such as water boards

Second tier institutions are primarily water boards, most of which are financially self sufficient. Although debt financing by water boards is guaranteed by the central government, they have to raise their own financing and are responsible for repaying the interest and redeeming the loan

when it is due. The central government only intervenes in cases of bankruptcies or financial distress. Any undertaking by water boards to finance part of the water supply infrastructure will probably need guarantees from the central government.

7.4.3 Private Sector

Private sector participation in water supply is currently very limited. Private sector involvement in various aspects of bulk and retail water supply can lead to gains in productivity and efficiency, but legislation is needed to establish the legal basis for private firms and water user associations to participate. The private sector is financially autonomous and extremely viable to participate in the management and provision of water supply services in various innovative ways: lease contracts and concessions, usually secured through competitive bidding. In concession contracts, facilities are leased to a private sector operator, who contributes investment capital and who operates and maintains the facilities for a twenty to thirty year period. These arrangements are common in countries like Cote d'Ivoire, France, Portugal, Spain and Argentina and can be useful to apply in South Africa. The private sector is also able to raise financing more readily than local government because of their track record and financial history.

Table 7-1 Total Requirement of Fund for 2015 Demands
(Infrastructure Only)

(Unit: Million Rand)

Supply Area	Bulk Infrastructure			Secondary Infrastructure			Bulk + Secondary Infrastructure			Primary Beneficiaries
	RDP	Others	Total	RDP	Others	Total	RDP	Others	Total	
1. Western S. Zone										
1-1. Vaalkop North	18.899	346.758	365.657	51.889	105.208	157.097	70.788	451.966	522.754	125,919
- Accelerated Prg.	*12.625*	*39.978*	*52.603*	*11.872*	*27.892*	*39.764*	*24.497*	*67.870*	*92.367*	*34,409*
- Other Program	*6.274*	*306.780*	*313.054*	*40.017*	*77.316*	*117.333*	*46.291*	*384.096*	*430.387*	*91,510*
1-2. Vaalkop South	30.771	225.963	256.734	42.967	109.992	152.959	73.738	335.955	409.693	214,243
1-3. Barnardsvlei	0.967	8.584	9.551	33.519	9.379	42.898	34.486	17.963	52.449	167,791
1-4. Koster	0.834	1.554	2.388	1.194	5.344	6.538	2.028	6.898	8.926	6,063
1-5. Total	51.471	582.859	634.330	129.569	229.923	359.492	181.040	812.782	993.822	514,016
2. Central S. Zone										
2-1. Brits	6.276	59.190	65.466	17.695	43.799	61.494	23.971	102.989	126.960	131,481
2-2. Klipvoor	31.787	21.639	53.426	23.180	12.460	35.640	54.967	34.099	89.066	51,034
- Accelerated Prg.	*31.787*	*21.639*	*53.426*	*23.180*	*12.460*	*35.640*	*54.967*	*34.099*	*89.066*	*51,034*
- Other Program	-	-	-	-	-	-	-	-	-	-
2-3. Temba	37.489	78.264	115.753	93.039	27.462	120.501	130.528	105.726	236.254	681,512
2-4. Rand Water	14.031	105.061	119.092	197.531	155.526	353.057	211.562	260.587	472.149	1,418,136
2-5. Total	89.583	264.154	353.737	331.445	239.247	570.692	421.028	503.401	924.429	2,282,163
3. Eastern S. Zone										
3-1. Weltervreden	40.933	76.513	117.446	66.802	293.152	359.954	107.735	369.665	477.400	212,499
- Accelerated Prg.	*23.585*	*44.086*	*67.671*	*19.750*	*86.668*	*106.418*	*43.335*	*130.754*	*174.089*	*80,023*
- Other Program	*17.348*	*32.427*	*49.775*	*47.052*	*206.484*	*253.536*	*64.400*	*238.911*	*303.311*	*132,476*
3-2. Bronkhorstspruit	6.640	24.352	30.992	26.877	99.706	126.583	33.517	124.058	157.575	126,226
3-3. Total	47.573	100.865	148.438	93.679	392.858	486.537	141.252	493.723	634.975	338,725
4. Grand Total	188.627	947.878	1,136.505	554.693	862.028	1,416.721	743.320	1,809.906	2,553.226	3,134,904

CHAPTER 8 IMPLEMENTATION ARRANGEMENTS

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CHAPTER 8 IMPLEMENTATION ARRANGEMENTS

8.1 Implementation Schedule

8.1.1 General Description

In order to meet with the projected water demand for the target years of 2002 and 2015 in the Study Area, a large amount of capital investment will be required, (which includes both infrastructure and institutional development costs.)

The entire master plan consists of two major components, namely infrastructure development and institutional development. The former is further divided into priority project(s) (or accelerated programme(s)), and ordinary projects (or continuous investment programme). The latter also addresses the second tier including its restructuring and the Third Tier including its support, reinforcement and strengthening.

The two development components are inseparable for implementation of the master plan. Figure 8-1 shows an overview of the implementation schedule for the entire master plan to the year 2015.

8.1.2 Pilot Project

It is planned that several pilot projects will be implemented as Phase 3 within an eight to nine month period in 1997. These include establishment of new community organisations responsible for operation and management of water supply facilities, cost recovery, support and reinforcement of the relevant third tier organisation(s), and provision of infrastructure facilities where necessary. The lesson to be obtained from the pilot projects will be fed to the succeeding feasibility studies (Phase 2) and stages of the institutional development activities.

8.1.3 Infrastructure Development

(1) Accelerated Project(s)

The accelerated project(s) is a priority project identified under the current master plan taking into consideration that the area covered by the project is below RDP minimum standards without a safe water supply from a surface water source. In this connection, it is planned that the project(s) should be completed by the year of 2002 as the target date for obtaining the RDP minimum.

Prior to commencement of the project implementation, it is necessary to carry out the feasibility studies for the candidate project(s) subject to approval of the PMC/PSC.

(2) Ordinary Projects

The ordinary projects are aimed at upgrading the existing supply infrastructures to meet the projected water demand derived both from increases in population and upgrade of supply service levels. It is planned that the proposed ordinary projects in each supply area shall be, basically, implemented in three stages. Stage 1 is aiming to fulfill the projected water demand in year of 2002, and the remaining portion will be treated and divided into two stages between 2003 and 2015. Each stage will have a feasibility study and funding arrangement for one year, another one year for detailed design and a three to five year period for construction.

(3) Monitoring and Post Project Evaluation

The master plan has identified a series of capital investment projects aimed at attaining the targets for 2015. It is considered essential to carry out continuous monitoring of project implementation and post project evaluation. Both best practices and lessons from worse practices will be documented and the succeeding project will benefit from this.

8.1.4 Institutional Development

(1) Peripheral Issues

In order to implement several proposed projects identified by the master plan study, peripheral areas issues should be carefully addressed to obtain a consensus or an agreement between and/or among key role players concerned for providing water supply and sanitation services. Several outstanding boundary issues will be resolved in the early stage of the Phase 2 Study.

(2) Pilot Project Set-up

One of the primary objectives for the Phase 3 study (pilot project) is the learning process related to how to involve community organisation with the participation of people concerned in water supply. Results will be fed to the Phase 2 study (feasibility study).

(3) Role and Responsibility Setting

In line with the policy and strategy options recommended in the master plan study, it is important to clarify the roles and responsibilities for various stakeholders concerned with the Study. It is planned that it will take two years to incorporate the inputs to be obtained from both the pilot project and the feasibility study in roles and responsibilities.

(4) Restructuring of Second Tier

In this master plan, it is highlighted that the Second Tier function plays a vital role in attaining the development objectives and will need to restructure its organisation to address the short, medium and long term perspectives.

(5) Third Tier Support and Strengthening

It is the ultimate goal of government that the retail function of water supply and sanitation services will be the role of the Third Tier. Support and reinforcement will be given from various sources to contribute to attaining sustainability. In this connection cost recovery will be a most crucial issue to be tackled. These support and strengthening activities for the third tier actors shall be carried out in parallel with the implementation of infrastructure development.

8.2 Institutional Structures

8.2.1 Introduction

Figure 8-1 shows the relative scheduling of the implementation of the activities which result in the changes described in the above sections. Key points of note from the table are the:

(1) Need to get significant capacity in place right from the start of implementation as all the major activities commence during the year 1997.

(2) Ongoing nature of the implementation initiatives over almost a twenty year period. Sustainability is therefore crucial.

(3) Multi-disciplinary nature of the activities which will need to be undertaken particularly in the early stages i.e. 1997 to 2002.

8.2.2 Institutional Implications

Analysis of the above requirements and findings in preceding chapters lead to the following main overall conclusions about the institutional arrangements which will have to be put in place if the master plan is to be successfully achieved. Figure 8-2 illustrates the current organisation chart of Magalies Water. These apply to both the implementation and subsequent operations and maintenance time periods:

(1) Restructuring within Zones

Existing structures within each zone will need to undergo significant change. None of the zones currently has an appropriate structure in place to meet the challenges of interacting directly with communities and customers.

(2) Capacity within Zones

Each of the three zones will require both implementation and O&M capacity to manage the required changes. In Chapter 6 the point was made that in most areas this capacity does not exist, (although this exists to a greater degree in the western zone). This will require appropriate structures to be set up in each zone to accomodate additional resources.

(3) Third Tier Support

In the absence of Third Tier capacity MW will need to be actively involved in supporting development in the Tier in the interests of securing long term expansion of it's bulk water supplies.

(4) New Functions

MW will be involved in significantly different roles during the period 1997 - 2015 from its traditional roles. This will require a number of new functions to be carried out by MW which are discussed fully in Section 8.2.5.

8.2.3 Alternative Options in Response to Change Requirements

The requirements discussed can be addressed by appropriate changes within MW. There are two fundamental options that could apply to implementing changes and each of these has been considered by the Study Team:

(1) Central Control of Implementation

In terms of this option the whole process of implementation would be directed and controlled by the central office of MW i.e. from Rustenberg. Existing or additional resources would be given full responsibility for bringing projects to fruition thereafter handing them over to locally based management (or Third Tier organisations). The time frame for this hand over could be fairly extended. Characteristics of the centralised option are likely to be:

(a) A functional orientation (e.g. financial, engineering and human resource management).

(b) Integrated project management across all the activities being implemented.

(c) Day to day facilities management only at zone and area level.

(2) Decentralised Control of Implementation

By contrast to the above this option will require the implementation capacity to be located within the zone (and within areas within the zone.) It has been highlighted that little capacity currently exists in the zones and this option should not be assessed on the basis of existing resources in the zones. Clearly appropriate resources will need to be put in place. Key characteristics of this option would be:

(a) Structures determined by the physical processes infrastructure and spatial distribution of communities in the zone rather than functions.

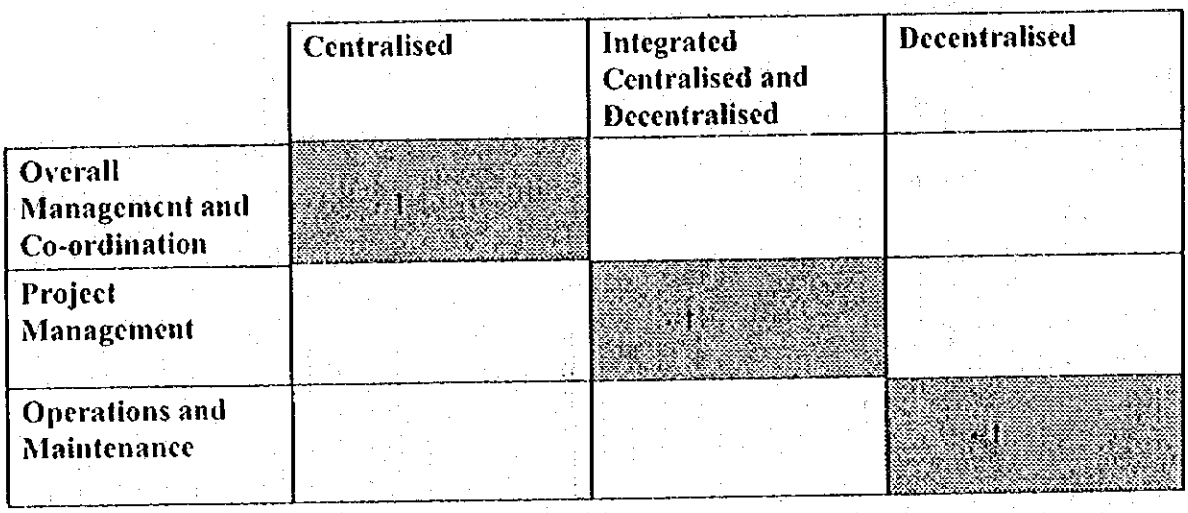
(b) Integration of operations within the zone as the focus of structure rather than integration between zones in the whole area.

(c) More emphasis in structure on the interface with end users.

8.2.4 Recommended Structural Framework

Solutions seldom represent absolute choices between options. In this case the view of the Study team is that while a high degree of decentralisation will best serve the interests of implementation there are aspects of centralised control that are also appropriate. Recommended approach between these two options is illustrated in the following diagram:

Figure 8-3: Implementing Structure : Conceptual Framework



(1) Overall Management and Co-ordination

Key functions needing to be performed will not be significantly affected by implementation and are the normal high level functions of MW:

(a) Strategic planning and management.

(b) Business development.

(c) Stakeholders relations

(d) Overall accounting and auditing.

(e) Setting personnel policy.

(f) Setting technical standards.

These will continue to be done centrally by MW head office.

(2) Project Management

This is an area where there should be shared responsibility between the central functions and the operational level in the zones. Key considerations being:

(a) The learning experiences which can be shared across projects.

(b) Common activities which will need to be contracted for across projects e.g. soil investigations.

(c) The multidisciplinary nature of the activities.

(d) Close co-ordination with communities involved.

(3) Operations and Maintenance

This is the area of greatest impact as the proposals and recommendations contained in this chapter result in significant changes in structure in the zones. The institutional structures within the zones will be responsible for all aspects of project implementation and operation and maintenance of water supply. Making these changes is the responsibility of MW in the first instance as the principal player in the study area. To this end the Policy and Strategy options report makes the recommendation that MW needs to adjust its structure to meet the new demands of the area. Specific proposals in this regard are the responsibility of MW's management.

8.2.5 New Functions

(1) Change in Emphasis

The proposed new functions relate to meeting two needs the importance of which cannot be over emphasised:

(a) Firstly the smaller water boards depend upon a growing base of bulk customers for long term survival. The very low level of capacity in the Third Tier means that these future bulk customers will not emerge unless water boards actively assist in the process of developing their water supply capacity.

(b) Secondly water supply policy of DWAF envisages a role for water board in ensuring that the overall goals of rectifying the imbalances created by the previous government are achieved.

There still needs to be a lot of discussion between DWAF and water boards on these new roles. The recommendations assume that discussion and future legislation will resolve

many of the outstanding issues and that structures should therefore be based on the future vision.

(2) New Functions

The major new functions which will flow from the redefined role for water boards and hence MW are:

(a) Bulk Supply Development

This is the function of developing new bulk markets. It has a long term perspective and while it needs to be put in place as soon as possible will only yield results in a minimum of five years. Sub-functions of this are:

1) Stakeholder engagement : Is the process of interaction with stakeholders to identify needs and opportunities. Also to build up relationships of trust necessary for taking projects from inception to implementation.

2) Development planning : Is the process of co-ordinated planning which will need to take place between the Second and Third Tiers. This function will facilitate the realisation of RDP principles and White Paper goals.

3) Organisation development : Is the process of facilitating the development of leadership, management and operational structures necessary to mobilise Third Tier institutions which will become suppliers of water to communities (and future bulk customers of MW).

4) Third Tier Support : Will involve determining needs of mobilised Third Tier organisations which can be met by support arrangements with MW. Support could be in the form of training, systems, technology and resources.

(b) Water Supply Projects

This is the function concerned with all aspects of bringing projects for design through to commissioning. While this function currently exits it has an engineering orientation. In future certain new sub-functions will add to the scope of this area:

1) Project structuring : Is the function of setting up the necessary matrix structures for managing projects so as to ensure the appropriate involvement of stakeholders.

2) Institutional development : Is the function of creating the necessary institutional infrastructure for operating and maintaining projects. This is essential to ensuring the sustainability of infrastructure created by projects.

3) Training : Is a sub-function of institutional development. All projects create training needs which must be addressed. It is logical that this is an integral part of the project delivery process rather than being separate from it.

(c) Within Operations and Maintenance

Two new sub-functions are proposed:

1) Interim resourcing : This is the function of providing resources to other institution or projects to assist with commissioning or O & M on an interim i.e. non permanent basis. It may be necessary within zones to assist the Third Tier with getting water supplies to communities by providing resources.

2) Third Tier support : This is the same function as discussed above. It needs to take place at zone level as well as centrally.

(3) Changes to Existing Functions

There are a number of areas where functions are already in place but will need to be redefined. MW will need to look at these in some detail. Obvious areas are:

(a) Project finance

(b) Personnel/IR

(c) Accounting (e.g. Debtors systems)

8.2.6 Suggested Evolution of Structure

(1) Time Scale

While the period of the master plan is twenty years i.e. from 1997 to 2015. It is appropriate for the purpose of structure to consider two target date periods:

(a) A setup and operationalisation phase spanning the years 1997 to 2002.

(b) A full operational phase where O & M needs comes to the fore, spanning the years 2003 to 2015.

In the former period assistance to the Third Tier will be particularly important.

(2) Development Phase : 1997 - 2002

Proposed functional structure for this phase is shown in Figure 8-4. The purpose of this proposal is to show how the structural framework (centralisation/decentralisation) and the new functions can be accomodated. A brief description of this structure is as follows;

(a) The split of the O & M function into three according to the zones proposed in the master plan. Currently there is only a western and eastern zone.

(b) Incorporation of the new functions within the zone structures : Interim resourcing and Third Tier support.

(c) Incorporation at an overall level of a new function being Bulk Supply Development together with its sub-functions. This puts a strong emphasis on the goal of creating future bulk customers by providing support and development now.

(d) Inclusion with the Water Supply Projects of new sub-functions to introduce a more developmental emphasis to this function.

(3) Operationalisation Phase : 2003 - 2015

Proposed functional structure for this phase is shown in Figure 8-5. This proposal is based on several assumptions:

(a) Firstly that considerable progress will have been made in establishing a process of stakeholder engagement and development planning. It will therefore be possible to rationalise this with the water supply projects function to create a more economical structure and more integrated long term approach. This single function is termed Planning and Development.

(b) Secondly that the question of the future of the eastern zone will have been resolved and it will become part of a future "Highveld Water Board".

Both the above changes are shown on the revised structure.

It is noted that the interim resourcing and Third Tier support functions are retained in the zone structures as it is envisaged that these will be required for a long time.

It is also noted that in both the periods 1997 to 2002 and 2003 to 2015 the design and construction of projects is envisaged as being contracted out to local consultants and construction entities to a significant degree. This will reduce staff and administration costs.

8.2.7 Training for New Roles

It is clear that the proposed new functions will create many training needs for MW. These will need to be assessed in further detail. It is proposed that they can be considered in terms of the following framework. An initial assessment of training needs is indicated in the table on the following page

Table 8-1 : Training Assessment

	TRAINING NEEDS	
FUNCTIONAL AREA	STAFF WITHIN MW	TRAINING PROVIDED IN SUPPORT OF OTHER INSTITUTIONS
Administration Function	- Industrial Relations Skills	- Budgeting - Project Evaluation
Bulk Supply Development	- Stakeholder Processes - Development Planning - Organisation Development	- Planning - Feasibility Assessment
Water Supply Projects	- Institutional Development - Skills Transfer	- Project Management - Management and Supervision
Operations and Maintenance	- Industrial Relations Skills - Skills Transfer	- Budgeting - Bookkeeping - Administration - Supervision - Technical Skills

It is difficult to estimate the amount of training at this stage as this depends on organisational structure, numbers of people and their current degree of competency in the areas of training need. Research in South Africa shows that organisations spend 2% to 5% of their turnover on staff development. This is low by international standards although needs in South Africa are probably greater. Needs in the Study Area because of the transition will be very significant. As a rough estimate MW should be currently spending R1.85 m per annum on training based on national norms. (R37m turnover x 5%). Training needs in the whole Study Area have been estimated at 5% of the retail cost of water which is an amount of R96.9 million.

8.2.8 Implications/Implementation

There are many implications of the proposals discussed in this chapter. These will need to be discussed in depth in the forum proposed in Chapter 3 which suggests how the policy and strategy proposals should be taken forward. In particular it is noted that:

(1) These proposals will represent an investment by MW in staffing to provide for the functions needed to ensure the development of future bulk customers. MW's board will need to consider the pros and cons of this required committment.

(2) If DWAF want water boards to play an expanded role they need to formulate a clear policy in this regard and not only communicate it but support water boards in the repositioning they need to go through.

The proposals in this chapter are the views of the study team formulated after extensive consultation. In that they inevitably represent a compromise between views these proposals will either be viewed as controversial or as not going far enough to meet goals.

8.3 Budgetary Schedule

As described in the previous section, implementation of projects is divided into three stages. Summarised budget allocation schedules for project which consists of bulk water supply and retail water supply are tabulated in the following table and detailed breakdown are attached in Table 8- 2 and 8 - 3. Table 8 - 2 shows that the figures include necessary training cost for entire zones with 20 years periods.

(1) Stage Base

(Unit: Million Rand)

Stage	Bulk Water	Retail Water	Total Sharing	
Stage 1 (1998 / 2002)	506	641	1,147	(44.9 %)
Stage 2 (2003 / 2009)	335	448	783	(31.0 %)
Stage 3 (2010 /2015)	295	328	623	(24.1 %)
Total	**1,136**	**1,417**	**2,553**	**(100.0 %)**

(2) Annual Base

Stage 1		Stage 2		Stage 3	
Year	Budget	Year	Budget	Year	Budget
1998	114.7	2003	78.3	2010	62.3
1999	172.1	2004	78.3	2011	93.5
2000	344.1	2005	117.4	2012	124.6
2001	344.1	2006	156.6	2013	124.6
2002	172.1	2007	156.6	2014	124.6
-	-	2008	117.4	2015	93.5
-	-	2009	78.3	-	-
Total	**1,147.1**	**Total**	**782.9**	**Total**	**623.1**

(3) Zone Base

Zone	Bulk Water	Retail Water	Total Sharing
Western	634	360	994 (38.9 %)
Central	354	570	924 (36.2 %)
Eastern	148	487	635 (24.9 %)
Total	**1,136**	**1,417**	**2,553 (100.0 %)**

As discussed in the Chapter 7, Initial Capital Investment Plan, there are many options of budget arrangement to implement development programmes in order to supply sufficient water to the beneficiaries. The DWAF and key stakeholders shall establish more comprehensive and acceptable financial plan for the project.

Table 8-2 : Project Cost

(Unit : Million Rand)

Particular	Western Zone	Central Zone	Eastern Zone	Total
1. Bulk Water Supply				
1.1 Direct Cost				
(1) Water Treatment Works	63.76	79.54	9.46	152.76
(2) Regional Service Res.	31.99	58.76	13.93	104.68
(3) Pumping Station	12.45	4.79	2.58	19.82
(4) Pipelines	295.02	81.76	68.39	445.17
Sub-total	**403.22**	**224.85**	**94.36**	**722.43**
1.2 Indirect Cost				
(1) Engineering Cost	60.48	33.73	14.15	108.36
(2) VAT	64.92	36.20	15.19	116.31
(3) Contingency	105.72	58.96	24.74	189.42
Sub-total	**231.12**	**128.89**	**54.08**	**414.09**
Total	**634.34**	**353.74**	**148.44**	**1136.52**
2. Retail Water Supply				
2.1 Direct Cost				
(1) Service Reservoir	17.03	96.90	17.67	131.60
(2) Reticulation	204.33	265.86	291.60	761.79
(3) Pipework	7.15	0.00	0.00	7.15
Sub-total	**228.51**	**362.76**	**309.27**	**900.54**
2.2 Indirect Cost				
(1) Engineering	34.28	54.41	61.85	150.54
(2) VAT	36.79	58.40	55.67	150.86
(3) Contingency	59.92	95.12	59.75	214.79
Sub-total	**130.99**	**207.93**	**177.27**	**516.19**
Total	**359.50**	**570.69**	**486.54**	**1416.73**
3. Institutional Development				
3.1 Training Cost ***	10.79	17.12	14.60	42.51
3.2 Communication Cost ***	7.19	11.41	9.73	28.33
3.3 VAT/Contingency	6.62	10.50	8.95	26.07
Total	**24.60**	**39.03**	**33.28**	**96.91**
Grand Total	**1,018.44**	**963.46**	**668.26**	**2,650.16**

*** Note :

Training cost assumed 3% of total retail water cost.

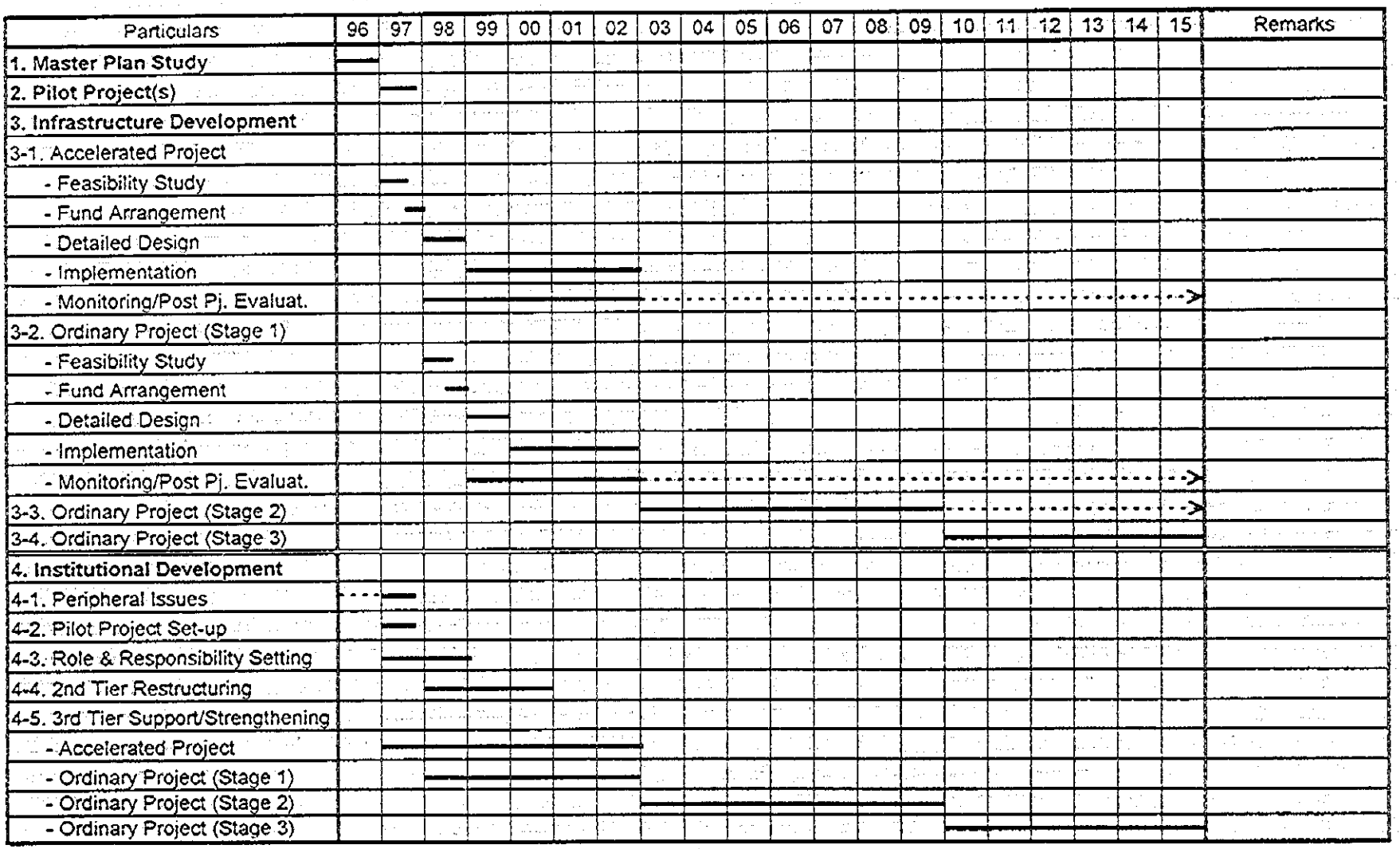
Communication Cost (Workshop) estimated 2% of total retail water cost.

Table 8-3 : Disbursement Schedule of the Project

(Unit : Million Rand)

Item	Bulk Water	Retail Water	Total
1. Stage1			
Western	267.70	157.90	425.60
Central	152.20	209.20	361.40
Eastern	86.50	273.50	360.00
Sub-total	**506.40**	**640.60**	**1.147.0**
2. Stage 2			
Western	183.30	100.80	284.10
Central	100.80	180.70	281.50
Eastern	50.60	166.70	217.30
Sub-total	**334.70**	**448.20**	**782.90**
3. Stage3			
Western	183.30	100.80	284.10
Central	100.80	180.70	281.50
Eastern	11.30	46.30	57.60
Sub-total	**295.40**	**327.80**	**623.20**
4. Entire			
Western	634.30	359.50	993.80
Central	353.80	570.60	924.40
Eastern	148.40	486.50	634.80
Sub-total	**1,136.50**	**1,416.60**	**2,553.00**

Figure 8-1 Implementation Schedule



Note: This Implementation Schedule is applicable both for each Supply Area and Supply Zone.

Figure 8-2 : Existing Organization of Magalies Water

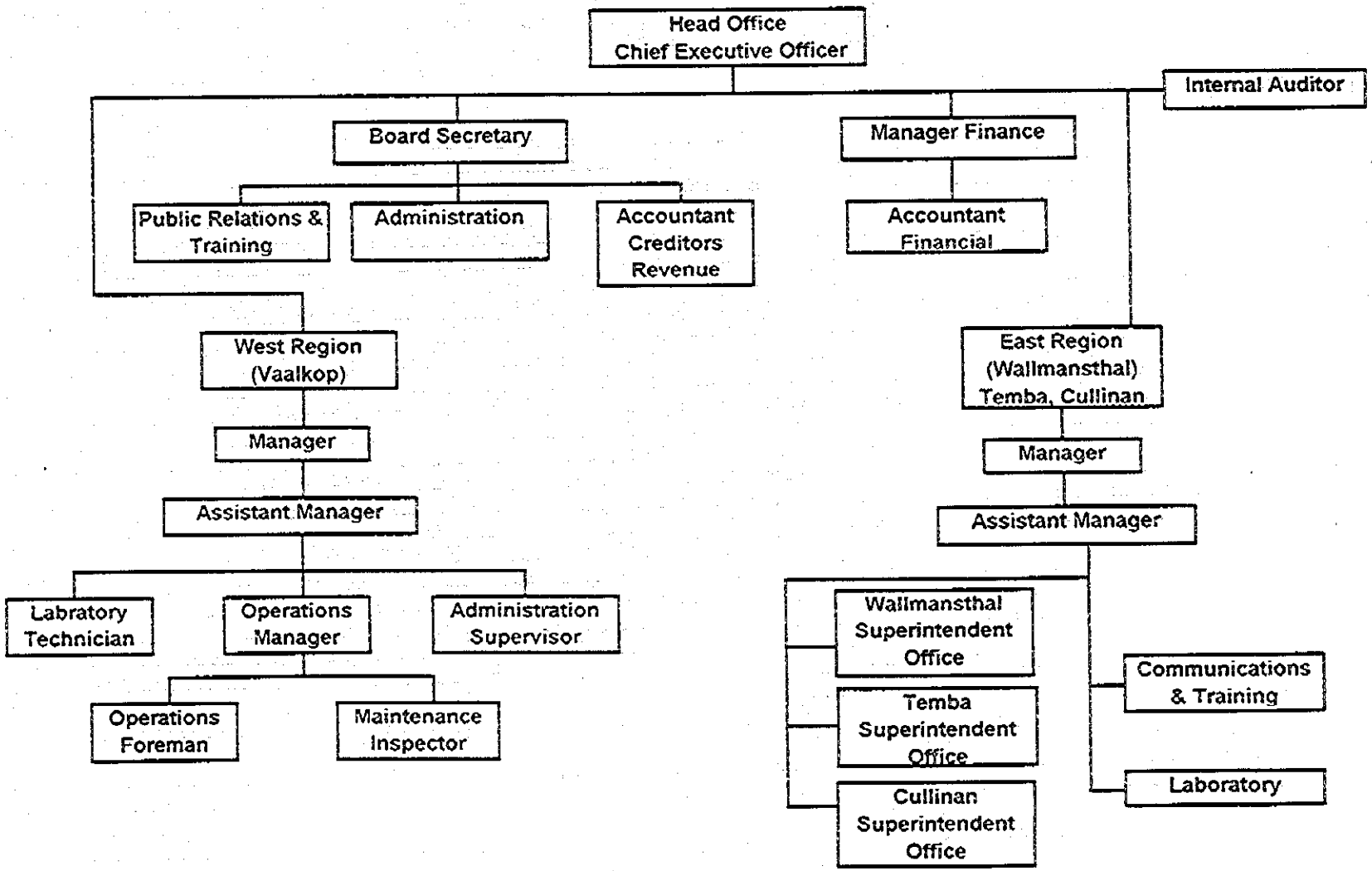


Figure 8-4 : Proposed Magalies Water Functional Organisation

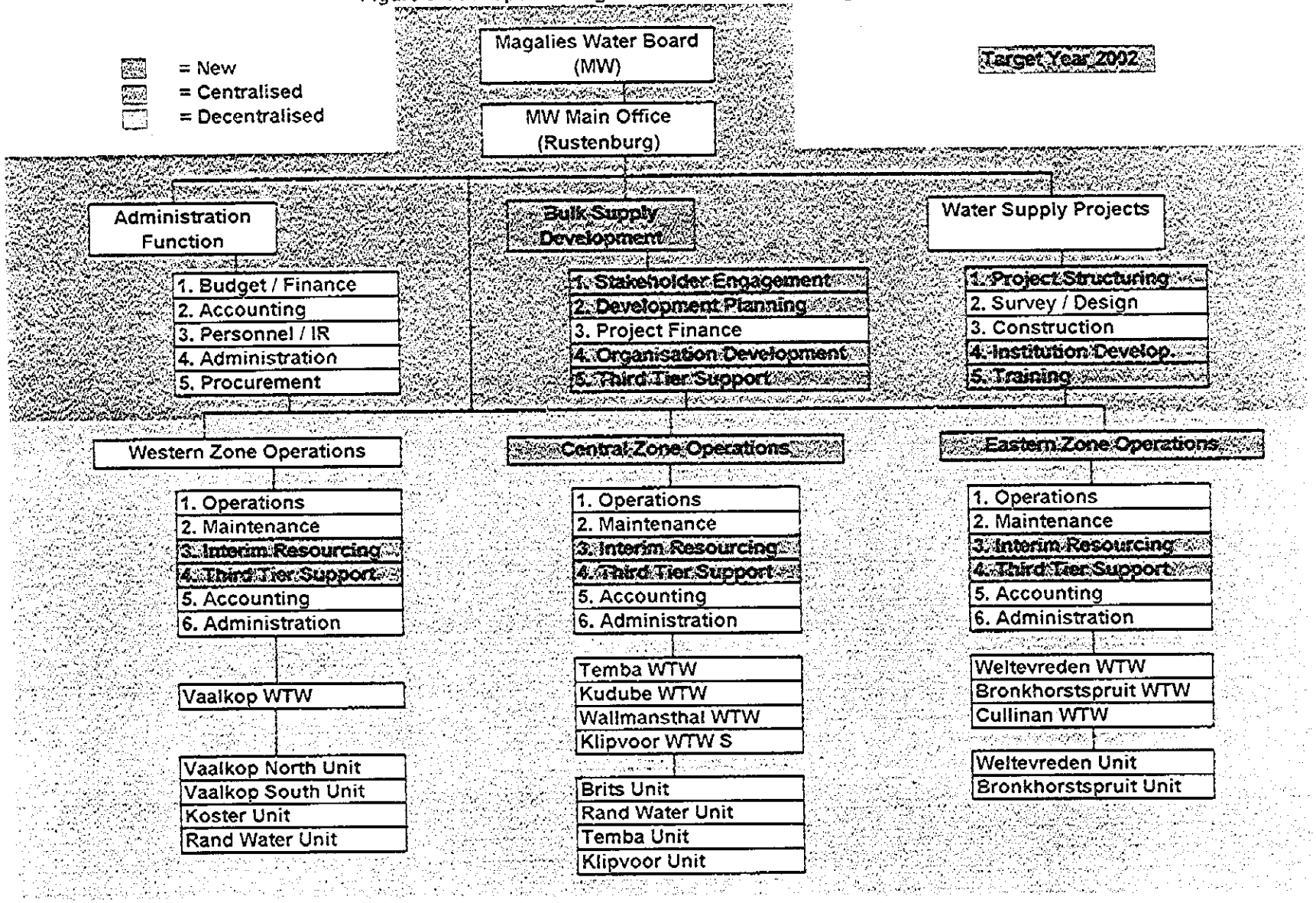


Figure 8-5 : Proposed Magalies Water Functional Organisation

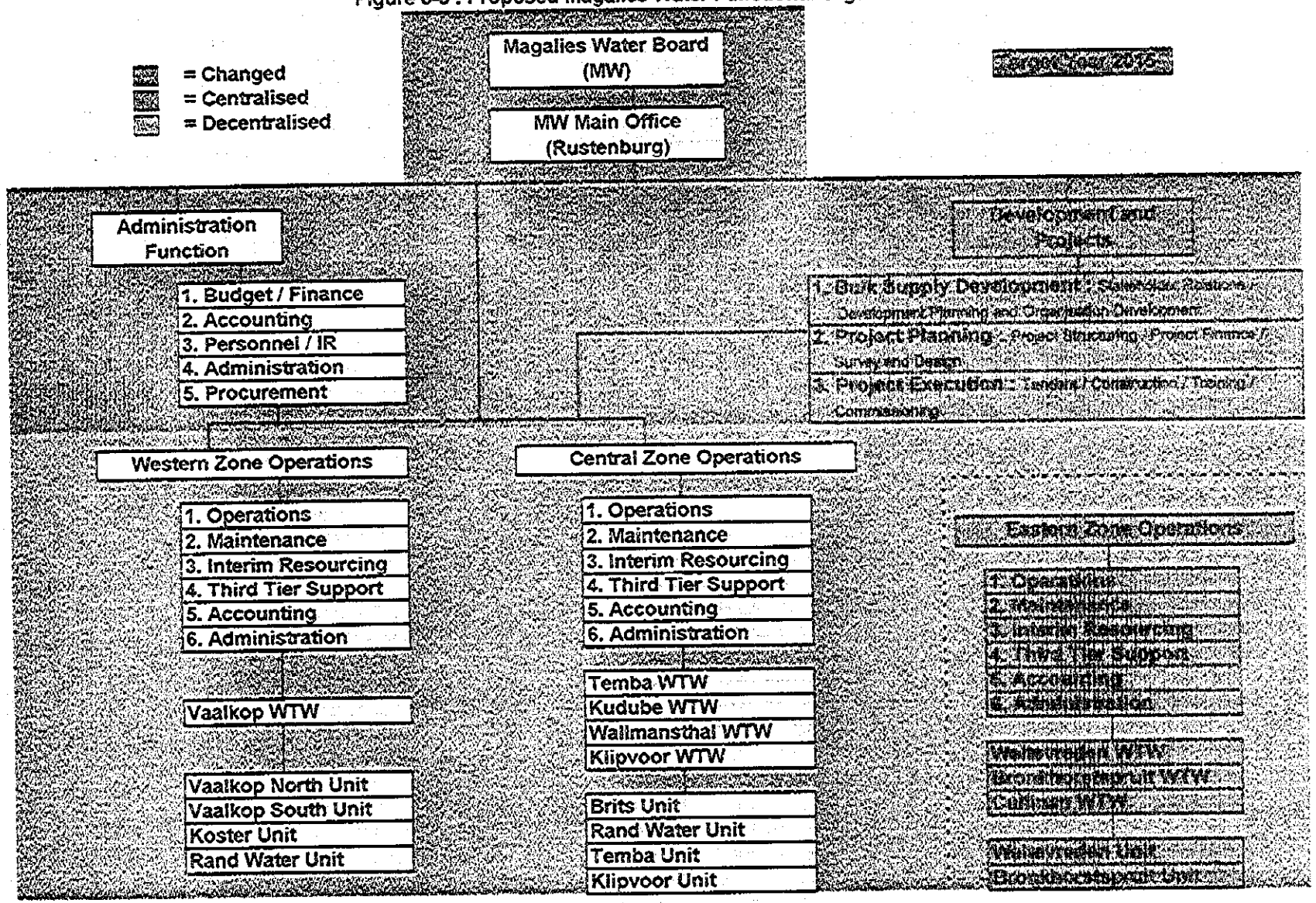
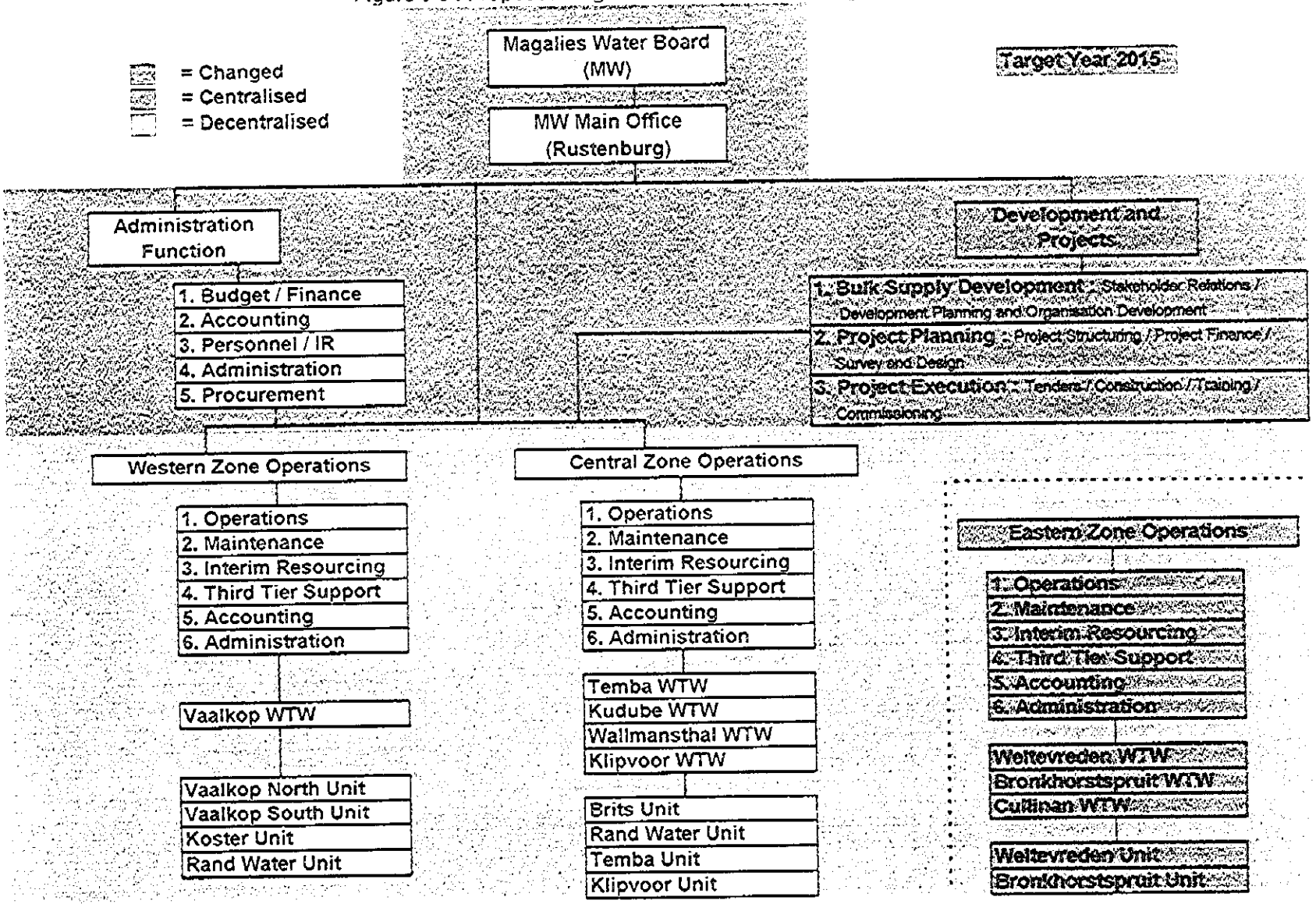


Figure 8-5 : Proposed Magalies Water Functional Organisation



CHAPTER 9 EVALUATION AND PRIORITISATION

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9.1 Project Evaluation

9.1.1 Basic Dimensions

(1) Beneficiary

Basically, the proposed projects have been planned to supply water by using a surface water as much as possible, except for those remote areas far away from the existing water treatment works where groundwater resources are available and satisfy both in quality and quantity.

Beneficiaries under this master plan can be divided into two, namely, primary and secondary groups, of which the former is being categorised in the following:

(a) Primary Beneficiary

1) Category 1:

Those people will be served by the proposed infrastructure, who are presently obtaining water from not a surface water supply system but other sources including groundwater, river runoff, vendors, etc;

2) Category 2:

Increased number of population who are located in the existing supply area of surface water systems;

3) Category 3:

Very limited number of people dwelling in Koster and Swartruggens service blocks who could be supplied by the proposed boreholes.

(b) Secondary Beneficiary

The secondary group of beneficiary is defined in the following as the last category:

4) Category 4:

Those people who will be able to enjoy higher level of services, who are located in the existing supply area of surface water systems.

Summary of the said categories of beneficiary are indicated in Table 9-1 (Refer to Supporting Report G for more detail).

(2) Projected Water Demand (Increment)

In the preliminary study of water supply system (Technical Solution), water demand analysis was made for the target years of 2002 and 2015, on the basis of projected population and mixture of water supply services. Summary of the said analysis for the primary water demand which includes domestic, industrial, commercial, institutional uses and mine is given below (Refer to Table 9-2 for more details):

	Water Demand (MCM/year)			Increment (MCM/year)	
Zone	1995	2002	2015	1995-2002	1995-2015
Western	77.590	102.350	121.030	24.760	43.440
Central	64.473	114.864	163.066	50.391	98.593
Eastern	21.545	31.223	36.834	9.678	15.289
Study Area	**163.608**	**248.437**	**320.930**	**84.829**	**157.322**

Annual growth rate of water demand between 1995 and 2015 shows 4.7% as the highest in Central Zone, followed by 2.7% in Eastern Zone and 2.2% in Western Zone as the lowest among the three zones, resulted in 3.4% on the average of the study area.

(3) Incremental Capital Cost (Total and Per Capita)

On the basis of the results obtained from the cost estimate for infrastructural development, Table 9-3 summarises the required initial capital costs, amounting to about 2.553 billion Rand in 1996 prices, which contains both infrastructures for bulk supply systems and retail supply systems. The required cost consists of a direct cost and an indirect cost, and the latter includes an engineering services cost, VAT and a physical contingencies.

Table 9-3 shows a per capita cost by supply areas on the basis of the primary beneficiary, indicating 313 R/capita in Barnardsvlei Area as the lowest and 4,152 R/capita in Vaalkop North Supply Area, because the cost required for main supply system (pipeline and regional reservoirs) is not included in the cost estimate for both supply areas of Barnardsvlei in Western Zone and Rand Water in Central Zone because such facilities have been provided Rand Water Board already.

9.1.2 Financial Aspect (Financial Rate of Return)

In similar manner of the cash flow analysis explained in Chapter 7 of this report, a financial internal rate of return for the respective supply area and zone as well as the Study Area has been worked out (More detailed explanation is compiled in Supporting Report G). In this analysis, sensitivity on cost recovery was also carried out. The results of the analysis is giving that every case (supply area and zone) has positive rate, 2.0% in Weltervreden as the lowest and 73.9% in Barnardsvlei as the highest under the 100 percent cost recovery, and 13.3% for the entire Study Area. Under the cost recovery 60 percent, the overall rate for the Study Area decreases to 6.1%, and those rate in each area also decreases to unfavourable situation accordingly, except three areas of Barnardsvlei, Temba and Rand Water in which the market loan rate (18%) is still

applicable. Only Barnardsvlei seems to be viable for the market rate under the recovery rate 30 percent.

9.1.3 Technical/Engineering Aspect

Basically, there are two main sources for water supply, namely, a surface water and a groundwater. In the Situational Analysis, it was revealed that the groundwater resources in the Study Area are generally inferior to a surface water because of both quality and quantity, and considered not best alternative for long-term perspectives.

Although the water balance study has concluded that new project for water resources development would not be needed in the Study Area due to increasing amount of return flow from PWV areas could be expected, which would meet with overall demand both for the primary and the non-primary water except a certain period in a certain Supply Area. However, as an emerging issue, more careful attention should be paid on water quality in the existing river system which will receive a return flow from the metropolitan areas. Especially, the quality of water in Apies River flowing down from Pretoria is badly affected, from which Kudube WTW obtains raw water.

9.1.4 Institutional and Organisational Aspect

It is rather difficult to clearly demarcate at this stage which role players should be responsible for implementation of the proposed project, amounting about 2.55 billion Rands in 1996 price level towards the year of 2015. The total fund requirement of 2.55 billion Rand is divided into a bulk portion of 1.14 billion Rand and a 1.41 billion Rand for a retail portion, for which the second tier and the third tier shall be basically responsible, respectively in the long term perspectives.

When considering time frame of 20 years for the said capital investment, average annual capital expenditure come at about 57.5 million and 70.4 million for a bulk and a retail portion, respectively. The key issue is locating whether the third tier concerned could manage the said huge amount of capital expenditure, for which every effort shall be taken by utilising the available any resources belonging to the upper tiers, the external or internal, and the statutory or non-statutory.

The issue is closely related to the proposed project management structure which seems to be difficult to conclude in this master plan stage.

9.1.5 Economic Evaluation

(1) Purpose and Assumptions

In order to briefly examine an economic impact of implementation of proposed project(s) under the master plan stage on to RSA's economy, an economic internal rate of return (EIRR) of each project is calculated which should be compared with the opportunity cost of capital (real value of interest rate) in RSA. Taking into consideration prevailing current market value of interest rate as 18% and the prevailing inflation rate of 8% on the average, this Study utilises 10% of discount rate as the opportunity cost of capital for the

assessment of economic viability of the proposed projects.

Since lack of precise information on benefit calculation, in other words, willingness to pay by possible future beneficiary, it has been assumed that the same level of average affordability in the study area equals to the expected willingness to pay for this economic evaluation, which is based on inquiries made by the local consultants during the Situational Analysis stage. Taking into account the average affordability of one household comprising six members as 15 Rands per month, the willingness to pay can be worked out approximately 3 Rands per Kl.

(2) Results of Analysis

Using the assumptions stated above, the disbursement schedule on the basis of the implementation schedule and project life of 40 years, an economic internal rate of return has been computed by supply area, of which results are summarised below (For more details, reference is made to Supporting Report G):

Economic Internal Rate of Return (EIRR)

Supply Area	Total Cost	Total Benefit	Net Benefit	EIRR
	---------- (Million Rand) ----------			(%)
Vaalkop North	791.491	1,272.061	480.570	5.3
Vaalkop South	724.721	1,573.601	848.880	9.7
Barnardsvlei	246.209	1,143.592	897.382	46.4
Koster	18.751	34.884	16.133	7.8
Western Z. Total	1,781.172	4,024.138	2,242.966	10.6
Brits	337.018	1,195.859	858.841	24.3
Klipvoor	127.259	97.200	-30.059	-2.6
Temba	626.196	2,219.744	1,593.547	24.5
Rand Water	1,422.025	5,330.883	3,908.858	28.4
Central Z. Total	2,512.498	8,843.686	6,331.188	22.7
Weltervreden	796.068	1,075.367	279.298	3.2
Bronkhorstspruit	262.966	415.549	156.583	5.7
Eastern Z. Total	1,059.034	1,494.916	435.882	3.8
Study Area	**5,352.704**	**14,362.740**	**9,010.036**	**12.7**

In the above, the total cost includes an initial capital investment, an operation and maintenance cost and a replacement cost to be incurred during 40 years analysis period, and the total benefit covers all accrual over the same period.

Although it is necessary to incorporate the prior investment made by Rand Water in both areas of Barnardsvlei and Rand Water, for which the Study Team is awaiting provision of the required information from Rand Water Boards (some information has been given), the calculated EIRRs varies from the negative in Klipvoor Supply Area (-2.6%) and 3.2% in Weltervreden S.A. as the lowest in the positive side, and 46.4% in Barnardsvlei as the highest.

From the precise economic viewpoints, those supply areas having lower EIRR than 10% as the assumed opportunity cost of capital, seem to be not viable for further implementation, however, various efforts should be made to increase the calculated rate with re-planning of the present proposals in future.

9.1.6 Social Consideration

(1) Women's Role

The community case study found a typical example to show how women play a vital role in the community water supply management. In Norokie Community of Moretele 1, women discussed how to operate and maintain their community water supply system consisting of a diesel driven pump and a elevated water tank, including cost recovery. They are practising efficient water management by dividing community into two sections in which it fixes the day when people can draw water. No body can draw water without paying money. The community's originated water management and cost recovery system seems to be a model for other communities as sharing "Best Practices". More detailed explanation is given in Supporting Report G.

(2) Non-Payment Issue

Although many key role players recognise non-payment is the biggest issue to be tackled as quickly as possible that is not only Magalies Water's case but also a nation wide problem, no positive initiative on the issue has not been taken. The non-payment culture originates from various factors such as a historical background inherited from ex-homeland situation, not anticipated level of services, lack of motivation caused by neighbours who don't care for payment, unaffordability and so on.

In order to make a third tier sustainable and self-help as a key player for retail water supply, it is no doubt that cost recovery is considered one of key factors, and due consideration should be paid to support and strengthen such key players from the upper tiers. Therefore, establishment of cost recovery attitude through positive participation of beneficiary since the beginning.

During the process of tackling the non-payment issue, most concern should be paid to those people who has enough affordability but no willingness to pay currently. In this context, the coming Phase 3 (Pilot Project) shall seriously considers the issues by selecting one of typical peri-urban areas where unauthorised and/or illegal connection is prevailing.

9.2 Prioritisation

In this master plan, it has been set as the primary objective to meet with at least RDP standard for those who are suffering from lower level of water supply and sanitation services than the standard by the year of 2002. Under the preliminary study of water supply system within the framework of the master plan study, the groundwater resource would not be ultimate solution due to its lower exploitability and inferior quality over almost the study area. Therefore, every effort has been made to accommodate those objective people by providing a supply system based on utilisation of surface water, which is more reliable in quantity and quality.

In this connection, the proposed planning for infrastructure development to meet with the projected water demand in year of 2015 has been made in each supply areas in which higher priority area to be implemented in the short-term is identified: (a) Northern Mankwe area in the Vaalkop North supply area of Western Supply Zone, the entire Klipvoor supply area of Central Supply Zone and Moretele 2 area in the Weltervreden Supply area of Eastern Supply Zone.

In the longer perspectives, it may need a certain time to prioritise the proposed projects in each supply area until the role and responsibilities setting would be concluded among the key role players concerned with this study. In this connection, proper attention should be paid on the following points:

- to introduce Equalisation/Balancing concept of project benefit between and/or among bulk and retail supply systems, the supply zones and the supply areas;
- to seek possibility to mobilise softer/concessional loan funding for less viability area(s) and project(s);
- to tackle non-payment issue towards realisation of full cost recovery; and
- to implement Phase 2 (Feasibility Study) and Phase 3 (Pilot Project) within the framework of this Study.

Table 9-1 Category of Beneficiary

Supply Area	Primary Beneficiary			Secondary	Total
	Category 1	Category 2	Category 3	Category 4	
Vaalkop North	86,560	39,359	0	82,448	208,367
Vaalkop South	184,938	29,305	0	91,006	305,249
Barnardsvlei	26,293	141,498	0	239,042	406,833
Koster	0	0	6,153	0	6,153
W. Zone Total	297,791	210,162	6,153	412,496	926,602
Brits	46,402	85,349	0	105,148	236,899
Klipvoor	51,034	0	0	0	51,034
Temba	608,236	73,276	0	118,976	800,488
Rand Water	479,328	938,809	0	650,451	2,068,588
C. Zone Total	1,185,000	1,097,434	0	874,575	3,157,009
Weltervreden	101,910	110,589	0	418,777	631,276
Bronkhorstspruit	16,339	109,887	0	218,568	344,794
E. Zone Total	118,249	220,476	0	637,345	976,070

Note: For more details, refer to Supporting Report H

Table 9-2 Incremental Primary Water Demand in 2015 (MCM/year)

Supply Area	Domestic	Mine	Others	Total
Vaalkop North	4.429	7.150	2.401	13.980
Vaalkop South	15.053	-	1.741	16.794
Barnardsvlei	8.296	2.219	1.828	12.343
Koster	0.333	-	-0.100	0.323
W. Zone Total	28.111	0.369	5.960	43.440
Brits	10.642	-	2.553	13.195
Klipvoor	0.900	-	-	0.900
Temba	24.547	-	0.300	24.847
Rand Water	52.291	-	7.360	59.651
C. Zone Total	88.380	-	10.213	98.593
Weltervreden	10.519	-	-	10.519
Bronkhorstspruit	4.307	-	0.463	4.770
E. Zone Total	14.826	-	0.463	15.289

Note: For more details, refer to Supporting Report H

Table 9-3 Summary of Capital Expenditure for Infrastructure Development

Supply Area	Primary* Beneficiaries	Total Cost (R million)			Cost per capita (R)			Remarks
		Bulk	Retail	Total	Bulk	Retail	Total	
1. Western S. Zone								
1-1. Vaalkop North	125,919	365.657	157.097	522.754	2,904	1,248	4,152	
- Accelerated Prg.	34,409	52.603	39.764	92.367	1,529	1,156	2,684	Priority Area for Phase 2 (F/S)
- Other Program	91,510	313.054	117.333	430.387	3,421	1,282	4,703	
1-2. Vaalkop South	214,243	256.734	152.959	409.693	1,198	714	1,912	
1-3. Barnardsvlei	167,791	9.551	42.898	52.449	57	256	313	*Not including Prior Investment*
1-4. Koster	6,063	2.388	6.538	8.926	394	1,078	1,472	
1-5. Total of W.S. Zone	514,016	634.330	359.492	993.822	1,234	699	1,933	
2. Central S. Zone								
2-1. Brits	131,481	65.466	61.494	126.960	498	468	966	
2-2. Klipvoor	51,034	53.426	35.640	89.066	1,047	698	1,745	
- Accelerated Prg.	51,034	53.426	35.640	89.066	1,047	698	1,745	Priority Area for Phase 2 (F/S)
- Other Program								
2-3. Temba	681,512	115.753	120.501	236.254	170	177	347	
2-4. Rand Water	1,418,136	119.092	353.057	472.149	84	249	333	*Not including Prior Investment*
2-5. Total of C.S. Zone	2,282,163	353.737	570.692	924.429	155	250	405	
3. Eastern S. Zone								
3-1. Weltervreden	212,499	117.446	359.954	477.400	553	1,694	2,247	
- Accelerated Prg.	80,023	67.671	106.418	174.089	846	1,330	2,175	Priority Area for Phase 2 (F/S)
- Other Program	132,476	49.775	253.536	303.311	376	1,914	2,290	
3-2. Bronkhorstspruit	126,226	30.992	126.583	157.575	246	1,003	1,248	
3-3. Total of E.S. Zone	338,725	148.438	486.537	634.975	438	1,436	1,875	
4. Grand Total	3,134,904	1,136.505	1,416.721	2,553.226	363	452	814	

Note: For more details, reference is made to Supporting Report H.

* Primary beneficiary does not include those who enjoy higher level of services than the present.

CHAPTER 10 T.O.R FOR PHASE 2 AND 3

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10.1 Selection of Priority Projects

10.1.1 Phase 2 (Feasibility Study) Projects

(1) Background

The JICA Magalies expansion study envisages the preparation of feasibility study reports for high priority projects and the implementation of selected pilot projects during Phase 2 and Phase 3 of the Project. Through the master plan study of the Magalies expansion programmes, several new projects to be implemented to meet the requirements were identified. The incremental water demands up to the year of 2002 and 2015 in the study area are about 53.0 mcm/a and 83.7 mcm/a, respectively. On the other hand, the pilot projects will explore technical and institutional options for water supply in previously unserved or underserved communities. They will incorporate the components of the installation or upgrading of physical infrastructure and the development of the organizational and institutional capacity necessary. The institutional development of pilot projects will be undertaken as a core of local community empowerment in high priority project areas.

(2) Priority Projects

Many projects were identified by the Master Plan Study in order to meet the requirements which have been discussed in the previous chapter. The identified projects cover a range of infrastructure from modernised supply systems to the minimum level of the RDP.

The study looked at priority projects in two-time-frames. Firstly, the project target to the year 2002 involved areas where communities have no water supply, or where supply is below RDP requirements. In this context, the objective is to provide safe and hygienic drinking water to RDP service levels.

Secondly, areas where incremental water demands will be high within the selected target years will be given high priority to implement expansion or improvement projects. As a reference for the selection of priority project within ESA, incremental water demands per capita per year are tabulated in Table 10 - 1.

As the results of selection, the following projects were finally selected in order to achieve minimum requirements of the government policy in the water sector.

Name of Project	North Mankwe	Klipvoor	Moretele 2
Population Served (2015)	34,409	51,034	80,023
Water Demand (2015) (mcm/a)	0.572	0.900	1.419

10.1.2 Phase 3 (Pilot) Projects

(1) Selection Criteria

The pilot projects combine infrastructure and institutional development. The following are the suggested criteria to guide the selection of the pilot projects.

(a) Access to a surface water source that can be developed without major infrastructure investment. This criterion will apply where a new local water scheme based on surface water is to be installed.

(b) Access to viable proven groundwater sources. This will apply where a new local water scheme based on groundwater is to be installed.

(c) Circumstances where the upgrading of local reticulation, or the supplementation of existing resources will make a significant difference to the quality of life of residents. This will apply to both the surface water and groundwater upgrading pilot projects.

(d) Demonstrable need for local water development, and an unambiguous expression of demand on the part of the communities concerned.

(e) A viable base for institutional and organizational development around local water supply. The existence of local water management bodies will be a recommendation but not necessarily a precondition. However, due to the relatively short implementation period, it will be difficult to initiate pilot projects in communities where local organization is absent, or is in a state of conflict.

(f) Absence of conditions that will seriously impede or black willingness to pay for water. Again, because of the short implementation period, it will not be possible to tackle pilot projects in communities where the promotion of a system of cost recovery is only possible through lengthly negotiations.

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

(2) Selection Process

(a) The first step in the selection of pilot projects was the formulation of a preliminary shortlist from 30 communities which were selected during the Community Case Study of the situational analysis in the Phase 1.

(b) The second step was to visit communities on the final shortlist to assess circumstances on the ground and to prepare communication channels with communities. As a result of the preliminary selection, seven pilot candidates were surveyed and contacted in order to provide an opportunity for communities

to discuss and present their needs.

(3) Final Selection

Final selection for pilot projects was made based on the comprehensive evaluation as indicated in Table 10-2 and high priority projects are listed as follows;

Priority	Project Name	Infrastructure	Institution
1	Kameelboom	Need	Need
2	Sehoko	Need	Need
3	Ga-Rasai	Upgrading	Need
4	Tweefontein N.	Need	Need
5	Klipvoor	Exist	Need
6	Bapong	Exist	Need
7	Tweefontein E.	Exist	Need

10.2 Introduction of TOR Setup

10.2.1 Introduction

This section outlines the proposed Terms of Reference for Phases 2 and 3 of the JICA Magalies Expansion Study. Phase 1 encompassed a detailed master plan study and Phases 2 and 3 will explore the implementation of technical and institutional recommendations emerging from the Phase 1 study.

The master plan study identified a number of new infrastructural projects that might be implemented to meet regional requirements, especially in presently underserved areas. Phase 2 will entail the preparation of feasibility studies for selected high priority projects. Phase 3 pilot projects will explore technical and institutional options for water supply in previously unserved or underserved communities.

10.2.2 Project Management

(1) Background

Phase 1 was managed in the context of a three-tiered structure comprising, "Project Steering Committee", "Project Management Committee", and "Project Working Groups".

This structure was designed to ensure overall co-ordination and monitoring of the multi-facetted master plan study whilst facilitating the progress of the various tasks. Phases 2 and 3 will require similar co-ordination and monitoring, but they pose several new management challenges:

- Phases 2 and 3 are more complex in that they require more interaction with stakeholders and more involvement in the field.

- Because Phases 2 and 3 have implementation implications, it is necessary to ensure absolute role clarity, whilst also allowing interaction.

- Responsibility for Phase 2 and Phase 3 implementation will extend beyond the period of JICA involvement. For example, it might be decided that some of the priority infrastructure projects should be installed. Further, the pilot projects will require monitoring and possibly some ongoing support.

(2) Management of Phases 2 and 3

Against this background careful consideration has been given to a structure for the overall management of Phases 2 and 3. Key principles are:

- Phase 1 recommendations have underlined the need for partnership among the major water sector actors in the study area. Several of the recommendations have put forward specific mechanisms to facilitate partnership. The management and co-ordination structure must accommodate and promote these activities.

- Much of the work done in Phases 2 and 3 will be hands-on fieldwork. The management and co-ordination structure must not restrict the mobility of the people implementing these tasks.

- Phases 2 and 3 require regular and detailed interaction with stakeholders. Such interaction must be reflected in the management structures implemented.

A proposed study management structure is outlined in Figure 10-4.

Key characteristics of the proposed structure are the following:

(a) PSC and PMC structures are merged. This proved practical in Phase 1, and would eliminate undue complexity in Phases 2 and 3. The merged PSC/PMC would have overall responsibility for the project. Membership would be similar to the Phase 1 PSC/PMC structures. The new PSC/PMC should be chaired by DWAF (possibly the new Chief Director, CWSS).

(b) A Single Project Execution Group will replace the former Project Working Groups. This will allow key players to direct the study during Phases 2 and 3. The members will be MW, District Councils, DWAF (especially Provinces) and the JICA team. Representatives of the four pilot communities should also be included. The appropriate chair should be discussed, but it is felt that this task should be undertaken by either the CEO of Magalies Water, or an appointed senior MW official. The DCS will have to play a dominant role, but none has jurisdiction over the entire study area.

The proposed Phase 2 and Phase 3 Workgroups will be an integral part of the PEG. These are discussed in more detail later.

(c) The Project Execution Forum (PEF) will formalise the interaction with the more than forty stakeholders who participated in Phase 1. The PEF will sustain the participatory momentum generated in Phase 1. It will also provide a vehicle for the implementation of many of the capacity building recommendations emerging from Phase 1.

10.2.3 Scope of Work (Overall Project Set-up)

(1) Programme Set-Up

Phases 2 and 3 will be initiated by mobilising the key players to discuss and agree the nature of the work. They will agree structures for the execution of the work (and continuation after the study ends). Leadership of the project will be agreed.

(a) Mobilising Participants

It is necessary to re-mobilise the relevant stakeholders who participated in Phase 1, and to include new participants with an interest in Phases 2 and 3.

- Determine key stakeholders.
- Brief on Phases 2 and 3 (at initiation workshop in January).
- Plan further contact after the initiation workshop.

(b) Management and Coordination Structure

In addition to the PSC/PMC, it will be necessary to form a management and coordinating structure which will oversee and implement Phases 2 and 3. This body should have representation from MW, the District Councils and DWAF. It is suggested it should comprise an executive arm (the Project Execution Group) based on the study team and active counterparts from MW, DCs, and DWAF; and a Project Execution Forum, where a broader group of stakeholders can contribute to the implementation of Phases 2 and 3, and can learn from them.

- Form a management and coordination structure which integrates activities, but which recognises the requirements of Phases 2 and 3.
- Confirm scope and tasks.
- Allocate roles and responsibilities.
- Develop a detailed work schedule, and a programme for the Project Forum.
- Establish a programme/ process to support organisational change and capacity building in MW and among the participating District Councils. The nature of the support to MW is outlined in the TOR for Phase 2. The organisational change support process for District Councils would find and implement ways to test Phase 1 recommendations, particularly in the context of the pilot projects.

(c) Communication Strategy

Engagement and dialogue are critical across the two Phases, and among the

participants in each. A structured communication process will incorporate the Project Forum and the organisational change and capacity building initiative, and will facilitate the broader flow of information.

(d) Verification of Pilot Projects.

The four pilot projects have been discussed with some stakeholders, but wider and more detailed consultation is needed. Discussions with key interests (DWAF, MW, NWWA, Rand Water (where applicable), District Councils, RDP Structures) will have to determine whether the proposed pilot projects are: needed, viable, compatible with existing and future development planning, and compatible with existing development initiatives.

10.2.4 Responsibility Set-up

It is envisaged that the Study Team will initiate and facilitate the activities listed in Section 10.2.3, but it is essential that the key actors involved take ownership of the process.

10.2.5 Schedule Set-up

The scheduling of the Set-up is shown in Figure 10-5. The roles of main agent and assisting agent are proposed and will require further negotiation.

10.3 Terms of Reference for Phase 2

10.3.1 Objectives

Phase 2 of the study is concerned with the feasibility of priority projects in selected parts of the extended area of supply of Magalies Water.

During Phase 1 of the project the overall master plan was developed. This provides a high level technical solution together with policy and strategy recommendations, institutional development proposals and an initial investment plan. All these outputs are at a high level.

Within this context the objectives of the feasibility studies are to focus on selected areas of the overall study area and:

(1) assess requirements in the further detail required to be able to make implementation recommendations.

(2) develop preliminary designs for infrastructure for priority projects in the areas of each feasibility study.

(3) consider and recommend how the priority projects should be implemented after the study is completed.

(4) develop proposals for financial and institutional plans necessary to support the implementation plans.

(5) report on and obtain approval of these plans.

10.3.2 Scope of Work

(1) Initial Set-up

The Feasibility Studies will be initiated (Phase 2 of the overall study) by mobilising the key players to discuss and agree to the nature of the work. They will need to agree structures for execution of the work (and continuation after the study ends). In particular the leadership of the process needs to be agreed upon to determine key players/stakeholders, form the feasibility study working group, confirm of scope and tasks, allocate roles and responsibilities, and develop detailed work schedule.

Work will take place in close cooperation with the stakeholders in each of the three feasibility study areas. Their engagement in a process of dialogue is therefore critically important. A structured communication strategy will facilitate this to determine needs, formulate strategy, allocate responsibilities, and develop schedule.

Apart from the overall project management of the study (i.e. Project Steering Committee/ Project Management Committee and proposed Project Execution Group and Forum) it will be necessary to provide specific management of the feasibility studies. The reason for this is that there will be a different set of individuals involved and that the work will be executed in the study area. Outputs of this process will feed into overall project management.

(2) Feasibility Study

A Feasibility Study will be conducted separately for each of these three areas in close consultation with respective local authorities and other stakeholders, and will include the works described in the following sections.

(a) Supplementary Data Collection

Time constraints and the level of detail expected in Phase 1 meant that not all the necessary information has been collected and analysed. Additional more detailed and specialised information therefore needs to be gathered.

- Supplementary data collection including topographical and geological surveys will be conducted.

- Population estimates obtained in Phase 1 of the Study will be reviewed against new census statistics collected by CSS in late 1996 (if available) and will be confirmed by means of field surveys wherever a significant difference exist

between the two. The review will be carried out on an individual community basis.

- Field attitude, affordability and acceptance surveys will be conducted and the mixes of levels of service assumed for the projection of domestic water demand in Phase 1 of the Study will be re-evaluated based on the results of the surveys. The re-evaluation shall be carried out on a community basis and the final mixes of levels of service will be determined for each individual community.

(b) Preliminary Design

The overall purpose of the Feasibility Study is to undertake more detailed development in selected areas than was undertaken during Phase 1.

1) Availability of raw water with allowable assurance levels of supply will be reviewed for each of the proposed surface water resources which are:

- A combination of Hartbeespoort Dam, Roodekoppies Dam and Vaalkop Dam for the Northern Mankwe Priority Project;

- Klipvoor Dam for the Klipvoor Priority Project; and

- Mkombo Dam for the Moretele 2 Priority Project.

2) Bulk supply pipeline route surveys on the method of paper location will be undertaken and the positioning of bulk infrastructure will be determined.

3) The site for the proposed Klipvoor Water Treatment Works will be selected, and topographical and geotechnical surveys of the site will be conducted.

4) Secondary reticulation routes and the location of other secondary infrastructure will be decided in consultation with the respective local authorities.

5) Land acquisition for servitudes to proposed pipeline routes, water treatment works and other infrastructure will be recommended.

6) Preliminary design of pipelines, reservoirs, water treatment works, reticulation and other water supply infrastructure will be carried out.

7) A detailed cost estimate will be prepared and the Discounted Cash Flow analysis conducted in the Phase 1 of the Study for each Priority Project shall be reviewed with the new information derived from this Phase of the Study.

(c) Final Capital Investment Plan

It follows from the completion of preliminary design work that it will be possible to

finalize the investment plan during Phase 2. The contents of this plan include the following :

1) Detailed cost estimates of new capital projects will be calculated and alterations and extensions to existing infrastructure will be evaluated.

2) Final tariff proposals will be evaluated in the light of the more detailed capital expenditure, and operation and maintenance costs.

3) A final capital investment plan will be prepared for each Priority Project, which will include:

   - list of assets;
   - confirmation of options for financing;
   - finalisation of available financial (debt) instruments;
   - recommendations regarding financing; and
   - a projected cash flow for the implementation.

(d) Project(s) Institutional Requirements

Each selected area of the study will have a unique technical solution with different implementation and O&M requirements. The purpose of this task is to asses the human resource requirements for each area so that these can be built into project implementation plans and financial feasibility. This is particularly important given the capacity problems identified during Phase 1. Both institutional requirements of the projects and the framework in which they operate will be considered.

1) Determining required functions.
2) Assessing structure options.
3) Developing organisation structure.
4) Developing a staffing plan.
5) Documenting training requirements.

(e) Initial Environmental Impact Assessment

The purpose of this activity is to make a prognosis of the expected impact of the expansion of water supply on the environment in the selected areas of the feasibility study. DWAF follows a set procedure for assessing the impact of all proposed projects. This is called Integrated Environmental Management and consists of several levels of analysis of which Relevant Environmental Impact Prognosis (abbreviated in Afrikaans to ROIP1) is the first. This first stage of impact assessment, ROIP1 focussed on the scoping of more detailed studies and screening of projects and was completed in Phase 1. Work during this phase will include:

1) Field surveys (for ROIP2).
2) Preparing ROIP 2.

3) Coordinate meetings of the Environmental Task Group.

(f) Project Implementation Plans

The plans will integrate the findings and conclusions of the technical, institutional and financial aspects in a comprehensive and logical plan taking into account the dependencies between requirements. How these are scheduled within the overall target period (i.e. to 2015) will be the main result of this work.

1) Assess requirements.
2) Develop plan.
3) Schedule activities.
4) Allocate resources.

(g) Feasibility Study Report

The purpose of this activity is prepare the final report on Phase 2 so that it can be presented to the stakeholders, the client (DWAF) and JICA for final approval and sign off. It will be structured to cover all areas of this phase i.e. (1) and (2) of 10.2.1 per this TOR document.

1) Formulate structure.
2) Prepare draft report.
3) Present report.
4) Finalise

(3) Support of Institutional Development and Change

During Phase 1 a number of policy and strategy recommendations were made which sought to address the gaps between the current situation and development targets. Collectively these recommendations are concerned with an integrated process of institutional change in the study which are necessary to ensure water supply to communities in the future. In meetings to finalise Phase 1 the client strongly requested assistance with the process of implementing these changes. A structure change support and implementation process is therefore included but the scope and details remain to be discussed and confirmed. By doing this feasibility studies should take place in a supportive environment and continuation after the end of Phases 2 and 3 should be assured. Tasks would normally include:

- Awareness building of change requirements.
- Developing a change agenda.
- Developing a change infrastructure.
- Initiating change process.
- Facilitating.
- Evaluation and reprogramming.

10.3.3 Responsibilities

The increased complexity of Phases 2 and 3 (and subsequent continuation) compared with Phase 1 of the study arises as a result of a greater need for interaction with stakeholders and more involvement in the field. In order to ensure success in this complex situation it is necessary to have absolute role clarity. If roles are clear then it is possible to allocate responsibility for action and hold parties accountable for results.

Some key points of note are the fact that:

- No single party has overall responsibility for water supply in the area. It is a shared responsibility between the 2nd Tier (Magalies Water and DWAF's Regional Office) and the 3rd Tier (District Councils, Local Authorities and Communities).
- Changes in the legislative framework will impact on roles in the future. Particularly the Development Facilitation Act and the Water Law Review.
- A key activity of Phase 2 will be the allocation of roles and responsibilities. To illustrate how this might be done Tables 10-3, 10-4 and 10-5 have been prepared. These also illustrate how roles will change in different time frames. Role review will therefore be an ongoing process.

10.3.4. Schedule

The scheduling of Phase 2 is shown in Figure 10-6. Points of note are that:

- Phases 2 and 3 will proceed simultaneously. This is a change from the original plan where it was intended that they would proceed sequentially. The purpose of making this change is to ensure that lessons learned from pilot project set up are taken into account in feasibility studies.
- Set up for the feasibility studies will take place during January, February and March 1997. Timing of this will be tight given the many parties which need to interact.
- The feasibility studies themselves will commence in May 1997 and continue for a period of six months.
- Phase 2 will be fully completed at the end of October 1997.

10.3.5 Implementation Structure

Careful consideration has been given to the structure for implementing Phase 2. Key points of note are that:

- An overall coordination structure for Phases 2 and 3 is necessary.
- Underneath these structures the work of Phase 2 will be undertaken. It is proposed that the group will be referred to as the Phase 2 Working Group. Features of this group will be that:

* It is made up of members of the Study Team and seconded individuals from the key players organisations as appropriate. For example is would be desirable for Magalies Water and a District Council to involve someone in this group.

* It will be multi-disciplinary involving technical, institutional and financial skills.

* Its tasks will be:

    1) Planning detailed aspects of the work;
    2) Information gathering and analysis;
    3) Formulation of options and recommendations;
    4) Consulting with stakeholders as necessary;
    5) Reporting to the Project Execution Group; and
    6) Preparing all required documentation and reports.

* There will be one Feasibility Study Working Group which will undertake all three feasibility studies.

* Within each feasibility study area there will be interaction with Local Stakeholders in the form of communication (and some consultation as necessary). However as there are about seventy different third tier organisations within the area of the feasibility studies it is envisaged that:

    1) Stakeholders will be represented through their formal structures. i.e. The District Councils will be expected to represent local authorities.

    2) Formal representation will be via the Project Execution Forum (and hence the Project Execution Group) rather than directly to the members of the team carrying out the work.

10.4 Terms of Reference for Phase 3

10.4.1 Objectives

Phase 1 of the JICA study included case studies of 30 communities in the study area. The purpose of the case studies was to understand the water supply circumstances in each community, and to obtain a profile of the community itself. The latter included demographic information, the nature and effectiveness of community organisations, and an assessment of attitudes to water supply and payment for water.

Selected pilot projects are to be implemented in Phase 3. The purpose of the pilot projects is to explore, in a practical context, institutional and technical options for water supply in previously unserved or underserved communities. In each case, the intention is to establish or reinforce sustainable management structures and systems (including cost recovery where appropriate) which will support the effective long-term use of the infrastructure developed. To achieve this it will be necessary to link institutional and infrastructural tasks in an integrated development

process.

The potential pilot projects are:

(1) Kameelboom Agricultural Holdings in the Mankwe Magisterial District.

(2) Ga-Rasai in the Odi 1 Magisterial District.

(3) Sehoko in the Moretele 2 Magisterial District.

(4) Bapong in the Odi 2 Magisterial District.

The first three communities are located in each of the Priority Project areas described in Section 10.1 of the Main Report. Bapong is located southwest of Brits TLC and forms part of the area currently supplied by Rand Water. The pilot projects in each of these locations are expected to take the following form:

(1) Kameelboom: assist with strengthening and deployment of local organisational resources, and construct a borehole-based reticulation system to RDP standard. Assist with the establishment of a sustainable management structure and system.

(2) Ga-Rasai: assist local structures to identify needs with reference to the operation and maintenance of the newly introduced surface water supply scheme. Assist with the demarcation of roles and the implementation of a sustainable management structure and system.

(3) Sehoko: explore (with local structures) the feasibility of extending the new surface supply scheme to remaining parts of the community, and implement if agreed. Negotiate and implement a sustainable management structure and system.

(4) Bapong: assist community to identify causes underlying present problems of non-payment and unauthorised connection, and facilitate the implementation of a sustainable management system with cost recovery and the regularisation of illegal connections. The initiative must complement Rand Water activities in the area.

All of these communities have been visited, and preliminary contact has been made with local officials. In addition, preliminary discussions have been held with the relevant District Councils.

Project implementation is to be guided by the following principles:

(1) Projects must be based on demonstrable demand, and clearly articulated needs.

(2) The scope and nature of pilot projects must be negotiated with all relevant stakeholders before implementation.

(3) Project implementation must follow RDP guidelines.

(4) Pilot projects must build local and regional capacity in the form of training; building relationships (e.g. between community and District Councils, community and MW, community structures and local authorities); sharing experiences and practices; and promoting local development planning. Models and lessons must be shared with a broader audience.

(5) Projects must work with existing capacity, and must recognise the role of elected local government.

(6) Infrastructural development options must be discussed and accepted by communities, and a commitment to cost recovery (if such is required) must be made. Institutional development and infrastructural development must be closely linked.

10.4.2 Scope of Work

(1) Pilot Project Set-Up

Each of the four pilot projects will have to be negotiated with the communities concerned. Without the necessary participation and ownership, the projects will fail. This is especially the case where management, cost recovery and operations and maintenance structures and processes are to be established on a sustainable basis. Hence participation must be accompanied by the establishment of durable management structures based on available capacity and resources.

(a) Elicit Community Involvement.

The manner in which communities are engaged is critical to the success of the pilot projects. It is essential to connect with the right people, whilst also allowing broad participation.

1) Arrange introductions to community leaders/structures. DWAF ODOs, MW and NWWA field staff, DC Councillors and field staff, and NGO field staff might be useful as facilitators of these introductions.
2) Identify key stakeholders.
3) Preparatory briefing meetings.
4) Agree scope and content of needs analysis.

(b) Needs Evaluation

The White Paper on Water Supply and Sanitation is clear that water supply initiatives must be demand driven. It is difficult to satisfy this condition in the case of the pilot projects, but they should at least be based on demonstrable needs and locally formulated priorities.

1) Preparatory consultations.
2) Conduct needs assessment.

3) Identify key community resources (development structures, women's groups etc.)
4) Community workshop to share findings and to develop priorities.
5) Modify pilot project briefs according to findings.

(c) Project Management Structure

A local project management structure will ensure local ownership of the project. It will also mobilise counterpart resources in the community to assist with project implementation. Further, the establishment of such a structure will be in line with RDP requirements (see Principle 3) above).

1) Negotiate and establish project management structure (possibly based on the RDP PSC model). The Local PSC must recognise and reinforce local government, but must also represent other key stakeholders. It must also avoid duplicating or usurping functions of other operating bodies.
2) Confirm scope and tasks.
3) Allocate roles and responsibilities.
4) Agree links and responsibilities to overall Phase 2 and Phase project management structures.
5) Develop work schedule.
6) Obtain a mandate to begin planning.

(d) Communication Strategy

Communication has to be maintained in the community, and with interests beyond it.

1) Determine needs.
2) Formulate strategy.
3) Allocate responsibility.
4) Develop a work schedule.

(e) Capacity Building Programme.

1) Identify capacity building needs and opportunities.
2) Define and allocate responsibility (possibly in the form of portfolios)for different aspects of capacity building (including sharing experience and resources with others, possibly through the Project Forum). Members of the Local PSC might be given particular responsibilities, such as pursuing training opportunities related to the development of infrastructure, or the production of training material for wider circulation.
3) Agree and implement a trainee selection process.
4) Develop a work schedule.
5) Agree and implement a monitoring process/ structure for the capacity building programme.