

GOVERNMENT OF LESOTHO

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**MINISTRY OF NATURAL RESOURCES
 DEPARTMENT OF RURAL WATER SUPPLY**

EXECUTIVE OVERVIEW

This document is Volume I in a set of four that describes the DRWS strategy. The full documentation set is:

- VOLUME I:** Executive Overview
VOLUME II: A Description of the Strategy
VOLUME III: Implementation Plan
VOLUME IV: Appendices giving the detail of the Calculations.

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GOVERNMENT OF LESOTHO

MINISTRY OF NATURAL RESOURCES DEPARTMENT OF RURAL WATER SUPPLY

EXECUTIVE OVERVIEW

1. INTRODUCTION

The DRWS strategy was developed by consensus by 16 of the senior officials of the Department. They ranged from District Engineers to the Head of the Department. The whole process took nearly a year, and was very thoroughly researched.

This volume is a brief overview of the strategy. It has, by design, been kept short. Thus, whilst it contains the salient points, much of the detail is missing. That detail is contained in the other three volumes of the documentation set. The reader is urged to consult those volumes in order to understand the full rationale behind the strategy.

The formulation process was carried out with the co-operation of the Swiss Government and their implementing agency, Helvetas. The consultants were P-E Corporate Services SA (Pty) Limited of Johannesburg.

2. BACKGROUND

The prime purpose of the Department of Rural Water Supply (DRWS) is to provide adequate potable water to the rural areas of Lesotho. According to the 1979 Land Act the rural areas are the balance of the areas which fall outside those centres which have been demarcated as Urban towns. The latter constitute the ten administrative district centres of Maseru, Berea, Leribe, Butha Buthe, Mokhotlong, Thaba Tseka, Mafeteng, Mohale's Hoek, Quthing, Qacha's Nek and the six towns of Maputsoe, Peka, Mapoteng, Roma, Thota-ea-Moli (Mazenod) and Morija. These urban communities constitute the area of supply of the Water and Sewerage Authority (WASA).

2.1 Achievements to Date

DRWS has been in existence for about 15 years. The coverage achieved up to the end of the 1995/96 financial year is shown in Table 1 below:

TABLE 1
Population Covered by District - 1996

DISTRICT	Total No. of Projects Completed	Total Population Covered	Total Rural Population	% Cover
1. Mokhotlong	72	26 345	83 130	31,7
2. Butha-Butha	109	57 920	120 604	48,0
3. Leribe	151	127 660	270 074	47,3
4. Berea	245	150 852	187 773	80,3
5. Maseru	264	173 745	196 778	88,3
6. Thaba-Tseka	75	34 794	118 907	29,3
7. Mafeteng	270	122 665	212 836	57,6
8. Mophale's Hoek	277	110 579	170 512	64,9
9. Quthing	131	68 156	121 215	56,2
10. Qacha's Nek	65	32 754	73 042	44,8
TOTAL	1 659	905 470	1 554 870	58,2

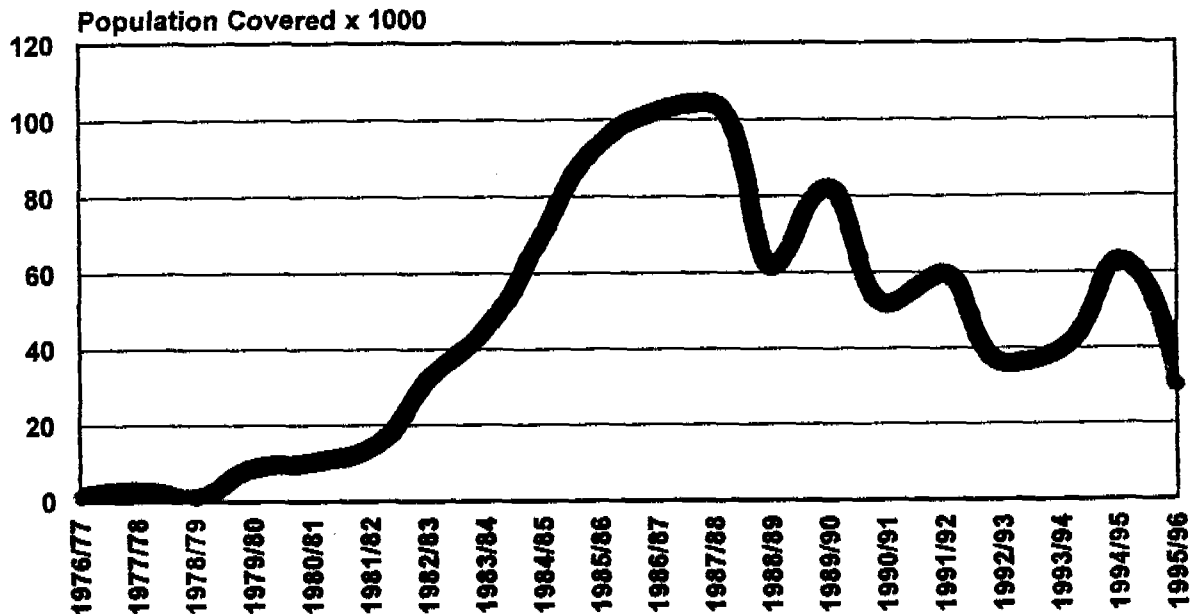
It should be noted that the districts with the lowest percentage cover are those situated mainly in the mountain areas (Mokhotlong, Thaba-Tseka, Quthing and Qacha's Nek). This is hardly surprising when the drive over all the years has been to achieve the highest coverage possible in each year. The natural result is to concentrate on the areas with the highest population density, that are the easiest to reach.

Whilst coverage may have increased, it is important to note that not all communities are served to the set standards of 30 l/c/d at a maximum distance of 150 metres. In fact, some systems have a higher service level, whilst others, for various reasons, fall far below the standard.

Yearly coverage since 1976 is but demonstrated by the graph which follows (Figure 1). In general, from 1976 there was an increase in population served until a peak was reached in 1986. Then a residual decline was experienced until 1995/96 when it reached its record lowest since 1982/83.

FIGURE 1

POPULATION COVERED BY YEAR



A combination of factors contributed to this pattern. From 1976 until the peak was reached, there was increasing Donor support (construction funds and technical assistance). Although gravity systems were still the technology preferred, where applicable there was a rapid increase of handpump systems and towards 1986 drilling of boreholes was being privatised.

After 1986 the situation changed.

- Concentration moved towards smaller, less accessible areas in the mountains and foothills
- Funding in terms of hard currency declined
- Less handpumps were installed due to groundwater scarcity
- Output was declining as the business was becoming routine, and also productivity was not matched by reward.

(b) Maintenance

The policy of DRWS in the past was to hand over the operation and maintenance of the systems to the communities immediately after the construction phase, other than the preventive servicing of diesel pumping systems. DRWS reacted to breakdown reports. The emphasis was that communities should own the system by taking this responsibility. While this was a noble approach it did not take off instantaneously, therefore breakdowns were not reported and went undetected for long periods as a national survey of all systems showed in 1995. (Rural Water Supply Systems in Lesotho - Findings from a Nation-wide Inspection, Sechaba Consultants - August 1995). In addition, reported cases took a long time to attend to and in the worst cases were not attended to at all. Graphs showing maintenance performance in terms of breakdown versus repairs and reaction times for different systems are included in the figures below:

FIGURE 2

**MAINTENANCE PERFORMANCE
BREAKDOWNS AND REPAIRS**

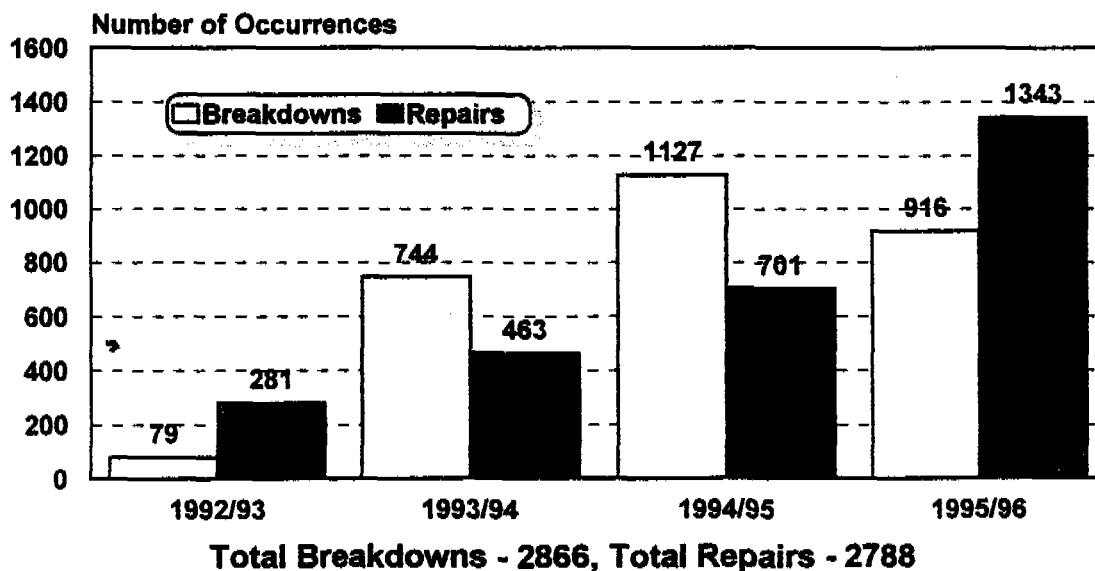
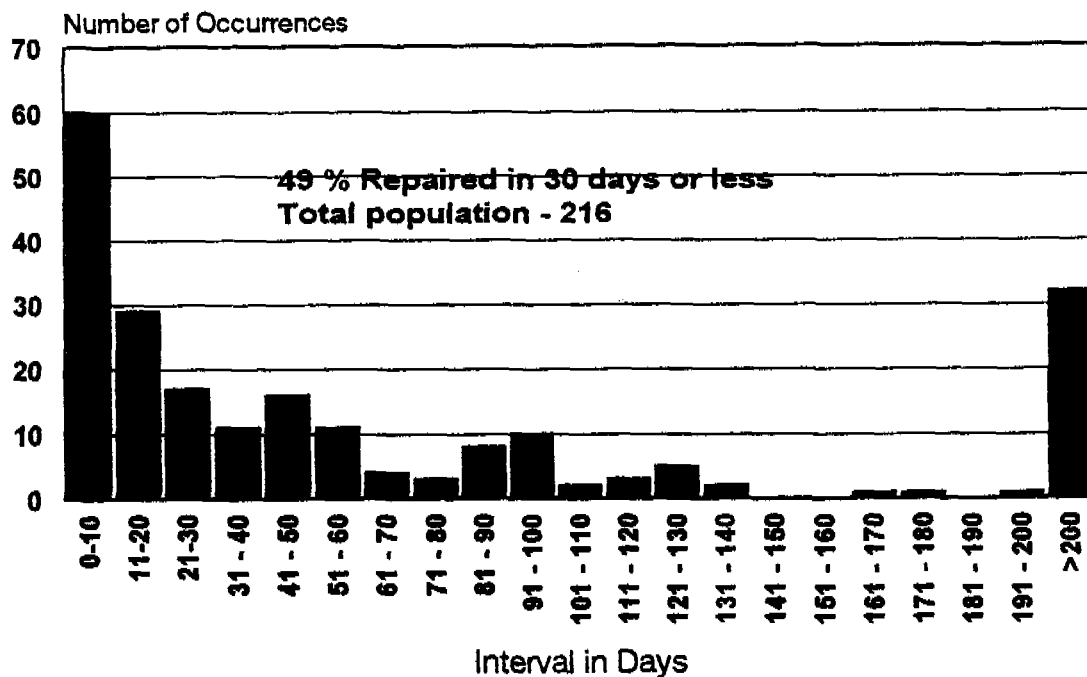


Figure 2 shows the breakdowns reported each year and the number of repairs completed. Statistics have only been kept since the 1992/93 year. The improvement in performance is obvious. It is, however, not going to be enough to cope with the demands of the future.

The chart below shows the reaction time to repair call outs. It demonstrates, yet again, that centralised maintenance systems in rural water supply just do not respond fast enough to provide the communities with an adequate level of service. Steps have been taken to improve the situation, but much remains to be done.

FIGURE 3

**REPAIR TIME DISTRIBUTION
 ALL SYSTEMS**



(c) Village Affairs

DRWS has had a Village Affairs capacity comprising the Village Affairs Unit (VAU) at head office since 1993. It supports the Districts' Village Liaison Officers (VLO's) in developing and disseminating strategies for effective management of water supply systems to the Villages. This includes the collection of information (expectations) from villagers, providing them with information on DRWS policies and strategies and discussing possible solutions to their water supply problems. Further it includes preparing Village Water Committees for their tasks.

Several inherent problems in the communities hamper performance in DRWS's support of community management of water supply systems. These are:

- The legal authority of Village Water Committees is non-existent
- Where Water Resources are shared between Villages and in cases where combined systems have to be built, this is often a cause for conflict
- The funds for operation and maintenance are raised by the village beneficiaries. This has been an ongoing problem, particularly in pumping systems where the requirements are higher and more regular. There are mechanisms for addressing these problems, but they are not always effective. Alternative approaches need to be developed if DRWS is going to make a significant impact on the situation.

The extreme result of these problems is that the water schemes fall into disuse. A number of instances of this type have occurred. DRWS has no precise statistics, but even one is one too many. Specific strategies have been developed to help to cope with this problem.

2.2 The Need for a New Strategy

DRWS has never had formally documented strategies and policies. There have been accepted practices, but again they have not, in the main, been documented. There has thus been the need for formal strategies and policies for some time.

However, this has now become more important with the changes taking place in Lesotho. These fall into two major categories, as follows:

- Government in general
- The Water Sector, in particular.

(a) Government

In common with many countries around the world, the Government of Lesotho has accepted that changes are necessary in the way that countries are managed. This comes largely from the realisation that the role of government is that of a facilitator rather than an implementor. There is also an almost universal acceptance of the fact that certain activities are performed better and more efficiently by the private sector than by government.

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had led to changes in the approach to government that include:

- Smaller and more efficient government
- Greater use of the private sector
- Decentralisation which is high on the government agenda.

It is necessary that DRWS changes its approach to conform to these trends.

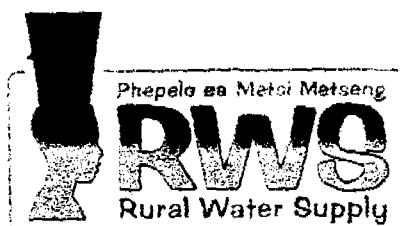
The Water Sector

Changes are also taking place in the water sector itself:

- The proposed new Water Resource Policy and Strategy which is under review. In this policy a whole restructuring of the Water Sector is envisaged. It defines different players for Water Development (Dams), Control and Protection, Bulk Water Supply Authority, and distribution in both Urban and Rural areas.
- The contemplated Ministry of Water Affairs which will have a strong planning and co-ordination role.

It is vital that DRWS decides where it is going so that it can play the most constructive role possible in assisting in these new developments.

3. MISSION



**Government of Lesotho
Ministry of Natural Resources
Department of Rural Water Supply**

MISSION STATEMENT

The Department of Rural Water Supply is in the service of provision of sustainable and adequate potable water to rural communities. We intend to remain in this business and work in partnership with other departments, the private sector, non-governmental organisations and communities to improve quality of life of our people.

We strive to be the best organisation, with decentralised decision-making powers, rationalised procedures and increasing autonomy in order to meet the specific demands and accelerate services in project design, construction, operation and maintenance of water supply systems.

We involve and assist communities in project formulation and implementation and we build capacity and empower them in operation and maintenance of water supply systems through our community liaison programme.

In order to accelerate sustained coverage and contribute towards national job creation, we will work towards outsourcing our activities by involving consultants, private contractors and other organisations, in the design, construction, operation and maintenance of water supply systems.

We strive for sustainable demand driven water supply of high quality and appropriate standards. We are committed to active marketing and establishing strong co-ordination with the provision of sanitation facilities, and improved health.

We value our customers, therefore we are committed to satisfy them by meeting their desires through subsidised services.

We are aware of our responsibilities to all internal and external stakeholders, therefore we will conduct our business honestly and practise highest level of moral standards.

4. GOALS AND OBJECTIVES

This section sets out the prime goals and objectives of the organisation very briefly.

4.1 Goals

(a) *Community Affairs*

- DRWS is committed to becoming an organisation that is, as far as possible, driven by the demands of its communities.
- DRWS will abolish the uniform national service standards replacing them by flexible standards that consider the local conditions and needs of the individual villages. In doing this, DRWS will take into account the cost implications of all decisions.
- DRWS is committed to providing private connections at cost where and when this is practical within flexible standards, and where a sufficient quantity of water is available to do so. It will be done within the financial limitations placed upon the Department.
- It is imperative for long-term sustainability that communities take full ownership of their water supply systems. DRWS is committed to promoting this and will take specific action to do so. DRWS will establish a clear ownership concept along with the legal implications of that.
- DRWS will promote within the envisaged local governments a sub-structure which represents the community in all matters pertaining to their water supply. DRWS will provide every assistance to these sub-structures in order to undertake their roles and duties. DRWS will submit a proposal to local government to promote the significance of such sub-structures.
- DRWS will build and maintain partnerships with the communities so as to empower them to run their own affairs.

(b) Coverage and Production

- To service all the people within the DRWS of supply, in accordance with the revised flexible standards, in the shortest possible time, within the financial constraints placed upon the Department
- To reduce the lead times for new systems to one year.
- To, ultimately, fully outsource the design and construction of new water systems to the private sector, and NGO's.
- In the interim, in order to increase productivity, DRWS will place the donor paid field staff on labour contracts.
- DRWS aims to mobilise and co-ordinate a significant amount of the Lesotho Highland Revenue Fund (LHRF) for rural water supply projects.

(c) Maintenance

- To transform DRWS from a maintainer to a co-ordinating body in the maintenance of rural water supply systems. The prime functions will be the appointment of contractors, monitoring, supervision, community support, training and facilitation.
- Ultimately all system maintenance will be fully outsourced to private contractors.
- In time the communities will assume the management of private contractors maintaining their systems.
- In the short term DRWS will strive to significantly decrease the reaction time to breakdown call outs.
- Preventive maintenance of all systems will be initiated.

4.2 Objectives

(a) Community Affairs

SPECIFIC OBJECTIVES	TARGET COMPLETION BY YEAR END
1. Develop guidelines for flexible design standards	1998
2. Develop policies on the administration and legal requirements for individually financed private connections	1998
3. Examine the legal implications of community ownership of water systems	1998
4. Enhance role of the Local Government sub-structure in the administration of systems	1999
5. Submit proposals to local government on legal standing of a sub-structure for water affairs	1999
6. Develop a clear water scheme ownership concept that will be clearly understood by the communities	1999
7. Build up and train Village Affairs Unit personnel	1999
8. Start the process of community empowerment to manage their systems in 1998	
9. Transfer full responsibility for water schemes to all communities	2010

(c) Coverage and Production

SPECIFIC OBJECTIVES	TARGET COMPLETION BY YEAR END
1. Serve an average of 85000 rural people per year	
2. Provide full coverage (25 l/c/d) to both accessible and, where possible, inaccessible areas. The totally unserved villages will be given first priority. Where communities are covered at a level below the national standard DRWS will at least return them to that standard.	2010
3. Provide 100% of the rural population with at least the minimum service level, e.g. spring protection in inaccessible areas	2010
4. Explore alternative water sources and develop appropriate technology	2000
5. Gather initial data for detailed area coverage planning	1997/1998
6. Reduce all lead times to 12 months	2000
7. Place 50% of our own field staff on labour contract	1997/1998
8. Achieve 100% on labour only contract	1998
9. Outsource 60% of new construction to the private sector and NGOs	1998
10. Outsource all new construction to the private sector and NGOs	2000

(c) *Maintenance*

SPECIFIC OBJECTIVES	TARGET COMPLETION BY YEAR END
1. Introduction of Private Maintenance Contractors to start in 1996 and to be completed by:	2000
2. Develop management procedures for handling contract maintenance	1998
3. Reduce maintenance reaction time to a maximum of two weeks	2000
4. Introduce full preventive maintenance and hand over to communities	2000

5. NATIONAL COVERAGE PLAN

It is necessary to develop a national coverage plan as an overall expression of the production goals and objectives that the Department seeks to achieve. These are expressed here as national totals. During a more detailed area planning exercise, which is part of the strategy implementation process, they will be broken down by district in order to set their individual targets.

5.1 Demographics

All demographic projections have been based on the TAMS study completed in 1996. (Water Resources Management: Policy and Strategies. Annex K - Demography). This suffers, of course, from the unavoidable problem that it was done during a pre-census year. Thus the most recent data that they had to work from was nearly ten years old. It is, however, the most up-to-date research available and will be used until the figures are modified by the 1996 census results. One would not expect the major conclusions to change significantly.

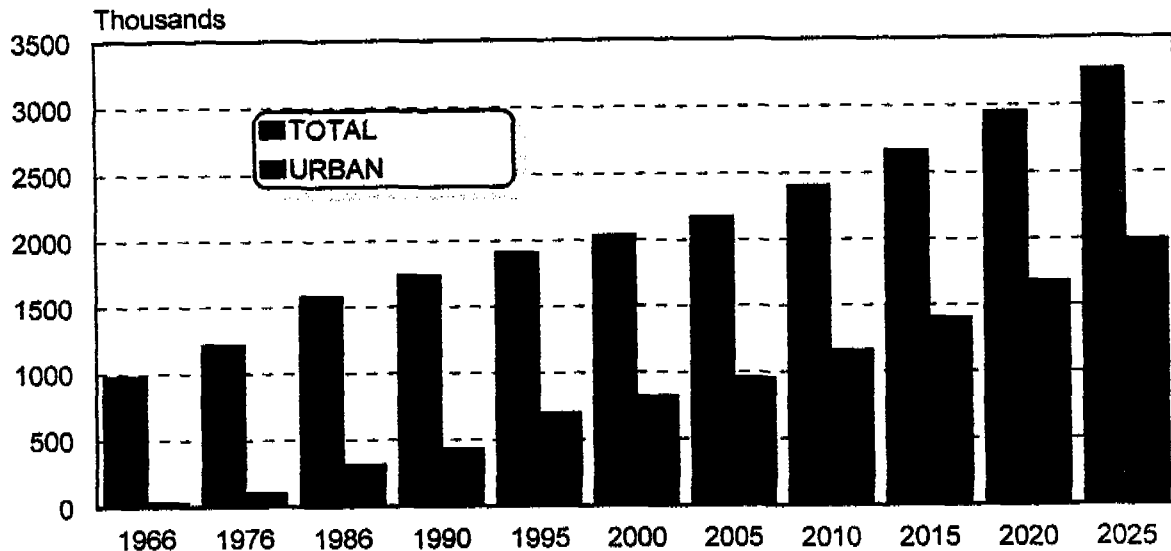
The two major conclusions that are significant for DRWS are:

- The population increases in all census areas.
- Rapid urbanisation is taking place in the lowlands. The migration that causes this has the effect of reducing the growth or, in some cases, causing a decline in the population of the more remote areas.

The curve showing total and urban population is given below:

FIGURE 4

KINGDOM OF LESOTHO
PROJECTIONS OF TOTAL AND URBAN POPULATION



Source : TAMS Report (with modifications)

The implications of these projections are extremely significant for WASA. They have a daunting task merely to keep pace with the increasing urban population. This is examined in some detail in Volume II of this documentation set.

The implications for DRWS are no less significant. These are examined briefly below.

5.2 Implications for DRWS

The TAMS study (Water Resources Management: Policy and Strategies - 1996) has proposed some major changes in the Water Sector. These are still under consideration by Government. It is too early to predict the outcome, but sweeping changes are likely to be in the offing. DRWS has elected to plan around the status quo in the short term since pre-empting the outcome would, at this stage, be pure guesswork. The strategies are sufficiently flexible to adapt to changes in the Sector.

There is no doubt that changes will take place, particularly with the government drive to decentralise. However, this is a massive task that will take time and money. Governments always have the task of balancing the demand for scarce resources over a number of priorities. Thus, unless water is granted such high priority that massive funds are poured into bulk supplies and local reticulation, the change in the local water sector will be slow.

DRWS's national planning is therefore based on two major assumptions:

- That WASA will concentrate on its current area of supply.
- That the 31 emerging towns, and any others that may appear, will be unattractive to any urban water authority.

In short, the Department has assumed that the present DRWS area of supply will remain unchanged for, at least, a considerable period of time.

DRWS has always viewed its population served as being a rural one with uniform characteristics. This is no longer the case. The Department now serves two very different markets. They are rural and semi-urban. The characteristics of each are described briefly below:

- ***True Rural Population***

These are small rural communities where there is little or no population growth. In the main the schemes that have been installed will serve them for many years to come.

The minimum national service standard is quite acceptable. The more remote communities can be covered by protected springs and water points.

- ***Semi-Urban Population***

These people are clustered in larger communities, mainly in the lowlands. The population is growing rapidly. Pressure is being placed on installed schemes. Currently about 45% of the population covered are to national standard. Unless urgent steps are taken, none of the covered population will have supplies that are to national standard by early in the next decade.

This group has higher aspirations. Many of them are both willing and able to pay for private connections. DRWS expects that the demand for these will increase rapidly over the coming years.

DRWS has to treat these two markets completely separately.

5.3 Coverage Targets

The Department devoted considerable effort during the strategy development exercise to projecting population growth in its area of supply in order to set coverage targets. What is important is not the growth in the total DRWS population, but the growth in that segment that still has to be covered.

Within the two markets, rural and semi-urban, that segment splits into two sections. These are:

- Those people that are technically covered in that they have an improved water supply, but that supply is, or will be in the foreseeable future, below the national quantity and convenience standard.
- Those communities that are completely uncovered in that they have no improved water supply.

The two charts below show the situation in each of the markets.

FIGURE 5

PROJECTED GROWTH OF DRWS POPULATION BELOW NATIONAL STANDARD

RURAL

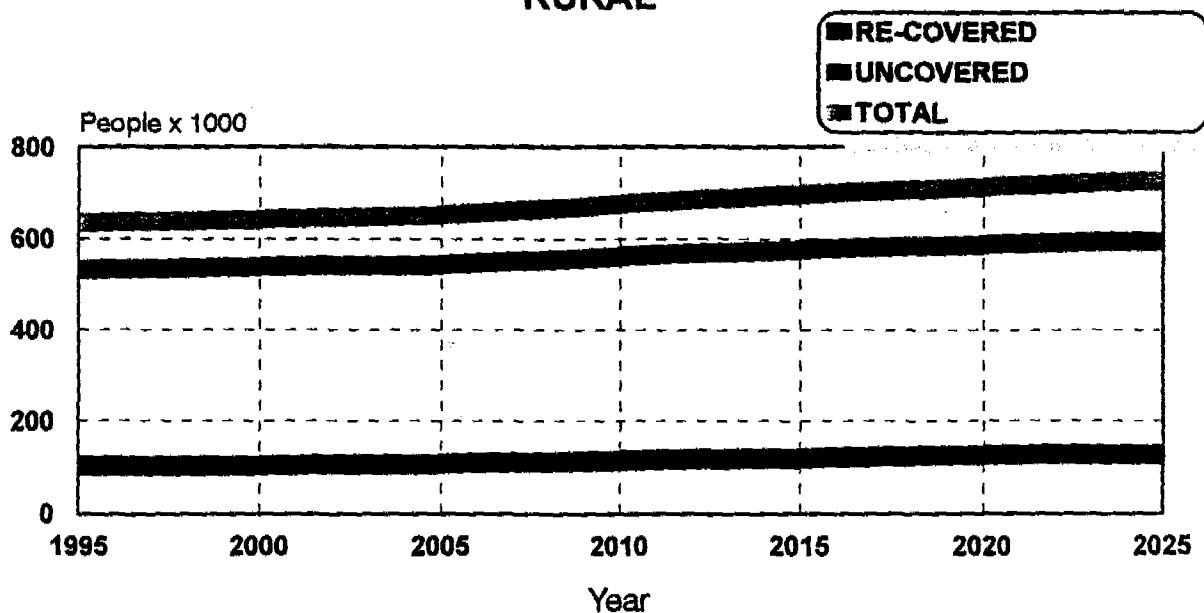
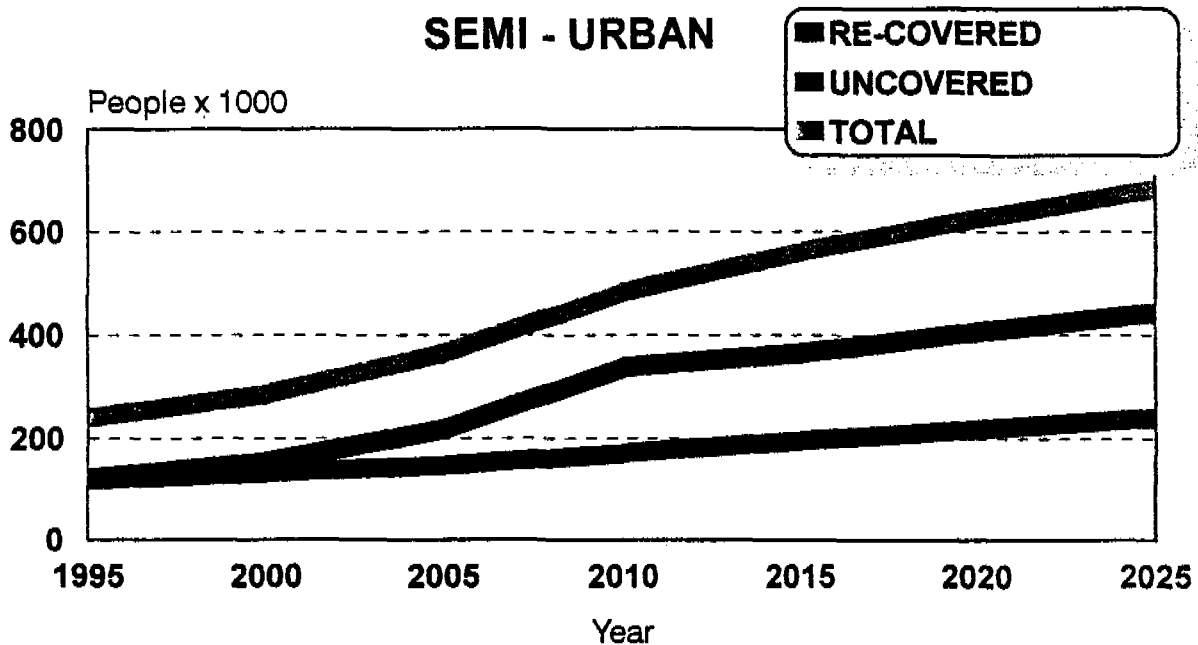


FIGURE 6

PROJECTED GROWTH OF DRWS POPULATION BELOW NATIONAL STANDARD



It will be noted that the semi-urban population to be recovered increases at a much greater rate than that of the uncovered group. This is simply because the existing systems are stretched to the limit. It may well be that, since the national inspection three years ago, the percentage cover to national standard has already decreased to well below 45%. Only a small increase is required to push the remaining communities below that standard.

DRWS is thus faced with a major choice between two basic courses of action. These are:

- The Department can continue as they have done in the past and concentrate exclusively on the totally uncovered population. This means that the covered population in the semi-urban areas will face a steadily declining level of service until, in less than 10 years, no community will have a water supply that conforms to the national standard. However, in the statistics, the coverage figures will be highly flattering to the Department.
- DRWS can vigorously attack the uncovered population whilst at the same time seek to recover those semi-urban communities. This has implications, since it will

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mean changing the definition of covered, at least in the semi-urban areas to mean those communities covered to nation standard. This will have the immediate result of reducing the current population covered from some 915 000 to about 685 000. This is because only about 45% of the semi-urban population are currently covered to the national standard. If no action is taken that figure will fall to zero within the next decade. In addition about 85% of the rural population are covered to national standard. Whilst the underserved percentage is small the total rural population is very large. Thus the underserved portion represents a significant number of people.

Clearly the task facing the Department under the second alternative is much more onerous than under the first.

Over the last five years DRWS has achieved the following average performance per annum:

Average Number of Projects Completed	-	86
Average number of people covered per project	-	425
Average number of people covered per annum	-	36 418

These figures should be borne in mind when viewing Table 2 below. It shows various target dates for full cover against the average production targets per year.

Thus, if DRWS continues in its current state and performs as it has in the last five years, it should, by crude averages, achieve complete coverage of the uncovered population by about 2020. On the other hand, if it attempts to re-cover the under served population as well, it will not achieve full cover within 30 years. In fact, it will lose ground.

The Department has to address the under served population. Failure to do this will mean that all the efforts will have been wasted for about one third of the population already served.

TABLE 2
Production Targets for Various Full Cover Dates

SCENARIO	YEAR OF FULL COVER			
	2010	2015	2020	2025
SCENARIO 1 : UNCOVERED POPULATION ONLY				
Population to be covered:				
Rural	561 399	577 039	588 653	596 932
Semi-Urban	171 730	196 252	219 112	239 995
TOTAL	733 129	773 291	807 765	836 927
Average Number of People per Year	56 395	42 961	35 120	29 890
Approximate Number of Projects per Year	133	101	83	70
SCENARIO 2: UNCOVERED PLUS RECOVERED POPULATION				
Population to be covered:				
Rural	639 124	644 705	645 948	683 338
Semi-Urban	491 526	560 764	636 671	643 748
TOTAL	1 130 650	1 205 469	1 282 619	1 327 086
Average Number of People per Year	86 973	66 971	55 766	47 396
Approximate Number of Projects per Year	205	158	131	112

There is a complicating factor. That is whether DRWS attempts to meet the aspirations of the semi-urban population particularly in regard to household connections. DRWS is finding an increasing demand for these from people who are apparently willing and able to pay for the increased convenience.

Private connections do not increase the population to be covered, but they complicate the problem significantly. They take longer and are more costly to construct, and are significantly more difficult to administer. A much higher level of after care is required.

The Department's production vision has been set. It envisages:

- Full coverage of the uncovered population by 2010. This may not mean full reticulated systems in the most remote villages but they will, at least, have an improved water supply. As shown in Table 2 this means that DRWS will have to cover an average of over 56 000 people per year in this category.
- Re-coverage of the under served population by around the same date. This is entirely dependent on the availability of adequate water sources. They are not likely to be available in a significant number of cases but DRWS will attempt to get as close to the national standard as possible. The total average population to be covered each year now increases to about 87 000 (Table 2).
- The provision of a higher level of service, including household connections, where people want them, will pay for them, and where the water sources are adequate to take the load. This is an ongoing task that will never be completed. DRWS will, however, make a start. This of course does not affect the number of people. But it does increase the complexity of the task and the cost.

This vision dictates the entire production strategy. It cannot be achieved by using the traditional approach. DRWS just does not have sufficient in-house design and construction resources. An alternative approach is needed. This is set out in the chapter covering the Production Strategy.

The financial and human resource implications of the vision are extremely significant. They are examined in the chapter on Cash and Manpower Projections.

6. VILLAGE AFFAIRS STRATEGY

The whole objective of the Village Affairs Strategy is to ensure system sustainability. This is particularly true in the case of high risk projects such as those where water sources are shared between villages and pumped systems that require continual financial contributions by the communities to cover energy costs.

A key factor in sustainability is the ability of the Department to meet the aspirations of the served communities. In the past DRWS has always believed that it served a homogeneous

and largely cohesive rural society. This is no longer the case. The two segments are very different. The typical small and more remote truly "rural" communities are often quite poor and, because of this, are prepared to accept the national quantity and convenience standards. In the larger and fast growing settlements, mainly in the lowlands, this cohesion has disappeared and the society has become more individualistic. They also have increased economic power. A large proportion of those communities are not prepared to accept public standpipes, and are able and willing to pay for the increased convenience. They want house connections. A major factor in sustainability in those communities is the ability to meet the demand, for those households that can afford it.

The strategies are built around this premise.

6.1 The Strategies

Strategy 1: Demand Orientation

DRWS intends to adopt a more demand oriented approach, providing under well defined regulations higher service levels at cost, where feasible. During the planning stage of a project the Department will therefore have to intensify regular consultation with the communities through the VLO Programme to better understand their needs and wishes. For this purpose DRWS will devise and apply efficient and effective means of accessing the people's willingness and ability to pay for water. Conducting a deeper situational analysis will, at the same time, have to clearly define the roles and responsibilities of the people concerned. They will have to understand that the responsibilities associated with higher aspirations are considerable. In particular, higher aspirations cost money.

After having identified the demand patterns in terms of how many people will potentially be able to pay for higher service levels, particularly private connections, the Department will devise feasible ways of controlling and monitoring the consumption, and introduce tariffs that are acceptable to both the customers and DRWS.

Strategy 2: Empowerment

This strategy recognises the need for management capacity at village level to ensure proper day-by-day running of the schemes. This holds particularly true for those high risk schemes with complex O&M processes. Examples have been given and include mainly power pumped

systems, systems that are shared between villages, and systems with private connections. The strategy of empowerment aims primarily at such cases, and intends to strengthen, over time, the social, administrative, legal and technical competence and capacity of these communities. To put the empowerment process on a sound foundation DRWS will have, in the first place, to develop and promote management systems for O&M that fit the specific realities of each case. They will have to define the roles and responsibilities of the communities and the individual users, in the light of the specific local socio-economic conditions. This will happen in close consultation with the communities themselves and is therefore already an essential ingredient for empowerment. The consultation process will also allow the Department to better define the skill gaps that need to be closed, and in what way this can be done.

Ultimately DRWS will provide well targeted training inputs to equip the local authorities with the necessary skills and competence to take charge of their system.

Strategy 3: Authority and Ownership of the Water Schemes

One of the key strategies to address community related problems is to develop and disseminate an ownership concept which defines the powers that the communities, particularly their representing bodies (Local Government) should have, and how they should be enforced in a manner that is legally and socially acceptable. At the same time the concept will have to describe the rules, regulations and limits the communities have in intervening with their schemes, and define exactly what remains that will be controlled by DRWS.

Strategy 4: After Care

A main thrust of the Village Affairs strategy is aimed at achieving sustainability through a vigorous programme of after care. This means emphasising the stage after construction where the system has been handed over to the community to take full responsibility for its operation and maintenance. DRWS believes that this is the correct approach to safeguard the investment made in the rural communities of Lesotho. The Department will thus revise the present VLO intervention approach with the communities. In place of having only one VLO per district, DRWS will build on the area based approach used in construction, and allocate one VLO per area. He will be in contact with the particular community over the entire project life cycle. The size of the area will depend on the population to be covered and the risk and complexity of the existing schemes. This will determine the workload of the individual VLO, which will largely consist of advising the communities in all matters related to their water supply, in continuing with the empowerment process, and in assisting with

conflict solving support. Beyond that, he will supervise and liaise with the area maintenance contractor. The employment of area maintenance contractors is part of the maintenance strategy as described in a later section. The After Care strategy will require more VLOs than DRWS presently has. It is likely that the additional personnel will be recruited from those masons who, in the light of the new production strategies, are willing to make a career shift.

7. PRODUCTION STRATEGY

DRWS has in the past achieved significant coverage of the population requiring piped water. At present the national coverage is about 58,2%. Extending this will become increasingly difficult over the years to come for the following reasons:

- Most of the areas with larger population concentrations are already served even though in many cases water supplied per person is below the desired standard. Rehabilitation of those water supply schemes does not currently account for new population covered.
- New adequate water sources are difficult to find and, in many cases, springs already caught are providing lower yields than they did when originally measured.
- The uncovered population tends to be in smaller communities living in the remote areas. The more remote the area, the smaller is the population per village.

Therefore, future production is going to have two major characteristics:

- An increasing number of difficult recoverage projects.
- A large number of new projects constructed with smaller populations served per project.

7.1 The Strategies

The overall strategy is based on the following assumptions:

- The DRWS area of supply will continue to be the whole of Lesotho with the exception of those areas covered by other "official" authorities.

- The fundamental sources of water will continue to be springs and boreholes. DRWS will additionally consider the use of surface water where this is practical and economic. However, the Department does not believe this to be a significant alternative on a large scale. Surface water requires treatment and the operation of those plants, in most cases, will be beyond the financial and managerial capacity of the communities involved.
- DRWS will tap into bulk water supplies as soon as it is possible and practical to do so.

The key strategies are listed below:

- ***Strategy 1***
DRWS will make extensive use of the private sector for both design and construction. This is essential because the Department does not have the capacity to reach the objective of full coverage by 2010 alone. In the medium term DRWS will outsource the vast majority of its projects.
- ***Strategy 2***
The donor paid masons who are in the employment of DRWS will be placed under performance based labour contract to achieve better productivity.
- ***Strategy 3***
The Department needs to increase resources for design and construction. The NGOs work in the DRWS area of supply, and are, in fact, an extension of the departmental resources. DRWS welcomes them, and will actively seek their co-operation and help.
- ***Strategy 4***
DRWS acknowledges that there is a desperate need for close co-ordination between all players in the water sector. Until a body is formally constituted to perform that role, DRWS will informally liaise with all those players during the planning and implementation processes.
- ***Strategy 5***
Ultimately everything that the Department does is for the benefit of the communities. The ultimate sustainability of the systems depends on their ability to manage, operate and maintain them. This strategy involves continual

contact, liaison, information, education and training, involvement and support throughout the project life cycle.

- ***Strategy 6***

The Department's success is dependent on the availability of funds to carry out the mission. DRWS will actively promote itself to and co-operate with the donors. This is aimed at achieving a stable partnership that will serve the ends of both parties.

8. TECHNICAL STRATEGY

DRWS is well established technically. A considerable effort has been expended over 15 years to create a pool of people with excellent technical qualifications. In addition, experience has been gathered over that time which has resulted in a comprehensive body of knowledge contained in extensive design manuals, drawings, specifications and standards.

However, the Department's approach has been concentrated on a uniform national standard that has been applied, without question, to all communities. The designs have not taken account of the different needs and desires of the two segments of the population, and their differing growth rates.

DRWS has, in the past, only used two sources of water, springs and boreholes. These are now proving to be inadequate particularly in the densely populated lowlands. Surface water, owing to its cost and complexity, will never be a major water source for rural communities. It will, however, provide a solution in selected larger population groupings who are relatively more wealthy and who are located close to the necessary technical expertise. DRWS needs to address this solution and develop technical guidelines for it.

With the move towards the private sector more formal procedures for quality control are required. The Technical Unit of DRWS must take up this quality assurance role.

The DRWS Technical Strategies are built around meeting these needs for the future.

8.1 The Strategies

- **Strategy 1**
Develop technical guidelines so that designers may respond to community demands where these are reasonable and feasible.
- **Strategy 2:**
Install design procedures that take account of population demographics. This will ensure that designs are able to cope with growing populations and that re-engineering will not be required after a relatively short period, or if the community is absorbed into an urban supply.
- **Strategy 3:**
Examine the potential for surface water supplies through a pilot scheme. From that develop engineering guidelines so that this source may be exploited in the future where it is necessary and desirable to do so.
- **Strategy 4:**
Develop and install comprehensive quality control procedures for both new construction and maintenance.
- **Strategy 5**
Implement specific, additional, design checking procedures for high risk projects. These will ensure that DRWS does not create an unwitting threat to sustainability in the basic design of the scheme.

9. MAINTENANCE STRATEGY

Centralised maintenance of rural water schemes, particularly where it is under the control of central government, is ineffective. This simple fact has been proved repeatedly all over the world in developing countries. DRWS has been no exception to the rule. This was demonstrated by the National Inspection carried out in 1995 (Rural Water Supplies in Lesotho. Findings from a Nation-wide Inspection. Sechaba Consultants, August 1995). The inspection showed maintenance, or lack of it, to be a major threat to sustainability on all fronts. The most sobering fact was that DRWS was not even aware of the situation.

There are very valid reasons for this and some are listed below:

- The whole focus of DRWS has always been on new projects. The measure of success is people covered. There is little recognition for efforts in maintenance.
- Maintenance is a grinding, day-to-day administrative routine. Individuals and organisations that are project focused do not handle maintenance well and quickly lose interest.
- The maintenance organisation is under-staffed and under-equipped. Spares are a major problem.
- Heavy reliance is placed on the communities. For whatever reason, they do not carry out the tasks that they have undertaken to do.
- Problems created during construction are carried over into maintenance. This is the result of poor construction supervision.
- The government environment and bureaucracy.

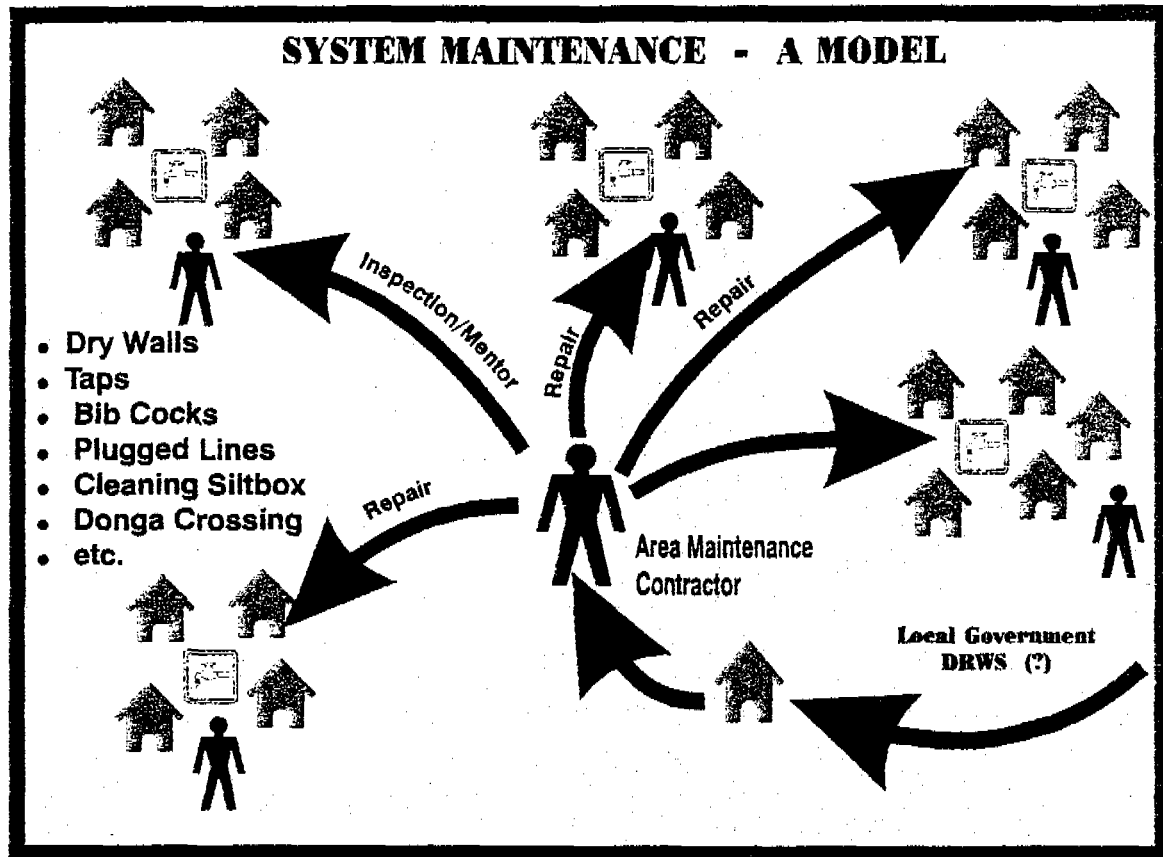
Since the end of 1995 DRWS has made very real efforts to improve the situation. Greater emphasis has been placed on maintenance, and handpump repairs have been outsourced to the private sector. This has achieved results, but it is not enough. There is still a backlog and a significant number of repairs still take longer than six months to complete. The Department just does not have sufficient capacity to meet the challenge.

A totally new approach is required.

9.1 The Strategy

The thrust of the new strategy is to decentralise and privatise maintenance, to emphasise prevention and to become more proactive. The approach is illustrated diagrammatically below:

FIGURE 7
Maintenance Area Contractor Concept



The key figure is the Area Maintenance Contractor. The contractor will be a private company, or an individual depending on the area to be covered. He will liaise with the sub-structure, which is responsible for matters related to the scheme at village level. The key points of the strategy are:

- Complete decentralisation of maintenance to Area Maintenance Contractors. Ultimately the villagers will contract directly with, and pay, the Area Contractor.
- Emphasis on preventive inspections of all systems in an attempt to predict breakdowns.

- The area contractors will be employed by DRWS until such time as the villagers are able to pay 100% of the maintenance costs, and manage the contractor. DRWS will pay the contractor a retainer to cover his preventive maintenance inspections. He will be paid directly by DRWS for individual repairs carried out, according to an agreed table of rates.
- In the medium term DRWS will subsidise the cost of maintenance and, as in the past, will recoup as much as possible from the villagers.
- The duties of the Area Maintenance Contractors will be:
 - Preventive maintenance (half yearly inspections of water supply systems)
 - Repairing donga crossings, spring catchments, pipes etc.
 - Reporting on the status and condition of the systems to DRWS
 - Reporting and informing DRWS about breakdowns that require specialist expertise and skill.

The Area Maintenance Contractors will have to liaise with the VLO and the representing bodies at village level. They will be craftsmen qualified in bricklaying or plumbing and preferably living in the same area as the village.

- The work areas for the Area Maintenance Contractors will be defined by the districts when doing their area planning. The areas will be determined such that the contractor will have sufficient villages under his care to make a reasonable income.
- The Area Maintenance Contractors will be employed under normal government procedures. They will be appointed for three to five year contracts.
- All handpump repairs and other more sophisticated works such as borehole drilling, engine repair, and so on, will be sub-contracted to specialised private sector contractors.

This is an innovative concept that has yet to be tested. A detailed feasibility study will be carried out before it is implemented. This will take place over the next 12 to 18 months.

10. STATEMENTS OF POLICY

Policy statements flow naturally from the strategy formulation process. The DRWS strategy workshops produced 54 policy statements. That list is incomplete. More will appear as the strategies are implemented. Ultimately they will be codified into a DRWS policy manual. This is one of the strategy implementation projects.

The policy statements, as they now exist, are contained in Annexure I to Volume II of this documentation set - Description of the Strategy.

11. IMPLEMENTATION PLAN

The most difficult part of any strategy is its implementation. A very specific plan has to be developed if that is to succeed.

Change has to be managed on two fronts. These are:

- The change required in human attitude and behaviour. This is often referred to as the "soft" side of the transformation.
- The task oriented portion of the change, or "hard" side, that involves the development and implementation of the new business processes required.

Each of these is described briefly below.

11.1 Managing the Human change

The vehicle that will be used to facilitate the process is Situational Leadership. This is undoubtedly the most widely used leadership model in the world today and is particularly applicable in situations where there is a high rate of change. Formal training will be provided in the technique at all levels in the organisation during 1997 and early 1998. That will be followed by a prolonged period of individual on-the-job coaching so that they learn to apply the philosophy in their day-to-day work. That period will last for at least a year.

The change will also be facilitated by providing extensive managerial technique and skills training. The programme will be phased in to coincide with the introduction of the new business processes. It will also be supported by on-the-job coaching provided by both the consultants and the line managers. This programme will start in 1997 and run through until 2000.

11.2 Business Processes

Implementation here will be done through specific projects aimed at achieving very clear goals. The outcome is, in most cases, a new business process. These projects will be completed progressively over a three year period ending in about the year 2000. Each project will be led by a project manager, and a supporting organisation has been created to co-ordinate the whole process.

The methodology has very definite benefits. It divides the overall task into manageable elements, and everybody is very clear as to what the goals are at any moment in time. It gives focus to the whole effort.

The total number of projects in the implementation plan at present is 37. Additional ones may be added as time progresses.

11.3 Implementation Schedule

Having defined the projects a brief scope was developed for each of them. They were then ranked in order of priority. The first priority projects were planned in detail. The remainder were given a notional time span, and sequenced over the three year implementation period. The workload on the individuals involved was taken into account during the process.

The summary bar chart that follows gives the overall schedule. It has been colour coded by the functions within the Department as follows:

- Yellow The Business of DRWS
- Blue Production
- Green Maintenance
- Red Human Resources
- Pink Village Affairs
- Teal Technical.

ID	Task Name	Duration	1997			1998				1999				2000				
			Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
	DRWS - OD/MD Project - P-ECS Work Plan	606.4d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 2000]															
	Project 4 - Storage and Heavy Transport	324d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1997]															
	Project 13 - Master and Area Planning	327d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1997]															
	Project 15 - The Project Management Process	247d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Project 28 - Maintenance Area Contractor Concept	322.5d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1997]															
	Project 31 - Manpower Planning and Development	252d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Project 32 - Job Category Functions	290d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1997]															
	Project 8 - Management Processes for O & M	370d	[Gantt bar spanning from Qtr 2 1997 to Qtr 2 1998]															
	Project 7 - Ability and Willingness to Pay	403.75d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1998]															
	Project 9 - Accepted Practises	380d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1998]															
	Project 6 - Payment of Village Labour	412.5d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1998]															
	Project 22 - Revision of Design Manuals	231.25d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Project 19 - Construction Specifications	63d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Project 20 - Guidelines for Private Connections	590d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1998]															
	Project 21 - Guidelines for Surface Water Schemes	216d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Project 22 - Water Consumption Rates	305d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1997]															
	Project 24 - Guidelines for High Risk Projects	565d	[Gantt bar spanning from Qtr 2 1997 to Qtr 4 1998]															
	Project 27 - Quality Control System	250d	[Gantt bar spanning from Qtr 2 1997 to Qtr 3 1997]															
	Remaining Projects	622d	[Gantt bar spanning from Qtr 1 1998 to Qtr 4 2000]															

ID	Task Name	Duration	1997			1998				1999				2000			
			Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	Project 3: Policy Manual	183d															
14	Project 5: Premises Security	240d															
18	Project 10: Spring Evaluation by Villagers	200d															
22	Project 11: Flexible Standards	270d															
26	Project 12: Village Affairs Process	270d															
30	Project 14: Co-operation with NGOs	200d															
34	Project 16: Project Cost Control	300d															
38	Project 17: Sector Co-ordination	70d															
42	Project 18: Promotion of Small Contractors	310d															
46	Project 25: Stds. for High Pop. Density Areas	270d															
50	Project 26: Design File Standards	60d															
54	Project 29: Maintenance Management Process	250d															
58	Project 30: Maintenance Organisation	190d															
62	Project 35: HR Strategy	240d															
66	Project 33: Manpower Planning - Phase 2	110d															
70	Project 36: Performance Appraisal	250d															
74	Project 34: Manpower Development	532d															
81	Project 37: Personnel Administration Process	210d															

The implementation of the Village Affairs strategy is a continuous thread throughout the whole process. The rest has been divided into three major phases, spread over the three years. These may be described as:

- The Year of Production - present
- The Year of Maintenance - 99-2000
- The Year of Human Resources.

The concentration is thus initially on production. This is unavoidable since DRWS is still a production oriented organisation.

The feasibility study for the Maintenance Area Contractor concept is done during Year 1. The new maintenance strategy is then implemented during Year 2.

The main thrust in Human Resources is to attempt to move the organisation towards being far more goal oriented than it is at present. That, in any government anywhere, is a major shift. It is, however, in tune with similar attempts being made in governments all over the world. This requires a major cultural shift within DRWS. That will be facilitated through Situational Leadership. The processes will be implemented during Year 3.

Management Development, which was started last year at the senior levels, continues over the whole implementation period.

12. FUNDING AND MANPOWER REQUIREMENTS

The new strategy will have a profound effect on both the human resources and the capital funding required by DRWS. This section reviews the capital requirements, gives a brief review of the impact on the Department's human resources, and, finally, makes some preliminary estimates of the maintenance costs.

12.1 The Scenarios Open to DRWS

The National Coverage Plan defines two scenarios that are open to DRWS. There is a further sub-scenario to the second one. That is to provide higher standards of service, such as private connections, to those that can afford them. The scenarios are explained in some detail below:

- ***Scenario 1 - As Is (Uncovered Population only)***

Here the Department concentrates only on the uncovered portion of the rural and semi-urban population. Other than ongoing maintenance, which seeks only to repair a system and return it to its original state of operation, the covered villages are left to fend for themselves.

All the work is done by DRWS labour crews, as in the past. Engineering and design are done in-house with only limited use being made of outside consulting engineers. Material is procured by DRWS and transported to site by departmental vehicles. The villagers provide free construction labour as their contribution to the capital cost of the project.

This is the benchmark scenario since it projects the methodology of the past into the future. DRWS has significant experience of the results produced by this approach and a considerable amount of data, although that data required considerable work to get it into a useable form.

- ***Scenario 2 - Cover plus Re-cover***

In this scenario DRWS still concentrates on the communities that have no improved water schemes. In addition, they re-engineer and re-construct those schemes that are below national standard. Clearly the order of priority is to attack those projects that are the furthest from national standard first.

➤ Three types of construction resources are used. These are:

- * **Own construction crews.** These are phased out over three years.
- * **Contract Labour.** DRWS intends to place the current, donor paid, masons onto performance based labour contracts. Transport and material are provided by DRWS as a free issue.

Village labour is paid under this scenario. The mechanism for doing this is that DRWS will pay the contractor a fixed sum per project. He will recruit, and pay the unskilled labour that he requires.

- * **Private Contractors.** Private contractors execute the projects necessary to meet the production targets that are beyond the capacity of the own crews and the contract labour. They are a top up resource.

Since DRWS has a policy not to recruit anymore masons, natural wastage will reduce the size of their own and contract crews over time. Thus the private sector will automatically play an increasing role in construction as the years pass.

Construction resources are not the only ones outsourced under this scenario. Extensive use has to be made of external consulting engineers. DRWS design resources will have to devote more of their time to construction supervision as the tempo of site activity increases.

- ***Scenario 2.1: Higher Service Levels***

This option is similar to Scenario 2, except that private connections are provided in a limited number of cases.

12.2 Capital and Manpower Projections

A resources model has been constructed to predict the effect of the various options on funding and manpower. It is a dynamic model that is extremely flexible and powerful.

Table 3 on the following page shows the results for each of the scenarios at various full cover dates.

TABLE 3
Capital and Manpower Requirements

SCENARIO	YEAR OF FULL COVER			
	2010	2015	2020	2025
SCENARIO 1 (RUN 1)				
Cumulative Projects Completed			3443	
Mean number of Projects per Year			81	
Mean number of People covered/Year (x 1000)			35	
Cumulative Total Capital Cost (Mxm)			172	
Annual Cost Range (Mxm)			8 to 9	
Manpower in Key Positions				
District Engineers			7	
Village Liaison Officers			10	
Senior Technical Officers and Technical Officers			30	
Construction Supervisors			31	
SCENARIO 2 (RUNS 2-5)				
Cumulative Projects Completed	4280	4357	4492	4683
Mean number of Projects per Year	202	149	122	108
Mean Number of People Covered/ Year (x 1000)	82	65	52	45
Cumulative Total Capital Cost (Mxm)	334	367	381	416
Annual Cost Range (Mxm)	24 to 28	19 to 22	16 to 20	13 to 17
Manpower in Key Positions				
District Engineers	10	8	7	6
Village Liaison Officers	19	15	13	11
Senior Technical Officers and Technical Officers	55	45	36	31
Construction Supervisors	55	44	38	32
SCENARIO 2.1 (RUNS 6-8)				
Cumulative Projects Completed	4216	4295	4527	
Mean Number of Projects per Year	197	154	125	
Mean Number of People covered/ Year (x 1000)	84	67	54	
Cumulative Total Capital Cost (Mxm)	354	377	394	
Annual Cost Range (Mxm)	26 to 30	21 to 24	18 to 22	
Manpower in Key Positions				
District Engineers	10	8	7	
Village Liaison Officers	19	15	13	
Senior Technical Officers and Technical Officers	55	45	36	
Construction Supervisors	55	46	38	

The chosen scenario is 2.1 with an end date of 2010.

The current DRWS complement in key front line positions is:

- District Engineers 10
- Village Liaison Officers 10
- Senior Technical Officers and
Technical Officers 20
- Construction Supervisors 27

Thus the supervision requirements for the chosen course of action are far in excess of the manpower available. There is some excess manpower currently in positions that are no longer required, such as drafts people. In addition some masons will not wish to take labour contracts. The extent of the shortfall will only be known once a study into this area has been completed. The final lack of capacity will be made up by drawing from private sector consulting engineers.

12.3 Maintenance Costs

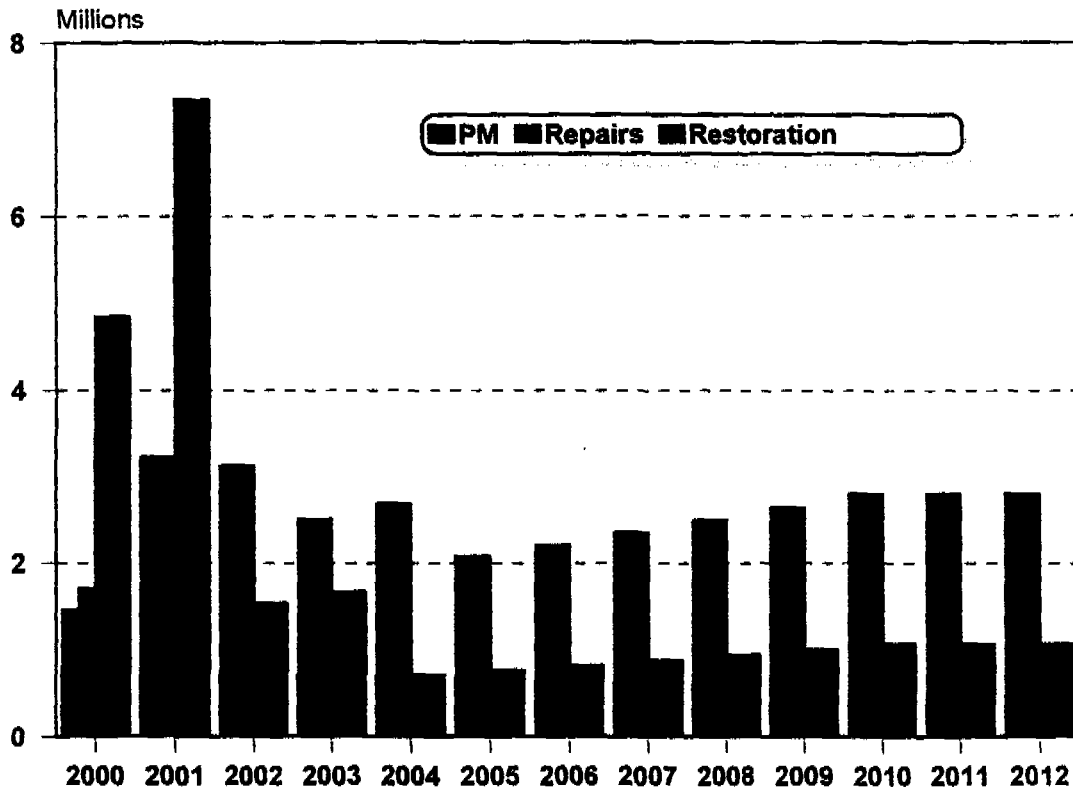
DRWS just does not have the manpower to cope with the rising maintenance workload. By 1998 the actual repairs required, expressed in mandays of work, will be equal to about three times the Department's capacity to carry out that work. By the year 2012 the load will exceed the capacity by a factor of 6.

These simple facts have led to the adoption of the new strategy (see Chapter 9). In future maintenance will be carried out by Area Maintenance Contractors. Their service will be in two parts:

- Regular inspections of each installation, probably on an annual basis. The necessary repairs are carried out as part of the inspection.
- The repair of reported failures that occur between inspections.

The estimated cost of this strategy is shown in Figure 8 overpage.

FIGURE 8
Costs under Area Maintenance Contractor



It will be seen that the Preventive Maintenance (PM) costs rise initially as the systems are brought back to an acceptable condition. They then rise steadily from 2005. This is merely due to the large number of new projects coming on stream. The cost of breakdown repairs falls steadily over the same period.

A restoration programme is also required. This is caused by the fact that some 25% of storage tanks are currently leaking, and over 50% of the entire installed pipe length is exposed. These are caused purely by age and erosion. The costs are represented by the green bars on the chart. A peak occurs in the first two years. After that the pattern is similar to the PM costs.

It must be emphasised that the costs calculated here are very preliminary estimates. At this stage there are a very large number of unknowns. Better estimates will be available once the Area Maintenance Contractor Feasibility Study is completed in mid 1998.

12.4 Notional Budgets

It is difficult to visualise all the costs in isolation. Notional Budgets have therefore been prepared for three snapshots in time. They are given in the table below:

TABLE 4
Summary of Notional Budgets at Four Points in Time

DESCRIPTION	1995/96 M x 1000	2000/01 M x 1000	2001/02 M x 1000	2005/06 M x 1000
RECURRENT EXPENDITURE	4 390	4 390	4 390	4 390
Salaries, Wages and Allowances	3 227	3 227	3 227	3 227
Vehicles and Travel	198	198	198	198
Premises and Counterpart Contribution	965	965	965	965
DONOR EXPENDITURE (incl. GoL)	11 587	38 763	41 738	32 318
Capital Costs	10 617	31 385	30 400	28 420
• Water Systems	9 425	28 885	27 900	27 270
• Other Capital	1 192	2 500	2 500	1 150
Maintenance Costs	966	7 374	11 334	3 894
• Water points and Reticulated Systems	37	5 871	9 318	2 325
• Handpumps	903	1 452	1 965	1 518
• Vehicles	26	51	51	51
Other Costs	4	4	4	4
GRAND TOTAL	15 977	43 153	46 128	36 708

1995/96 is taken as a benchmark and all figures are in constant Maloti.

It will be noted that the capital costs remain at the same order of magnitude. The maintenance costs, however, follow the pattern shown in Section 12.3.

Again it must be emphasised that these figures represent only orders of magnitude. They must in no way be construed as budget forecasts.

13. CONCLUSION

Strategies are not cast in stone. They represent the best course of action, as seen by the formulation team, at the time of developing the strategy. The strategy will change as the environment surrounding the organisation changes over time. That will be true of DRWS. The Department's strategies will be reviewed regularly and actions altered to suit the changed circumstances.

The Department is about to enter a period of negotiation with its stakeholders. Once that is complete the document will be amended and published. At that point the Department trusts that it will have the full support and co-operation of all its stakeholders. It is then up to DRWS to make it work. The Department is confident that it can rise to that challenge.

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