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MINISTRY OF WATER AFFAIRS AND FORESTRY  
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# National Water Conservation Campaign

## Concept Document

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Republic of South Africa

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**INTRODUCTION**

South Africa is not well endowed with water resources. It has a very modest average annual rainfall. The areas of the country where water is most needed do not coincide with where it is most abundant. The proportion of water used by different sectors of society also differ widely as follows: - *TO COME*

As development increases the demand on the country's water resources nears the point where it exceeds the potential supply which has already happened in many catchments around the country. The demands of different sectors compete. At the most critical level of demand there are an estimated 12 to 16 million people in the country without adequate access to even the most basic of domestic supplies. As water forms the platform for all development, the meeting of these needs is a primary objective of the Reconstruction and Development Programme. The RDP, however, is not only about meeting basic needs - it is about the restructuring of the entire society. It is on this basis therefore that affordable ways must be found to ensure that the water needs of the population and the economy are found.

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The development of water supply infrastructure is very expensive requiring large capital outlay. Other strategies must be found to meet the demands equitably but there are very few options - either we need to push the systems to the limit and continue to build ever more expensive infrastructure with ever diminishing returns, or we can reduce and manage the demand. The answer will have to be found in a balance between these alternatives. Demand management and water conservation are almost synonymous. Water conservation is the objective; demand management is the tool.

Conservation is an issue which cuts across many different sectors including the environment, agriculture and water. Whilst topics such as soil conservation and nature conservation are well known and a great deal of work has been done in such areas, relatively little has been done in the field of water conservation.

As the demand for water grows, new water supply schemes are having to be developed at ever increasing costs. Resources such as ground water are being depleted in excess of recovery rates and the environment is beginning to show signs of stress as rivers and springs run dry. People who depend on such resources are being thrown into crisis as drought follows drought.

Water conservation therefore goes a lot deeper than saving water at home. It has to do with the whole environment because water is not only necessary to sustain human life, agriculture and industry - it is necessary to sustain all life. Therefore the proposed water conservation campaign will encompass a broad set of issues and will engage a broad sector of society.

Talking of conservation to the many thousands of communities who do not have any water will need to be handled sensitively. The objective is to reduce the usage of water by those privileged enough to have supplies so that there is enough to go round for all.

### CONCEPTUAL BACKGROUND

Water conservation can be divided into two basic areas :

- protecting the sources of water, and
- conserving the amount of water which is used.

Protecting the sources of water includes both natural sources of water and the country's water storage infrastructure from degradation.

The various issues relating to these two basic areas of water conservation are discussed in greater detail below.

Water utilisation and water conservation management are essentially questions of balance. A balance needs to be struck between ensuring that the environment is protected (which is the resource base), that water is available on an equitable basis to all citizens in the country, and that water, as a major production input in agriculture and industry, is not priced such as to adversely affect the economy. A long term view has to be taken both because the State has a responsibility as custodian of resources for the present and the future, and because the implementation of any large infrastructure requires at least ten, if not twenty, years to plan and execute.

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In order to strike such a balance, it is necessary to distinguish between the *cost* of water and the *value* of water. Tariffs in South Africa have generally been set in order to cover the cost of water - to cover the capital redemption and the recurring costs. In some instances they have been set to cover the long term marginal costs, that is to cover the costs of the next augmentation scheme to meet ever increasing demand. Using tariff structures as demand management tools means that tariffs may be set higher than the cost of water and perhaps closer to the *value* of water as perceived by society. It is in this debate that the possible effects on the economy must be weighed against the consequences and costs of not conserving water.

A conservation campaign must essentially seek to find this balance. The issues which should be covered are:

- Domestic and municipal water usage,
- Industrial and mining water usage,
- Agricultural water usage,
- The environment as the resource base,
- Tariff structures and levies as water conservation tools,
- Water loss management,
- The soil / water interface,
- Legislative implications.

### DOMESTIC AND MUNICIPAL WATER USAGE

Domestic and municipal use of water does not account for the major proportion of water usage in the country but it is the point at which most people relate to water from day to day. It is important to build a culture of conservation in the individual and in the home if we are to build such a culture in the country as a whole.

Municipalities and local authorities vary greatly in size, in water demands and in the sources of water used around the country. These bodies need to understand water conservation and there needs to be incentives for such bodies to take the issue seriously.

The sectors which need to be engaged in a conservation programme are:

- Civil society : SANCO, Consumer organisations, rate payers' associations,
- Water boards,
- Municipalities and local authorities,
- Bodies such as hospitals, educational institutions, parks and recreational facilities.

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- Relevant government departments.

Discussions need to include the impact of water saving alternatives, incentives to business and domestic consumers to conserve water, technical options and the use of tariff structures to manage demand.

### INDUSTRIAL AND MINING WATER USAGE

Many industries use large amounts of water, particularly the “wet” industries such as the paper, leather and textile industries. Some industries use water as a process element and others use it consumptively as a part of the product such as the soft drink bottling industry.

Whilst water is a component part of many mineral processing activities and is needed in the mining industry, mines are often net producers of water through mine de-watering activities.

Industry needs to come together as a sector and discuss the question of water conservation. This is in order to ensure that the sector is involved in decisions which affect them and to assist compliance with recommendations or regulations. The impact of using tariff structures as a demand management tool on each industry will need to be assessed.

Groups which will need to be involved and could be useful is co-ordinating the debate amongst their respective constituencies are:

- NAFCOG,
- SACOB,
- the Chamber of Mines
- relevant government departments
- As many industries are supplied water in bulk from water boards, such boards will also have to be engaged in this element of the conservation debate.

### AGRICULTURAL WATER USAGE

Agriculture is the largest user of water in the country. Whilst there are many farmers who do use water economically, there is much wastage. The management of water in South Africa has generally favoured the agricultural sector and the water is generally used without payment unless it is supplied from a Government Water Works. Creating a culture of water conservation in most parts of the country will not be easy, particularly as the Water Act, 1956, does not encourage this because of the system of entitlements which exist at present. Irrigation boards have been in operation for many years in the country and provide one model of a relatively successful self policing mechanism for regulating apportionment of water in their areas of jurisdiction. They do not however regulate how the water is used on any particular piece of land.

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The problem which exists in any such campaign is enforcement. Whilst much of the success of a campaign will depend on the voluntary participation of water users, legislation will have to be considered as well. In certain areas where the existing resources have already been largely or entirely apportioned, demand management may be the only viable method of ensuring that many citizens, who do not at present enjoy water rights, are enabled to get water. In such cases certain irrigation methods may have to be prohibited in order to reduce demand.

There are a number of parties who will be directly interested in water demand management, including:

- the SAAU and the various provincial agricultural unions,
- rural communities,
- Agro-industry,
- irrigation boards,
- Relevant government departments.

Research will be necessary to establish if sufficient knowledge exists regarding the efficiency with which agricultural water is used in South Africa.

## **THE ENVIRONMENT AS THE RESOURCE BASE**

The water needs of the environment have been a topic of increasing urgency over the past years. In many South African catchments research has been conducted into the sustainable needs of the environment and environmental impact studies are now required for most development activities. The effects of increasing industrial, domestic and agricultural demand on the environment must be assessed in order to establish the importance of, and need for, a national conservation campaign.

The sectors which will need to be involved are :

- Civil society,
- NGOs and environmental activist groups,
- Universities and institutes,
- Relevant government departments.

Preliminary work in preparation for the National Conservation Campaign should be commissioned, perhaps from the Environmental Justice Network Forum.

## **TARIFF STRUCTURES AND LEVIES AS WATER CONSERVATION TOOLS**

Incentive is needed to assist in the enforcement of any programme which may call for sacrifice of one form or another from the public, particularly the business sector where profitability may be

## NATIONAL WATER CONSERVATION CAMPAIGN

affected. The relationship between the cost of water and its value is briefly discussed above. This needs to be expanded.

There are a number of research contracts into tariff structures presently being administered by the Water Research Commission. One is an urgent research project recently approved by the Water Research Commission and being carried out by Eric Hall and Associates. The project is to investigate the use of tariffs as a management tool and to use the proceeds of the higher tariffs for luxury use to subsidise the provision of water to indigent communities. Other projects are being done by the Palmer Development Group.

Policy needs to be formulated to take the basic policy statements made in the Water Supply and Sanitation White Paper further. This obviously affects all of the sectors mentioned above.

### WATER LOSS MANAGEMENT

It is estimated that unaccounted of water in South Africa amounts to more than the amount of water actually sold in Johannesburg, Durban and Cape Town together. Unaccounted for water results from leaks, wastage and unmetered usage. It is therefore clear that a major part of a conservation campaign must be the control and management of loss.

In many instances there is little motivation for a municipality to reduce loss because the costs of renewing old pipe systems and undertaking leak detection programmes are in excess of the costs of the water which is lost. Here again incentives are needed to encourage more effective loss management.

Research has been done on leak detection and loss management but specific work will need to be done in preparation for the Campaign.

### THE SOIL / WATER INTERFACE

Soil conservation and water conservation are closely related. As soil cover deteriorates through improper land use and the top-soil is laid bare, it is eroded by wind and water. This has three major effects:

- The ability of the soil to retain water is reduced. This increases run-off and the potential for flooding and it reduces the infiltration potential of the soil resulting in less soil moisture being available for plant growth and less groundwater recharge resulting in decreased available groundwater. This can have a disastrous long term effect on the environment and on communities' water supply.
- Top-soil and silt is transported to dams and other water supply infrastructure hence reducing their useful life which in turn results in vast capital outlay to augment reduced water supply.
- Water quality is adversely affected which implies increased treatment costs.

## LEGISLATIVE IMPLICATIONS

Many of the issues touched on above have legislative implications. The Campaign will be well placed to fit into the law review process which the Department of Water Affairs and Forestry is embarking on. The specific legislative impact will only become clear as the Campaign progresses. In all of the different areas above the need for legislation will have to be born in mind as the topics are discussed and expanded.

## CAMPAIGN PROGRAMME

The first requirement is the drawing up of a detailed Campaign programme. It is suggested that this be done by a small Steering Committee which should be set up as soon as possible and should perhaps use this paper as a starting point. Elements of such a programme could be the following:

- The Campaign will be started with a national announcement in March and will be the focus of the 1995 Water Week. By this time a detailed national programme will have been prepared which will be made public.
- A national conference will be called in June to investigate the preparation of a National Water Conservation Policy which will then be published as a White Paper. This will be preceded by the preparation of theme papers on the topics mentioned in this paper and any other issues brought up by the Steering Committee.
- A national schools poster competition will be launched with prizes sponsored by industry leading to an exhibition which may be opened by the President where the prizes will be awarded. This will be part of the May conference.
- There are a number of areas where further research is required. It is proposed that a special research fund be established through the WRC for which proposals will be called and awarded at the ceremony mentioned above.
- Many of the areas may not be adequately covered during the proposed May conference and may require further meetings, for instance specific separate meetings may be held to discuss issues relating particularly to agriculture, the economic impact of demand management, loss management, municipal water usage etc. This will provide an on-going element to the Campaign to take it at least until the end of the year.

## CONCLUSION

The proposed National Water Conservation Campaign of the Department of Water Affairs and Forestry must be seen within its context in the whole strategy of the Department. During the past year the Minister of Water Affairs and Forestry, Prof. Kader Asmal, MP, has initiated through the Department a number of interlinked programmes aimed at ensuring a holistic approach to water supply and water resource management in South Africa.

These include:



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- The establishment of the Community Water and Sanitation Branch of the Department,
- The publication of the White Paper on Water Supply and Sanitation,
- The establishment of the National Water Advisory Council,
- The establishment of the process whereby South Africa's water law will be completely reviewed,
- The initiation of the setting up of the National Community Water and Sanitation Training Institute,
- The holding of a national Forestry Policy Workshop which is leading to a White Paper on new Forestry policy,
- The undertaking of 12 Presidential RDP water supply projects for rural communities,
- The continuing running of all the many essential functions of the Department.

The National Water Conservation Campaign forms part of this broad strategy and will have a major impact on the use of one of the country's most valuable and scarce resources - water.

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