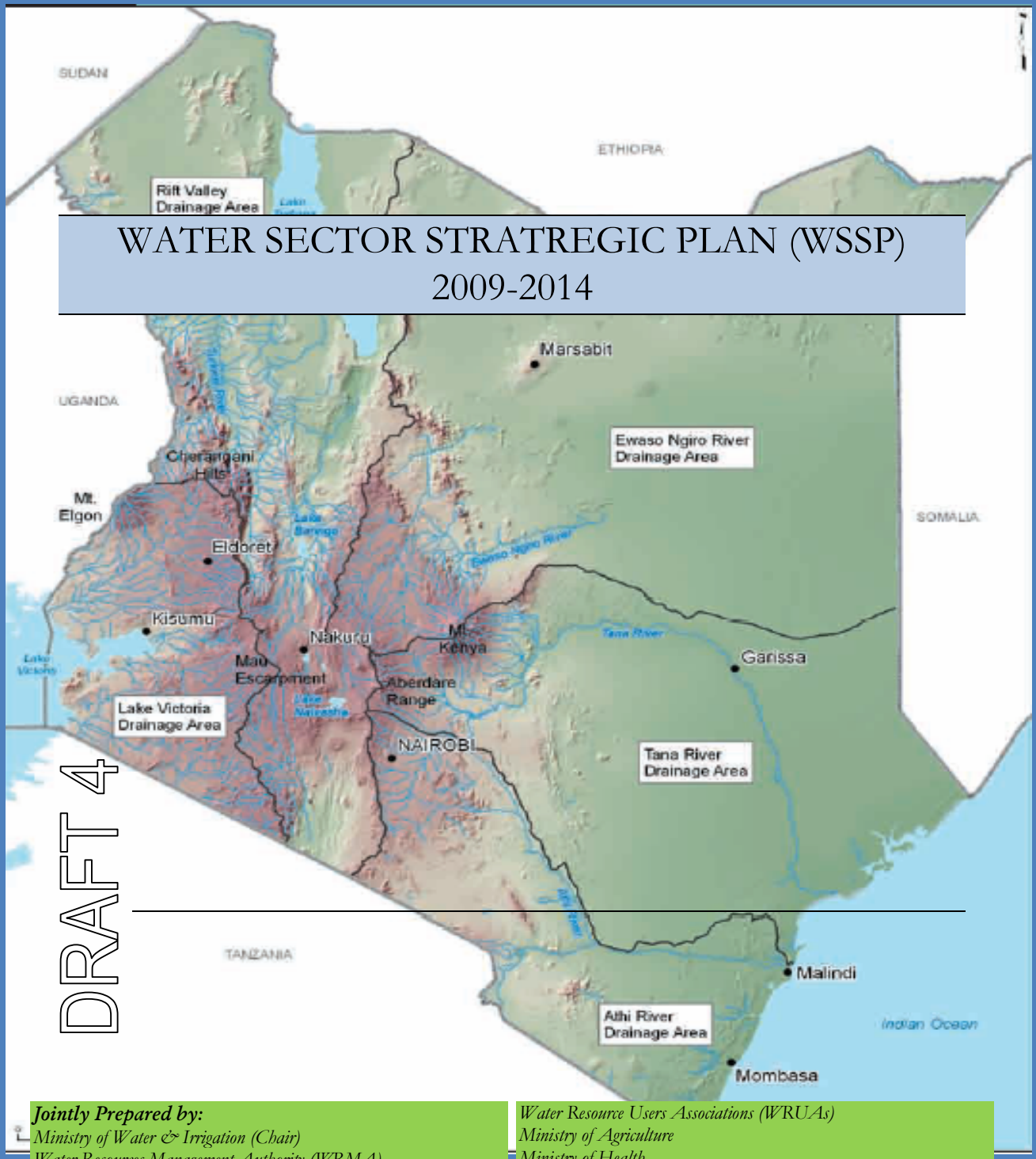
REPUBLIC OF KENYA

WATER SECTOR STRATREGIC PLAN (WSSP) 2009-2014



DRAFT 4

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FOREWORD

The looming national water crisis calls for a new understanding of the country's water situation. We all need to appreciate the enormity of the problem, the urgency of the threats that confront us and the need for rapid and comprehensive national strategies to help arrest and reverse the situation. If we do not act in earnest and with steadfastness, our livelihood as a nation is bound to fall into an abyss from the precipice on which it now hangs. It will be a difficult and painful journey to be able to come out of such an abyss and the 2030 Vision will surely remain a pipe dream in such circumstances.

So far, our overall motto has been *'Water for All'*— a dictum that takes the availability of water for granted. The facts in this Strategic Plan will show that we can no longer do so. The tasks ahead of us are challenging and will require re-thinking and innovation by many. But stakes are high: far-reaching measures need to be taken before Kenya's water situation turns irreversibly unmanageable. Thus, we must take very determined and active measures in all aspects of water development, not the least to increase water availability as a precondition for other efforts. This is a responsibility for us all, since we all need and use water for our survival. To capture this responsibility, we have reviewed the sector's motto, realising that before there can be 'Water for All', we must all work together to ensure that water is actually available, The new motto captures this by adding another element, 'All for Water' to the motto.

All Kenyan residents – including politicians -- must rise above parochial interests and adopt the necessary political and moral responsibility of saving this country from its own wantonness: no one should advocate the destruction of a water catchment area, which is a lifeline for all Kenyans, for the benefit of a few members of his community or cronies. The need to take action to reverse the current negative trends and establish a situation where present and future generations will have the water they need to sustain their well-being, live in peace and enjoy good health is now. We must all strive to harness enough water for both health and wealth for all in Kenya.

This Plan is premised on the hope that all stakeholders – and that includes everyone who resides in Kenya – will, based on the new understanding, take the necessary measures – at both individual and community level – to conserve water and water sources, as well as work towards conflict prevention and mitigation, in all spheres of water use.

Due to the manner in which the country has handled water issues in the past, particularly the taking of water availability for granted, failure to pay due attention to fundamental water resource management, and inadequate investment in the sector, negative developments have occurred over the last few decades, which, compounded by recent climatic changes, cast a very grim situation for this country.

We are all dependent on water, as individuals and as members of society. Many Kenyans have suffered the plight of water scarcity for a long time, but we are now seeing that scarcity is becoming a threat to us all, whether we live in rural areas or towns – and whether we make our living directly from the land or from sophisticated modern structures. We are facing threats that we must deal with jointly as members of society. We must all be on board and make water a Matter of National Concern.

As a matter of national concern, water must be handled as a political matter, but hopefully beyond party politics, since the challenges are of such magnitude that broad consensus on solutions will be required. Consensus-building will be necessary but will not necessarily be easy. Disparities are there for natural reasons, such as rainwater patterns, but are reinforced by

inequities and disparities in society. Unless corrective measures are taken, the poor and vulnerable will suffer the most as competition for water increases. Women and children will be hit first, but we already have evidence that lack of water threatens the very fabric of society, as a result of social conflicts over water and land for pasture and agriculture. They will be the first to suffer decreasing wellbeing, and risks of increased crime and social conflicts due to water scarcity. Determined efforts, where we all must be prepared to sacrifice for the common good in favour of equity and equality, will be needed.

Political decisions will lay the ground for necessary improvements but will need to be implemented by a multitude of stakeholders with varying interests, within or outside Government. Previously, stakeholders acted *ad hoc* and in fragmented and uncoordinated ways, leading to inefficiencies that we can no longer afford. Instead, all actors need to collaborate and coordinate what they are doing, so that all inputs pull in the same direction.

To match new challenges, everybody needs to understand their nature and have access to ways of addressing them. This Water Sector Strategic Plan aims to meet the demands and challenges identified above. It aims to:

- increase the knowledge among sector stakeholders of the current challenges and changes in the sector;
- provide policy and regulatory guidance to stakeholders as to how the challenges should be met;
- provide a conducive environment for improved collaboration and coordination by stakeholders, ensuring that interventions pull in the same direction and resources be used effectively and efficiently;
- provide a structure for follow-up and evaluation that covers all aspects of water development and allows us to adjust our combined efforts over time, as required by circumstances.

Still, 'Water for All' remains as important as ever before, which is captured in the full motto:

'All for Water – Water for All'

This Strategic Plan will hopefully be a useful tool in achieving both aspects of the motto.

ACRONYMS

ALGAK	Association of Local Government Authorities
ASAL	Arid and Semi-Arid Land
CAAC	Catchments Area Advisory Committee
CMS	Catchment Management Strategies
DANIDA	Danish Development Agency
GOK	Government of Kenya
GTZ	German Technical Cooperation
GWP	Global Water Partnership
HIV/AIDS	Human Immunodeficiency Virus/Acquired ID Syndrome
HRBA	Human Rights-Based Approach
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
KAM	Kenya Association of Manufacturers
KenGen	Kenya Electricity Generating Company
KEWI	Kenya Water Institute
Ksh	Kenyan Shilling
KWP	Kenya Water Partnership
KWS	Kenya Wildlife Service
LVBC	Lake Victoria Basin Commission
LVEMP	Lake Victoria Environmental Management Project
MDG	Millennium Development Goal
MERN	Ministry of Environment and Natural Resources
MTEF	Medium Term Expenditure Framework
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOH	Ministry of Health
MWI	Ministry of Water and Irrigation
NEAP	National Environment Action Plan
NGO	Non-Governmental Organization
NIB	National Irrigation Board
NWRMS	National Water Resources Management Strategy
SIDA	Swedish International Development Agency
TARDA	Tana and Athi Development Authority
UFW	Unaccounted For Water
UNICEF	United Nations Children's Fund
WE	Water Efficiency
WHO	World Health Organization
WRMA	Water Resources Management Authority
WRUAs	Water Resource Users Associations
WSB	Water Services Board
WSP	Water Service Provider
WSPA	Water Service providers' Association
WSRB	Water Services Regulatory Board
WSTF	Water Services Trust Fund

All for Water – Water for All

Comment: The executive summary should be the reader's eye-opener from a factual point of view. Physical conditions and development trends will be points of departure but must not overshadow socio-economic conditions and trends, even when the latter touch upon the political sphere. The current draft texts are more or less void of such aspects – in previous texts there were some references but these have been removed in the current draft. This is not tenable for a serious strategic plan within one of the politically most sensitive sectors in Kenya. The task of finding a balance for an official document will be difficult but socio-economic aspects with indirect political implications cannot be avoided. Themes like 'disparity', 'inequity', 'inequality' and 'power relations' need to be dealt with openly, with reference to facts in other policy documents, research and studies.

0.1 All for Water

Abstracts from 'Introduction' and 'Approach and Methodology' (½ page).

0.2 Situation Analysis

Abstract (1.5 page)

0.3 Sustainability Dimension

Abstract (1 page)

0.4 Economic Dimension

Abstract (1 page)

0.5 Social Dimension

Abstract (1 page)

0.6 Institutional Dimension and Cross-Cutting Issues

Abstract (1 page)

0.7 Framework for Joint Implementation, including Way Forward

Abstract (1 page)

0.8 Summary of Priority Action and Funding Requirements

Abstract (1 page)

Total: 8 pages (should be less).

1.0 INTRODUCTION

The Water Sector is crucial to Kenya's development; be it for production, wealth and prosperity. Stakeholders from private sector, civil society and government are active in the sector. The Ministry of Water and Irrigation (MWI) is the lead agency in the Water Sector. The mandate of the Ministry is to protect, harness and manage water resources in a sustainable manner to ensure availability and accessibility to raw and drinking water for all. Other sectors such as Health, Agriculture, Livestock, Energy and Tourism – are entirely dependent on water. The MWI's role is to ensure coordination of the sectors in relation to the present and future water requirements. To achieve the objectives of the sector, inputs from a multitude of players are required. The Ministry therefore engages all sector stakeholders, creating an enabling environment within which all players contribute. This Water Sector Strategic Plan (WSSP) manifests these efforts by capturing all stakeholder and related policies and strategies. The Strategic Plan, as well as the water and sanitation sector as a whole, is guided by Vision 2030. The Ministry is technically divided into four sub sectors; Water Resources, Water Services, Irrigation and Drainage, and Land Reclamation, which all have developed – or are developing – strategies within their respective areas.

1.1. A Water Sector Strategic Plan (WSSP)

1.1.1 Rationale for a Water Sector Strategic Plan

Kenya is undergoing rapid and negative change in relation to its water and sanitation situation. Omissions in the past have contributed to these negative trends, which are now reinforced by strong and self-strengthening processes, viz:

- Continuously increased pressure on water and other natural resources;
- Rapid urbanisation; and
- Climatic change.

While these processes have been going on for some time, it is only recently that their combined impact has become tangible. One of the key reasons for preparing the Water Sector Strategic Plan is to provide documentation to allow the public and other stakeholders to better understand the current situation and upcoming challenges.

Furthermore, the rapid changes and the current situation call for reviews of existing policies, legal frameworks and working approaches. Considering the increasing complexities in the sector, a comprehensive approach to analysis and measures is required. The WSSP provides the necessary framework for such reviews.

Finally, the water and sanitation sector relates to actors in almost all other sectors of the economy. The number of stakeholders is exceptionally large but collaboration and coordination mechanisms are weak, which has led to fragmented and inefficient interventions. This is not tenable in the current grave situation. The WSSP is designed to enhance collaboration and coordination among all stakeholders, as well as provide them with relevant policy guidance.

1.1.2 Vision for WSSP

The vision of the WSSP is:

To contribute to a Kenya where all individuals, communities, institutions and international partners have a role and accept the responsibility to ensure availability and accessibility to all water uses for the present and future generations:

- That water resources are augmented, protected, harnessed and sustainably managed for availability and accessibility to all social, economic and environmental water uses;
- That increased prosperity is obtained through effective and efficient use/utilization of water;
- That every person lives, works, learns and participates in an environment that has safe, adequate and affordable water and sanitation that promote peace, wellbeing and health;
- That broad stakeholder ownership and participation provide the foundation for sustainable management and access to safe water and reliable sanitation to all competing needs in the country.

The goal of the WSSP is to enhance sector performance by:

- providing a relevant framework for all stakeholders to act in harmonized, streamlined and coordinated ways;
- providing a framework for continuous, effective, results-oriented and comprehensive analysis of sector performance; and
- contributing to a sector wide approach, addressing the necessary cross-sectoral issues.

1.1.3 Basic approach of the WSSP

The Ministry of Water and Irrigation recognises the need for a Water Sector Strategic Plan (WSSP) that brings together all stakeholders and attempts to harmonise sectoral legislation, policies and strategies as well as establish innovative ways of joint implementation of water programmes. One important aim of the WSSP is to increase the knowledge of what is at stake among the public and decision-makers. Furthermore, it provides a framework for further action and sector investment with needs and costing – it is to be a tool for attracting the required resources to the sector, contributing to the effective channelling and use of these resources. Finally, the WSSP will provide a tool for improved communication and monitoring and be a means by which the public will be better informed about overall sector developments.

Water and water-related issues are of great political significance and are likely to draw even more attention in the next few years. This is so regionally, nationally and locally. Risks of conflict will increase. Decision-makers, not the least politicians, will have to make increasingly difficult and sensitive decisions to ensure sustainable and fair access to water, as it becomes more and more precious. Such decisions must be based on correct and comprehensive factual information, combined with methods of collaboration and conflict prevention/mitigation. One ambition of the WSSP is to provide decision-makers with the information they need, as well as with tools for effective and peaceful collaboration.

Recognising the sector's many stakeholders and the need to harmonise and streamline interventions, the WSSP was prepared in a consultative manner with broad stakeholder participation. In order to capture the complexity of the sector, the Strategic Plan recognises four dimensions, which form the basis for analyses of status and measures to be taken. The dimensions are:

1. The sustainability dimension – water for coming generations;

2. The economic dimension – water for wealth and prosperity;
3. The social dimension – water for health, peace and equity; and
4. The institutional dimension – water through collaboration and joint approaches.

As part of WSSP preparations, networks of stakeholders have been established for each of the dimensions. The networks represent collaboration between MWI and other arms of Government, the private sector and civil society, and are expected to continuously contribute to the implementation of the WSSP. In this way, the preparation of the WSSP provided opportunities to harmonize and streamline the interventions of the many players and contribute to a sector wide approach, addressing the necessary cross links between:

- Government and non-government actors;
- Actors in different water related and water dependent sectors;
- Public and private financing institutions, including development partners.

Furthermore, the WSSP is expected to contribute to enhanced sector performance by improving collaboration and coordination; including and spreading innovative approaches; updating tools and methods; improving the setting of goals; and strengthening result orientation in terms of cost assessments and performance monitoring.

Shortcomings in water availability cause growing concerns. As a result, WSSP pays particular attention to sustainability issues, based on the Ministry's integrated water resources management (IWRM) and water efficiency (WE) Plan, as contained in the Sessional Paper No. 1 of 1999 on National Policy on Water Resources Management and Development and the Water Act 2002. These documents provide the necessary strategic and legislative framework for the sustainable management and efficient utilization of Kenya's water resources without compromising the future generations' needs.

1.1.4. The Water Sector Strategic Plan in relation to a Sector Wide Approach (SWAP) and a Sector Investment Plan (SIP)

The preparation of the WSSP coincided with the revitalisation of a Sector Wide Approach (SWAP) for the water and sanitation sector. WSSP provides a comprehensive knowledge base, which has not been in place before but also provides strategic directions on sector objectives and targets, formats for collaboration and coordination, frameworks for sector investments, and formats for monitoring and evaluation. The SWAP, on the other hand, aims at strengthening implementation by emphasising the 'backbone' of development, which is the linkage between policy, budgeting, activities, institutional capacity and reporting. Complementary to the WSSP, Thus, the SWAP provides an implementation framework that will increase impact and value for money by improving effectiveness and efficiency in the utilisation of resources

SWAP and WSSP are complementary and share several elements. Both use participatory and inclusive approaches, involving all relevant stakeholders inside and outside government. Both aim at strengthening collaboration, coordination, harmonisation and alignment in approach and reporting. Furthermore, both deal with multi-stakeholder and cross-cutting arrangements. In the case of WSSP these arrangements are made visible through the four dimensions. Such arrangements will require clear linking of interventions to the administrative and financial

structures to which they belong. Rather than creating parallel and overlapping structures, existing planning and financial structures will be strengthened. Complementarity across sectors and between stakeholders will be achieved through collaboration and cooperation, not through the mixing of resources and responsibilities.

In these endeavours, both approaches will fall back on the following principles:

- Comprehensiveness - all aspects of water development and utilisation.
- Transparency – effective monitoring and follow-up in formats that are accessible and understandable to stakeholders.
- Inclusiveness – all stakeholders in a collaborative and participatory framework, based on mutual trust and respect.
- Result-orientation – emphasis on improved sector performance.

Investment requirements, as identified in the WSSP, will feed into a Sector Investment Plan (SIP), which captures the details of the overall sector investment needs. Actual investments will be monitored and facilitated through SWAP procedures.

1.1.5. The Water Sector Strategic Plan in relation to Other Strategic Plans and Planning Instruments

The WSSP takes cognisance of the Vision 2030 objectives and moves on to provide additional sector objectives and strategies in support of the overall vision. The WSSP also takes on board the perspectives of key stakeholders such as the Ministries of Water & Irrigation, Agriculture, Environment etc , all water institutions (both within the public and private sectors). As much as possible, the strategic plans of the key stakeholder institutions have been consulted in the preparation of this WSSP, while representation in the WSSP planning process has been solicited from a wide array of stakeholders.

It is hoped that in future, all key stakeholders, will incorporate pertinent aspects of this WSSP in their respective Strategic Plans for commensurate resourcing of water-related objectives. It is also hoped that the MTEF projections will also be adjusted accordingly to reflect the urgent and important role water will play in the realisation of national development objectives.

1.2. WSSP preparations

The WSSP preparation process was participatory and included wide consultations within the sector. The process started with defining the overall sector vision as a guide to addressing the needs of the sector and its objectives. The Plan will seek to address these needs through implementation of various programmes.

1.3. Structure of the Plan

This Plan is presented in five parts which are sequenced into 9 chapters:

Part 1 Consists of the Preamble, which covers the Foreword, Table of Contents, Acronyms and Executive Summary

Part II (Chapters 1-2) includes the introduction in chapter 1, while Chapter 2 outlines the Approach and Methodology used during the development of the Plan.

Part III (Chapter 3) provides a Situation Analysis, which analyses various aspects of the sector's current status as well as its role in facilitating Kenya's national development agenda.

Part III (Chapters 4, 5 and 6) examine the various dimensions of the water sector – viz. the Sustainability, Economic, and Social. Within each dimension more specific situational analyses have been undertaken, to identify pertinent sub-sectoral Strengths, Weaknesses, Opportunities, and Threats (SWOT) as well the stakeholder analyses. Lessons learned from the relevant studies and experiences are also presented with implications for the development and implementation of this plan.

Part IV (Chapter 7 and 8) wrap up the Plan Implementation Strategies: Chapter 7 examines the institutional and cross-cutting aspects that are critical for the successful implementation of the WSSP. Chapter 8 includes implementation strategies at the national, regional and community levels and also discusses the Organizational Structures needed to deliver the WSSP. It also includes the Monitoring & Evaluation mechanisms that are designed to keep the implementation of the Plan on course as well as the requisite Information and Education Framework.

Part V Covers the Annexes: which include, the resource requirements, key strategies considered threshold for the delivery of the WSSP objectives and the references that informed the planning process.

2.0. APPROACH AND METHODOLOGY

2.1. Approach

This Strategic Plan is based on the premise that sustainable water (and sanitation) development in Kenya will only be attained if millions of people take millions of correct water/sanitation-related decisions in their daily lives, where 'correct' means decisions that are favourable to them (in social and/or economic terms), as well as favourable to society in terms of contributions to sustainable natural resources management.

The millions of decisions are taken either by i) individuals in their personal capacities (such as: what kind of water & sanitation solution do I choose, and what kind of land and tree management do I opt for on my farm?) or ii) by decision-making members of organizations / institutions (what are the socio-economic and natural resources consequences of the decision that we are about to make?). For the millions of decisions to contribute to sustainable natural resources management, they need to concur with a well-known framework, based on adequate policies and regulations. The WSSP provides such a framework.

From a WSSP perspective, general public awareness and concern about the situation are essential points of departure, since support from the public is a prerequisite for sufficient resource allocations and promotion of adequate development measures. In addition support from the public will be needed to facilitate the necessary institutional changes and enforcement measures for current negative trends to be reversed.

2.2. Methodology in WSSP Preparations

While public support is necessary to sustain support to Strategic Plan measures, the preparation and implementation of the plan requires persistent support from leading stakeholders, not the least from high political and administrative levels. This Plan was prepared on the initiative by the Minister of Water, who provided leadership and guidance throughout the preparation process, supported by the MWI Permanent Secretary.

From the very start, it was realised that the Plan must rely on active support from other players, including the private sector, civil society and representatives of non-MWI Government agencies. A series of participatory and consultative workshops were held in the first half of 2009 and resulted in stakeholder lists, as well as draft visions, objectives and concepts for the way forward. In this process, the four dimensions were identified and it was realised that specialised inputs were required to bring the analyses and preparations forward. The task group concept was born.

Thus, task groups (comprising of an average of 10 members) were formed for each Dimension (i.e. Sustainability, Economic, Social and Institutional & Cross cutting), under a specialist and supported by a convenor, who was the relevant subject Head of Department within the Ministry of Water and Irrigation.

The Plan aims to map out the water situation in Kenya under each of the dimensions, identify issues and challenges and come up with effective strategies for addressing the dimensional problems. Among other things, the task groups verified the relevance of the identified strategies

vis a vis the National Water Policy, Water Act 2002, National Water Resources Management Strategy, Catchment Management Strategies[1] (CMS) and classification of water resources, among other pertinent policy and legislative documents. In addition, similar policies and strategies from other sectors were studied. Examples include the Strategy on the Revitalisation of Agriculture (SRA) and the Ministry of Environment and Mineral Resources Strategic Plan, among others.

On the basis of document studies and regular meetings, including WSSP consultative workshops, each task group prepared consecutive drafts, which form the basis of this document. The WSSP preparation process illustrates the importance that Kenyans attach to water and sanitation issues. Work shop participants, task group members and – not the least – MWI officials contributed to the preparation process with great commitment and diligence. Teething problems were there, especially in forming multi-sectoral working groups, but important lessons were learnt and the foundation for improved future interaction was laid.

[1] The series published as "Republic of Kenya, Catchment Management Strategy for Lake Victoria North, Tana , Ewaso Ngiro North", amongst many others.

3.0. SITUATION ANALYSIS

3.1. Trends in Water Availability

3.1.1 Introduction

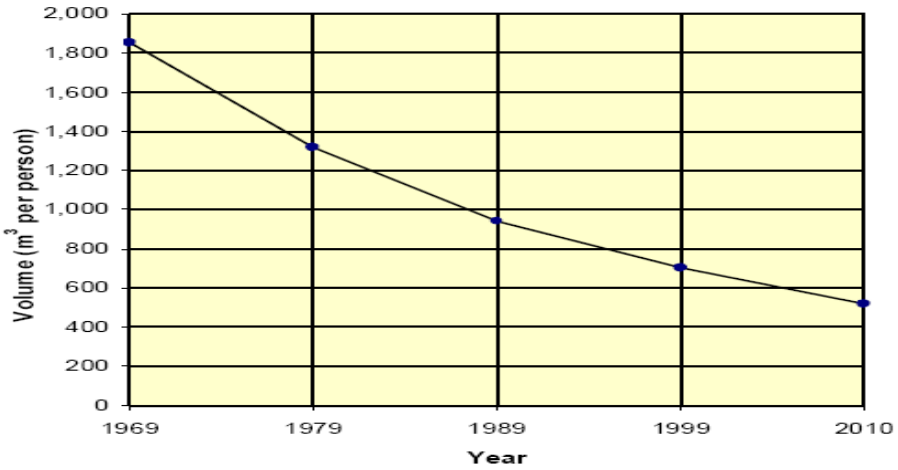
Kenya extends over a total area of 582,650 sq Km with land been 569,250 sq Km and water of 13,400 sq Km. With a population of 35 million projected to grow at 3 % per annum and largely (90 %) rural, Kenya displays various types of physical features, from arid deserts to high altitude hosting five (5) water towers four of which contribute 20.9% of the waters of Lake Victoria (the second largest fresh water body in the world).

There is an extremely uneven distribution of precipitation over different parts of the country. Some regions receive annually from 1,500 mm to excess of 3,000 mm of rain and in some locations considerably more. On the other hand, some regions are extremely dry, with an annual precipitation of less than 200 mm. Moreover, not only is there a sharp difference in the amount of total annual precipitation, but precipitation also varies considerably from one season to another during the year. During the long dry season, water shortage is experienced in many river basins, while during the rainy season severe floods may cause tremendous damage in the same river basins.

3.1.2 Trends in freshwater availability

Kenya is water scarce country with rapidly dropping fresh water supplies. In 1992, the per capita supply was estimated at only 647 m^3 per capita (based on an estimated average annual water availability of 20.2 billion cubic meters - JICA, 1992) and an estimated 2002 population of 31.2 million). This is below international standards and far below Kenya's neighbours, Uganda and Tanzania, which have annual per capita renewable water supplies of 2,940 and 2,696 cubic meters per capita respectively (MWI, 2003). It is projected that by 2010, only one year from the preparation of this Plan, the renewable freshwater supply will have fallen to only just over 500 m^3 per capita per annum and by 2020 to 235 m^3. The Figure below shows the declining trend of the national water resource availability per capita.

Figure 3.1 Water resources quantity and quality degradation



Additionally, rainfall across parts of Kenya is exceptionally variable and unpredictable, and runoff is exceptionally low, varying from near zero in the north-eastern parts to over 1600mm/yr in the western part of the country.

The consequence of these two features is endemic long periods of drought in semi-arid and arid zones and frequent floods. 86% of Kenya's water resources is surface water but only two-fifths of Kenya is well-endowed with surface water resources. The abstraction of renewable water resources is only 5.5% of which surface water is still 84.7%. There are therefore opportunities in managing both long-term droughts and temporary situations of water abundance through groundwater exploitation and water harvesting including development of reservoirs and dams. However, due to low investment in water storage infrastructure, the per capita storage of surface water has declined from 11.4 m^3 per capita in 1969 to 4.3 m^3 per capita in 1999. Low per capita storage reduces the reliability and increases vulnerability of water supply to variations in rainfall.

Surface and ground water resources in Kenya are increasingly becoming polluted from both point and non-point sources caused by the activities of agriculture, urbanization, industry, leachate from mining and garbage dumps, sediments, salts, eutrophication of lakes, infiltration of fertilizer and pesticide residues, all of which increase catchment degradation. Lack of effective pollution control compromises the quality of water, posing potential health hazards, increasing treatment and maintenance costs, and affecting inland, estuarine and coastal aquatic ecosystems. Water pollution exacerbates water scarcity because it limits the use by, or imposes a higher cost for treatment on downstream users. All the sectors of the economy contribute to and or suffer from increased levels of pollution and hence the need to forge a coordinated effort in reducing pollution to our water systems.

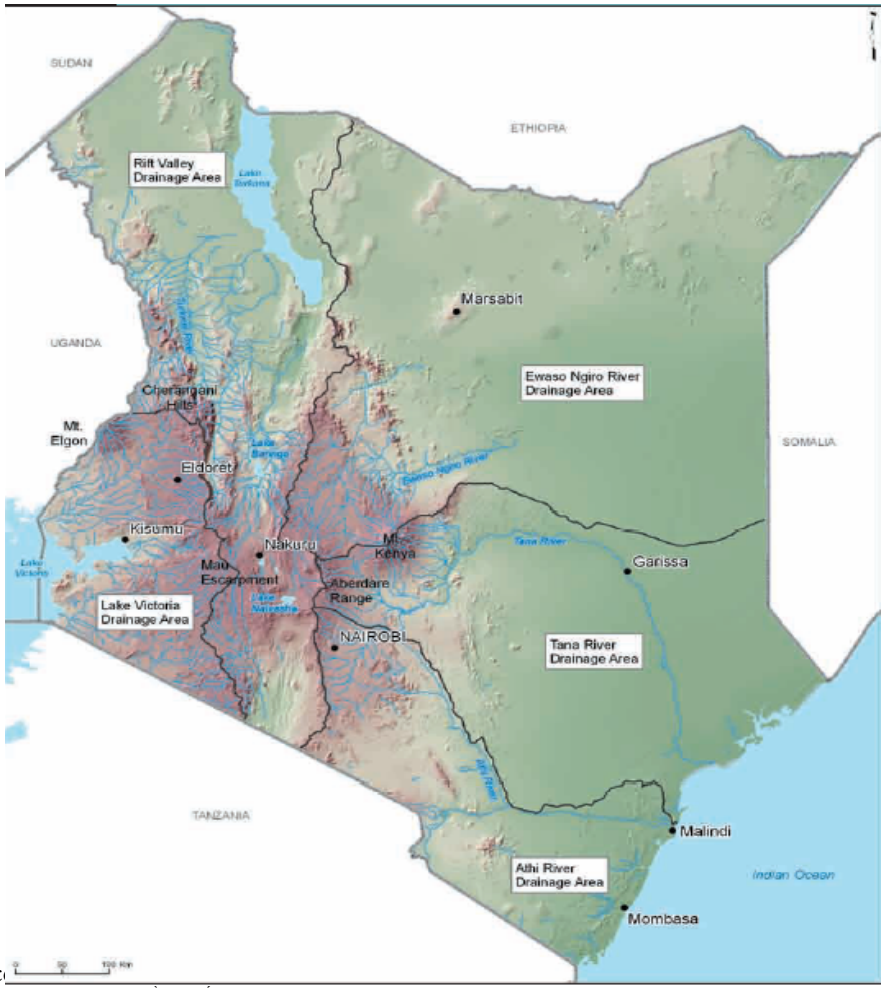
Effective management of water resource degradation require that water quality and quantity be dealt with conjunctively, however the wastewater policies have barely changed over the years. For example, construction and expansion of urban water supply systems was not harmonized with the construction and extension of sewage disposal systems to avoid problems of wastewater disposal in most of the urban areas. Because in the previous years the construction and extension of sewage disposal facilities proceeded at a much slower rate than water supply augmentations, a substantial backlog of sewerage works ensued in urban centres. In the 1974-78 period, additional sewerage systems were planned in order to reach a point where water supply and sewage disposal requirements were in approximate balance in the principal urban centres. Urban planning failed to entrench water and sewerage development and hence the chaotic situation experienced in low income residential areas. Self-disposal of wastewater discharges or sewer disposal became an acceptable alternative in the urban areas. Poor solid waste management and sanitation are beginning to threaten surface and ground water quality, especially those near urban centres. Although water treatment and water re-use are limited, an attempt must be put in place to augment the dwindling water supply with other sources.

Climatic change is expected to lead to more frequent flooding. A unique feature of floods in the Kenya is that most of the runoff is generated in the upper catchments, "water towers", which receive much higher rainfall than the sub-humid lowlands in downstream reaches. As a result, population living in the lowlands is often taken unawares by floods. Unless there is good cooperation between upstream highland agriculturalists and downstream pastoralists and fisher-folks the floods are bound to cause considerable loss of human lives, loss of crops, cattle personal belongings. Development and health gains will be lost. Currently, floods – and droughts – are being managed in a fragmented ad-hoc and uncoordinated manner by the authorities, which further increases the losses that those affected suffer.

3.1.3. Water Towers and Structural Aspects of Water Availability

The main sources of water in the country are the water towers (Mt. Kenya, Aberdares ranges, Mau forest, Cherangani/Tugen Hills and Mt. Elgon) – see map. These have been affected by rapid destruction of vegetative cover as a result of encroachment for human settlement. This has resulted in; the destruction of the water sources, silting of water structures (dams and water works in the upper zones), reduction of water supplies to down stream areas, silting of beaches threatening both aquatic life and tourism and having negative impacts on the economy.

Figure 3.2 Kenya's water towers



Source:

Table 3.1:"Water towers" of Kenya

Forest	Ha.
Mt. Kenya.	199,558
Aberdares	103,315
Mau Complex	400,000
Mt. Elgon	73,089
Cherangani Hills	128,000
Total	903,962

Source: Forest Department, Ministry of Environment and Natural Resource, n.d.

Table 3.2: Average annual water availability and abstraction by basin

Drainage basin	Volume (Mcm/yr*)	%Water abstracted
Lake Victoria Basin	11,672	2.2
Rift Valley inland Basin	2,784	1.7
Athi River Basin	1,152	11.6
Tana River Basin	3,744	15.9
Ewaso Ng'iro North Basin	339	12.4
Groundwater	600	9.1
National Total Water	20,291	5.4

*MCM/YR – million cubic metres per year.

Source: The aftercare study on the National Water Master Plan, July 1998. UN-WATER/WWAP/2006/12

3.1.4. Population growth and urbanization

The Kenyan population experienced high fertility levels in the 1970s which started to decline in mid-1980s but stalled mid-stream at a total fertility rate of 5.0 in the 1990s[2]. Annual population growth rates increased from 2.5% p.a. in 1948 to a high of 3.8% in 1979 and then declined to 2.9% p.a. in 1999, in tandem with fertility decline[3].

The rate of urbanization has increased from 15% in 1979 to 18% and 19 % in 1989 and 1999 respectively. Urban population size increased from 2.3 million in 1979 to 3.9 million in 1989 reflecting a growth rate of 5.2 %/annum. The expected average growth rate of 3.9% per year is expected in the period 2005-2010. The population will reach more than 60 million by 2030. This growth is largely due to a high level of rural-urban migration fuelled by rural poverty and a dwindling of the per capita ownership of farming and grazing land. The increase in population will mean more water for domestic use, food security, and industrial development.

[2] Republic of Kenya, Vision 2030, Ministry of Planning and National Development and National Economic and Social Council (NESC), Office of the President Government Press, Nairobi

[3] Republic of Kenya, Kenya Integrated Household Budget Survey (KIHBS) 2002/2006, volume 1, Basic Report.

3.1.5. Trans-boundary water issues

About 54% of Kenya's water is shared with other countries. The receding Lake Victoria's levels in the recent years is destroying the breeding grounds for fish, and endangering the 30 million East Africans who live around the lake. 'Scramble for fish' in Lake Victoria is turning out to be a source of conflict between nations bordering the lake and could potentially threaten regional stability[4].

Mara River Basin is a potential conflict area between Kenya and Tanzania. The Mara River with its source in the Mau forests complex in Kenya is a transboundary basin shared between Kenya and Tanzania, and is also part of the larger Nile Basin that is shared by nine countries. Due to the Mau forest cover loss and unsustainable agricultural expansion and intensification (including irrigation), human population growth, stakeholders in the Mara River Basin increasingly face inadequate access to water. Important threats include loss of native forest cover in the upper parts of the catchment and along rivers, poorly planned tourist facilities, and water pollution and abstractions by industries and urban settlements. These problems have resulted in decreasing water supplies, competition for and conflicts over available water, inappropriate and poorly planned land use, and ineffective water resource management systems in the two countries.

3.2. Management of Water Resources

3.2.1 Water resources assessment and quality monitoring

In order to improve the management of water resources, there is a need for greater knowledge about quantity and quality. In Kenya there are considerable inadequacies in the availability of data on water resources, especially on groundwater and water quality.

The current number of monitoring stations (Table 3.4) is inadequate and may not reflect any clear picture of the resource potential. Impact of climate change and variability as well as inadequate measures to mitigate the effects of climate change and climate variability are essential elements of sustainability. The collapsed water resources monitoring network and inconsistent and poor quality data since 1984 culminated in to inadequate databases and discontinuous water resources assessment being established.

[44] The latest incident happened when about 400 Kenyan fishermen were kicked out of Migingo Island by Ugandan authorities. Migingo is claimed by both Uganda and Kenya.

Table 3.4: .Status of hydrometric stations in Kenya

Drainage Basin	Registered stations	Stations operating by 1990	Stations operating in 2001	% Reduction from registered stations
Lake Victoria	229	114	45	80%
Rift Valley	153	50	33	78%
Athi	223	74	31	86%
Tana	205	116	66	67%
Northern Ewaso Ng'iro	113	45	29	74%
National	923	399	204	78%

Source: Republic of Kenya, Report on Towards a Water- Secure Kenya, Water Resources Sector Memorandum (April 2004), World Bank

There is a need for regular and systematic collection and processing of quantitative and qualitative data on various types of water bodies. In order to be able to collect, analyze and disseminate reliable information on water resources, it is necessary to strengthen the existing mechanisms.

3.2.2. Institutional and regulatory aspects

The weak regulatory regime is a major constraint to efficient water resources management. Government agencies dealing with water supply include ministries of agriculture, health, rural development and industry, while semi-autonomous water utilities in some urban areas provide municipal water supply. Groundwater resources may be exploited by mineral resources agencies or semi-public agricultural cooperatives. In addition, private businesses, industries and farmers are pumping both surface water and groundwater with very little overall regulation. This uncontrolled use of water has led to imbalances in the hydrological cycle, shortages for some essential uses, a lowering of the water table in many areas, salt-water intrusion and increasing costs for exploitation. There is a lack of clear legislation, regulation of ownership, use and protection of water resources

A national water policy having been developed, there is a serious need to improve management (not just planning) of the water resources in order to satisfy the freshwater requirements for sustainable development. Traditionally, water resources management has been supply oriented, without paying sufficient attention to options for influencing water demand and increasing water use efficiency.

3.3. The Looming Water Crisis

3.3.1. The water crunch

In 2009, the water situation in Kenya has reached unprecedented crisis levels. For the first time in the country's history, electricity water generation dams[5] are being closed due to lack of adequate water to run the turbines.

There is widespread famine in the country, affecting over 10 million people, due to crop failure and lack of pasture in many parts -- arising from inadequate or no rains. The lack of pasture in the pastoralist areas has also led to high levels of insecurity with many lives being lost, homes

[5] At the dam of writing, Masinga Dam had been closed while the imminent closing of Kamburu Dam had been announced.

being destroyed and schools being abandoned as various groups engage in combats over the declining water and pasture.

The country, which until recently has been a net exporter of food, is now relying heavily on food imports even for maize, which is the staple food for the majority of Kenya's population. Whereas this is not an entirely new phenomenon, as it has been experienced on several occasions in Kenya's history, such as in 1974 and 1984, when large populations in both Northern and Eastern parts of the country were affected, the current situation is widespread, even extending to the traditional food basket regions in the Rift Valley, Western and Nyanza Provinces.

The current water situation threatens the implementation of Vision 2030, which is based on projections of rapid economic transformation and urbanisation, both of which require increased inputs of water. Even if the current crisis turns out to be a temporary phenomenon, the situation illustrates the vulnerability of the overall structure and, consequently, the need of long-term and far-reaching measures for sustainability. The complexity of the problem is illustrated by the fact that heavy torrential rains at other times contribute to severe social and economic problems, as was the case nation-wide during the el-niño in 1996 and repeatedly in different regions thereafter.

While climatic change most probably plays an increasing role in the extremity of the droughts and floods, it is apparent that a primary cause of the worsening situation has been the manner in which Kenyans have degraded their environment. As an example, it could be noted that the current situation is likely to be much more attributable to the decimation of Kenya's forest cover than to the effects of climatic changes.

The impact of inappropriate practices is illustrated by the fact that land degradation accounts for 3% of the GDP loss (about USD 390 million). Inadequate enforcement of laws, regulations and policies is responsible for poor performance in regulating environmental degradation. Deforestation has been caused by forest excision for farm settlement and illegal tree felling for fuel and timber. This causes increased runoff, flash flooding, reduced infiltration, soil erosion and siltation of reservoirs.

The rapid changes and dynamics affecting the water and sanitation sector require analysis of three major development trends:

- Continuously increased pressure on water and other natural resources as a result of population increase and the use of inappropriate natural resource management methods. This process is most visible in the deterioration of Kenya's 'water towers';
- Rapid urbanisation, accompanied by rapidly shifting – but continuously increasing – demands for water services and sewerage;
- Climatic change, followed by erratic and unreliable rains and sudden changes between droughts and floods.

3.3.2 The Need for a Paradigm Shift

Planning and development of water in Kenya has been primarily focused on distribution – taking the water from source to the users. This practice has been inadvertently premised on the assumption that water was available and all that was needed was extraction and delivery to various user destinations.

However it is well documented that Kenya is a water-scarce country. With only 647 cubic metres of water per capita against the global benchmark of 1000 cubic metres, Kenya is doing badly. Yet

with the rampant decimation of the country's forest cover and the general degradation of the environment -- not to mention the impact of the on going climate change -- the per capita water level is bound to go even lower, unless urgent and drastic measures are taken.

The country faces serious challenges with regard to protection of water resources, provision of water supply and sanitation services. For the Vision 2030 to be realised, it is critical that there be enough water resources to support the envisaged industrial, agricultural and social development. This requires that he country's water resources in terms of sources, conservation, storage and application as well as the various technologies available for sound and sustained management be assessed, documented and be judiciously used for planning the envisioned development of the country.

Towards this end, the country needs to make a major paradigm shift – from focus on the **extraction and distribution of water** to **conservation and development of the water resources.** This means that the institutions/departments dealing with water resources development need to be resource accordingly, and policies that conserve water such as rain harvesting, water re-use and catchments protection need to be put on the forefront of national development efforts.

3.3.3. Political Will and Priorities in the Water Sector

One main reason to trigger action in the political realm is the inequitable distribution of natural resources in Kenya, especially water. In a highly competitive political landscape such as we have in Kenya, water may become the battleground and access and affordability remain thorny issues.

Kenya's aspiration to be a middle income country by the year 2030 provides challenges of providing water in a sustainable manner to a fast growing economy. There is need for advocacy and awareness raising so that politicians understand water issues so as to accept technical decisions. The ruling elites must devote time, energy and resources to ensuring equitable and sustainable distribution of resources including water.

Even though the forest cover has been allowed to slip to only 1.7% against the average benchmark of 10% for most countries, there is no doubt that systematic and targeted efforts – which are all within reach – would be sufficient to remedy a great deal of the problem. All that is needed is the political will to arrest and reverse the situation.

4.0 SUSTAINABILITY DIMENSION

4.1. Background

The Water Sector in Kenya is crucial to the country's development, for production as well as for social wellbeing and prosperity. A great number of stakeholders from private sector, civil society and government are active in the sector.

Presently, the Integrated Water Resources Management (IWRM) and Water Efficiency (WE) Plan encompass the spirit of the water sector policy[6]. This Plan together with the Water Act 2002

[6] ERS/PRSP, 2004

[6] Republic of Kenya, 1996, Sessional Paper No.2 of 1996 on Industrial Transformation to the Year 2020, p.19; p.76

provide the necessary strategic, legislative as well as institutional framework for the sustainable management and efficient utilization of water resources in a manner that satisfies the current needs of our people without compromising the future generations' needs. In addition, the National Water Resources Management Strategy of 2007 fully recognizes the IWRM and WE as a national priority with obligations for participation and empowerment of stakeholders and decentralized management at the appropriate lowest level.

4.2. Vision, Mission, Goal and Objectives

The **vision** of the WSSP sustainability is …***water resources protected, harnessed and sustainably managed to ensure availability and accessibility to all water uses for present and future generations***.

The **mission** of the WSSP is ***"to ensure a harmonized, streamlined and coordinated approach to interventions of the many players and contribute to a sector wide approach, addressing the necessary cross sectoral issues and enhance sector performance"***.

The **overall goal** is to "***achieve optimum, long-term, environmentally sustainable social and economic benefits from the nation's water resources"***.

The overall **objective** is to provide a clear framework for sustainable water resources management and investment. The specific objectives of the plan are:

- To accelerate action towards addressing chronic water scarcity in the country;
- To restore water catchments thus reduce the drying up of rivers, receding of lake levels, heavy siltation in our dams and pans meant for hydropower generation and water supplies;
- To consolidate the efforts of sustainable water resources management and development;
- To reduce vulnerability to climate variability and address low water storage;
- To control pollution of water resources;
- To reform values and depart from fragmented approaches towards a collaborative and integrated management.
- To mobilize funds to roll out programmes to restore the water sources and to increase water storage
- To link water sector issues to national policies including the MDGs and Vision 2030;
- To deepen and broaden stakeholders' engagement in the water sector to improve ownership, enrich and mobilise both human and financial resources for water conservation.

4.3. Water resources sustainability, water variability, and climate change

[6] Estimated irrigation potential is 539,000 ha. But only 114,600 ha., 20%, is irrigated today.

[6] The water policy is contained in the Sessional Paper No 1 of 1999 on National Policy on Water Resources Management and Development.

Aware of the consequences of climate change and its impact on water resources, countries have adopted different approaches, water resources planning regimes and technologies, and these include:

- Ecosystems approaches[7] that tend to improve sustainability of the resources.
- Recent emphasis on development and use of groundwater - with its advantage of being small scale, requiring no long transmission lines, little impact on the environment – has been adopted by Africa Ministers Committee on Water (AMCOW)[8] as one of the vehicles for delivering the MDGs and mitigating impact of climate change.
- Use of economic instruments to promote efficient water use and management.
- Water resources augmentation including rainwater and runoff harvesting, demand management including wastewater treatment and water re-use; these offer acceptable opportunities for increasing water supply.
- Mainstream water issues into social and economic policy, i.e. PRSPs, ERS, Gender, Youth, etc
- Address and reduce the impact of extreme events caused by climate change - floods, droughts, landslides, etc. thus reducing vulnerability of the poor to the impacts of climate variability and climate change
- Drought management strategies as established in the arid/semi-arid areas.

The WSSP will draw on these approaches based on need and resource availability.

Box 4.1: Some evidences of water conflicts in Kenya.

Yang'at organization are helping people in dry, rural communities in the West Pokot region of Kenya and Uganda develop clean water resources for human consumption and for livestock. The new water supplies have served to ease fighting between people from the two communities who cross borders to poach water from each other.

Police were sent to the northwestern part of Kenya to control a major violent dispute between Kikuyu and Maasai groups over water. More than 20 people were killed in fighting in January. By July, the death toll exceeded 90, principally in the rural center of Turbi. The tensions arose over grazing and water. Maasai herdsmen accused a local Kikuyu politician of diverting a river to irrigate his farm, depriving downstream livestock. Fighting displaced more than 2000 villagers and reflects tensions between nomadic and settled communities.

A clash between villagers and thirsty monkeys left eight apes dead and ten villagers wounded. The duel started after water tankers brought water to a drought-stricken area and monkeys desperate for water attacked the villagers.

[7] Ecosystem-based approaches factor in the full range of land and aquatic ecosystems within the context of a hydrological river basin and provide a holistic assessment to water resources potential and limitations.

[8] See AMCOW resolutions and the selection of the Minister for Water and Irrigation in Kenya to chair the spearheading of groundwater assessment in the continent.

4.4. Water resources assessment, monitoring and information system

The water resources potential - sources, extent, reliability and quality of water resources in relation to climate change and human activities- is not fully understood. In order to do this, Kenya must establish an effective monitoring strategy; establish a monitoring network of both hydro-meteorological factors as well as groundwater characteristics, some which has been destroyed by vandalism.

Table 4.3 below summarises the issues and demonstrate options that may be taken to revive the hydro-meteorological network.

Table 4.3: General hydrological characteristics

Issues	Targets	Indicators
Inadequate monitoring stations	Reconnaissance of all hydro monitoring stations to determine status /rehabilitation programme/maintenance	-No. of stations rehabilitated -No. of new hydrological stations established
Inadequate Funding to maintain/ expand hydro network	Expansion of hydro Network	No. of new hydrological stations established
Limited Equipment, Transport) O&M	Regular river flow measurements	No of river discharge measurements taken
Vandalism of installed monitoring equipment	Modernization (automation of some key stations)	No. of stations installed (automated)
Flood related damage to installed stations	Develop hydrological models	No. of models developed
Recession of lakes/shifting river Courses	Survey and install new gauging stations	No. of stations rehabilitated

There will be need to harmonise different systems of water resources data collection and information management. Main strategies towards that end will include the following:

- Increasing funding for water resources assessments
- Strengthening water resources planning by improving water data bases
- Establishing sub-national, national and regional joint planning and management of water resources
- Enhancing management of transboundary waters by strengthening river basin organisations (RBOs), building the capacity of regional institutions, and improving regional networks, etc.

4.4.1. Water conservation, catchment degradation and siltation of dams and reservoirs

Water conservation involves protection of water sources including catchments, ground water aquifers and wetlands while demand management involves increasing the efficiency with which water is used. This WSSP therefore proposes that water conservation and demand management strategies include the following:-

- Substantially reducing levels of unaccounted-for water within the water distribution systems;
- Researching on and implement efficient irrigation methods;
- Expanding rain water harvesting, including roof catchment for domestic purposes;
- Delineating and zoning areas for water and soil conservation;
- Improving watershed management (protection against catchment deforestation and degradation).

4.4.2. Water resources quantity and quality degradation

Challenges in achieving the mandates and strategies of pollution control includes inadequate technical staff to carry out the water quality and pollution control functions in the implementing institutions i.e Water Resources Management Authority, Water Services Boards and Water Service Providers, inadequate field and laboratory water testing equipment especially in the sub regions, and inadequate transport for monitoring and evaluations. Additional factors are difficulties in sharing information from other institutions and especially WRMA, low public awareness on water quality and pollution control issues, lack of enforcement of effluent discharge standards, and ineffective monitoring and evaluation programme.

Effective management of water resource degradation required that water quality and quantity be dealt with conjunctively, however the wastewater policies have barely changed over the years. For example, construction and expansion of urban water supply systems was not harmonized with the construction and extension of sewage disposal systems to avoid problems of wastewater disposal in most of the urban areas. Because in the previous years the construction and extension of sewage disposal facilities proceeded at a much slower rate than water supply augmentations, a substantial backlog of sewerage works in urban centres was planned from 1974-78 period to reach a point where water supply and sewage disposal requirements were in approximate balance in the principal urban centres. Urban planning failed to entrench water and sewerage development and hence the chaotic situation experienced in low income residential areas. Self-disposal of wastewater discharges or sewer disposal became an acceptable alternative in the urban areas. Poor solid waste management and sanitation are beginning to threaten surface and ground water quality, especially those near urban centres. Although water treatment and water re-use are limited, an attempt must be put in place to augment the dwindling water supply with other sources.

The activities of the Water Pollution and Control Division (WPCD) includes monitoring and evaluation of the implementation of water quality and pollution control programmes for all catchments, the quality of drinking water provided by WSP's to ensure that the water supplied and effluents discharged by these institutions meet the stipulated standards, review the laboratory water analysis charges, initiation of and the development of rules and guidelines on provision of bottled water, analysis of water samples at the Central Water Testing Laboratory in Nairobi and Water Quality and Ecosystem Management Component of Lake Victoria Environmental Management Project (LVEMP) based in Kisumu.

4.4.3. Measures to strengthen the capacity of regulatory institutions'

The challenges in achieving the mandates of the various regulatory institutions include:

- Inadequate technical staff to carry out the water quality and pollution control functions in the implementing institutions i.e. Water Resources Management Authority, Water Services Boards (WSBs) and WSPs.
- Inadequate field and laboratory water testing equipment especially in the sub regions.
- Inadequate transport for monitoring and evaluations.
- Difficulties in getting information from other institutions and especially WRMA.
- Low public awareness on water quality and pollution control issues.
- Weak enforcement of effluent discharge standards.
- In effective monitoring and evaluation programmes.

The Main strategies and actions under WSSP will be to address the above challenges.

4.5. Stakeholder analysis and collaboration

Roles and responsibilities of stakeholders

There is close inter-linkage of water to land, health, economy and environment arising from water requirements for irrigation, power generation, industrial and public use. The stakeholders that are associated with the water sector can be classified into the following categories (see Annex 4.1)[9]:

Ministry of Water and Irrigation

Within Government the Ministry of Water and Irrigation (MWI) is the lead agency in the Water Sector. The mandate of the MWI is to protect, harness and sustainably manage water resources to ensure availability and accessibility to raw and drinking water for all, while other sectors – including Health, Agriculture, Energy, and Tourism – are entirely dependent on quantity and quality of water. The MWI's role is to ensure the coordination of all sectors in relation to the present and future water requirements. To achieve the objectives of the sector, inputs from a multitude of players are required and it is the Ministry's role to engage all sector stakeholders, creating an enabling environment within which all players contribute.

Administratively, MWI has four departments, namely, Water Resources, Water Services, Irrigation and Drainage, and Land Reclamation. The Water Resources Department has the following divisions:

- Groundwater development
- Surface water
- Transboundary Water
- Groundwater Investigation
- Data and Information
- Catchments Management
- Water Quality and Pollution control
- Special Water Programmes
- Water Rights
- Water Resources Planning

These divisions need to be redefined with respect to their new roles of ensuring sustainable water availability. See Annex 4.1 on key stakeholders for sustainability of water resources.

[9] *Water Sector Actors Survey 1998, MWRM&D consultancy services tender No. WSAS 1/96-9* (Seureca Ingenieur Conseil – Paris France)

4.6. Elements of Sustainability strategies

4.6.1. Strategic principles

The plan proposes eight (8) strategies to be implemented for 5 years at a proposed budget of KSh. 98.5334 billion. Out of this total KSh. 66 billion is proposed for 2 large and 3 medium sized multi-purpose dams.

The current strategies have been based on the following principles:

- Build on lessons learnt, good practices and ongoing reforms in the water sector. Use existing administrative infrastructure and user organizations.
- Prioritise areas of quick wins and demonstrate results
- Make short-term tactical action plans while developing long-term strategic approaches to administrative reforms through policy assessments, legislative reviews and development of regulations and guidelines.

Strategy 1: Institute measures to halt and reverse the degradation of the main water towers as a matter of priority

Objective: Restore, through policy and legislation, the integrity and sustainability of all water towers in the country

- Remove and relocate all settlers that are encroaching on the water tower habitats
- Stop illegal logging and other forms of extraction that affect the integrity of the water towers
- Encourage all people living in Kenya to protect water catchments and sources
- Encourage all people living in Kenya to plant trees

The proposed budget is KSh. 4 billion (including compensation and resettlement).

Strategy 2: Carry out water resources assessment, document and disseminate (avail) necessary information to stakeholders

Objective 1: Improve understanding of water resources potential and limitation

- Carry out a comprehensive surface and groundwater assessment and develop recharge zone protection
- Determine and install optimum instrumentation and monitoring system for both surface and groundwater resources
- Establish effective water quality surveillance and protect the nation's water resources by improving their quality, reducing pollutants and at the same time supporting the businesses, industry and communities that depend on water for their continued development.
- Establish comprehensive planning, monitoring, and evaluation

- Mapping of fluoride/ salinity levels in ground water;
- Upgrading and equipping automatic stations for water quality monitoring (rivers, lakes and boreholes, etc);
- Analyse existing data on water resources and provide an annual state of national water resources

The proposed budget is KSh. 1.89 billion.

Objective 2: To improve knowledge of quantity and quality of water resources and safe guard it from misuse.

- Develop of policy guidelines regarding Water Resources Data and Information Management
- Upgrade of the National Database by continuously strengthening data acquisition, archiving and dissemination facilities.
- Upgrade and strengthen the GIS and Cartography section by buying and installing state of the art GIS programmes and Cartographic software
- Water related conflict mapping to enhance equitable water use
- Establish water use monitoring and information management to enhance sustainability of water resources management
- Identify, restore and monitor catchment degradation
- Provide annually comprehensive information on the status of water resources information

The proposed budget is KSh. 277 million.

Strategy 3: Strengthen regulatory institutions (WRMA, KFS, NEMA, water quality division of MWI, etc) to enforce existing policies, legislations and environmental regulations and community watchdog organizations to enforce compliance.

Objectives: To ensure strict control of pollution of water resources and restoration of water catchments thus reduce the drying up of rivers, receding of lake levels, heavy siltation in our dams and pans, stabalise hydropower generation and water supplies through regulatory institutions provided for by the law.

- Carry out stakeholders' capacity needs in each catchment
- Train community organisations NGOs, CBOs, women groups where the resources are – train and educate the communities on need to conserve water sources.
- Develop and/or disseminate appropriate water technological; especially on use of gravity water distribution; new sources of energy, desalination,
- Support establishment of WRUAs and build their capacity in participation and empowerment.
- Strengthen/transform CAACs to boards for better management and sustenance.
- Rehabilitation and equipping of Central and regional laboratories with modern equipment for measurement of pesticides, heavy metals and other parameters that require special equipment.

- Raise awareness of lawmakers on water sector related issues for better policy formulation, enforcement and political goodwill.

The proposed budget is KSh. 1.102 billion.

Strategy 4: Water conservation, catchment restoration, rehabilitation

Objective: To accelerate action towards addressing chronic water scarcity and reduce vulnerability to climate variability.

- Rain and runoff harvesting- design and construct dams and pans to increase water storage capacities
- Develop rainwater and runoff harvesting policy
- Enhance the implementation of the catchment management strategies at the catchment or subcatchment levels
- Restore degraded water catchments
- Rehabilitation, protection of wetlands, springs,
- Support options for providing energy to the poor through policy debate and use of economic instruments
- Unaccounted-for water within water distribution systems.
- Improve irrigation efficiency and/or introduce new irrigation methods.
- Delineate and zoning areas for water conservation.
- Rational apportionment of water resources thereby avoiding water use conflicts
- Construct large and medium sized storage dams for irrigation and water supply

The proposed budget is KSh.66 billion for dams and 3.587 for water harvesting. The total is Ksh. 69.587

Strategy 5: Strengthen and harmonise existing laws relating to water within and across related sectors

Objective: To establish linkages between water sector issues to national policies including the MDGs, PRSP, food security, industrialisation, unemployment, gender, water and sanitation and infrastructure development

- Review progress and determine lessons learnt
- Review the Water Act 2002 and mandates of water institutions
- Finalise the transfer plan
- Establish a strong communication and PRO's office in MWI.
- Harmonise water pollution regulations and standards
- Introduce transparency and rule of law in water affairs, i.e. water users obtain water permits and only draw their rightful allocation
- Establish economic principles such as payments for environmental services for water resources conservation.

The proposed budget is KSh. 177 million.

Strategy 6: Increasing and modernising the urban sewerage services, including ecosan (ecological sanitation) systems

Objective: To consolidate the effort of sustainable water resources management and development.

- Rehabilitation, augmentation and expansion of existing urban sewage collection, treatment and disposal systems
- Construction of new urban sewage collection, treatment and disposal systems
- Construction of appropriate on-site waterborne sewage systems in informal urban areas
- Systematically increasing user connections to cover all potential areas
- Develop a water re-use strategy and policy including standards, appropriate technology, wastewater facilities, etc.
- Increase use of non-water-based (e.g. ecosan) sewerage systems

The proposed budget is KSH. 20.7 billion for 5 years.

Strategy 7: Transboundary Water Resources Management

Objective: To achieve a peaceful equitable and reasonable utilization of Transboundary Water Resources.

- Development of National Transboundary Water Policy
- Negotiation and Development of cooperative framework for the management of shared water resources
- Identification and mapping of shared water resources
- Monitoring of existing projects on shared water resources
- Identifying of new planned measures
- Establishing amounts of water being extracted by existing schemes
- Studies to Establish whether there are other transboundary aquifers, their extent and carry out their mapping
- Establishment of transboundary waters monitoring stations

The proposed budget is KSh. 200 million.

4.9. Areas requiring further research

4.9.1. Short term consultancies

Several areas for research have been identified. For the first year, the following areas will focus on short term consultancies.

(i) Quantification of the water availability against water demand for the Vision 2030

(ii). Impact of sanitation on groundwater aquifers and options for technology choices

(iii) The physical and socio-economic potential of large and small-scale water transfers

(iv) A critical analysis of what can actually be done in terms of irrigation; preferably based on existing material. Where will the water come from (considering the unreliability of Kenyan rainfall) and what is the 'safe' additional acreage (the acreage that could be irrigated even during droughts). The study should also include socio-economic aspects: who will benefit?

4.9.2. Mid-term research areas:

(i). Groundwater assessment including artificial recharge

This proposal should dove tail in to the proposed Water Master Planning to start soon. Groundwater is generally the most unknown in planning and therefore an upstream coverage will be beneficial to the Water Planning.

(ii) Pollution control

The following proposed programmes are necessary to fulfil the mandate of the division and improve sustainability of water resources.

- National Water Quality Management Strategy and policy which will be used as the basis for classification of water resources, review of wastewater discharge standards, planning, and decision making.

- Water re-use strategy and policy will be used for research and development of appropriate technology, research and development of wastewater facilities, mapping of fluoride/ salinity levels in ground water; upgrading and equipping automatic stations for water quality monitoring (rivers, lakes and boreholes, etc); rehabilitation and equipping of Central and regional laboratories with modern equipment for measurement of pesticides, heavy metals and other parameters that require special equipment.

5.0. ECONOMIC DIMENSION

5.1 Background

Kenya's economy is largely rural-based and heavily dependent on its natural resource base that has intricate inter-linkages between land, water and climate. Water has always played a key role in the country's economy as a resource for human consumption, energy generation, agricultural development, industrial growth, livestock and tourism development. Currently 42% of the GDP is derived from natural-resources based sectors. From the mid- 1990s to 2000, the economic growth rate per annum has consistently been lower than the population growth rate, the former heavily linked to droughts, floods and/or rainfall failure.

However, the use of economic terms in water sector has increased over the years. The economic issues also affect ordinary people as consumers (who pay for water supply and sewerage services) and as tax payers supporting heavy investments in water sector and increasingly as human beings eager to protect water resources for now and the future.

From 2003 the economic growth has been rising to reach about 6.1 percent in 2007 compared with an average population growth rate of 3.4 percent per annum. The number of people living below the poverty line and who subsist predominantly on natural resources increased from 48 percent in 1990 to 55 percent in 2001[10]. This coincided with a period when investments in water resources development and management shrunk significantly. Yet in 1995, water was regarded as the most serious infrastructural constraint inhibiting industrial expansion in Kenya[11]. In the last two decades, Kenya has witnessed high economic growth in high water consuming sectors of irrigated floriculture and horticulture, tourism and irrigation[12] generally.

Water sector development issues need to be guided by the principles of UN Dublin declarations. It highlights four principles:

i. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment

ii. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels

iii. Women play a central part in the provision, management and safeguarding of water

iv. Water has an economic value in all its competing uses and should be recognized as an economic good

5.1.2 Water resources perspectives

5.1.2.1 Agricultural Water

This is water for agriculture (crops, trees, and livestock) in the continuum form from rainfall to artificial water supply for agriculture. It includes irrigation and drainage, soil and water

[10] The UN HABITAT rapid gender and vulnerability assessments in the Lake Victoria

[11] Waititu, Annabell, 2009, Global Warming and Con flicts over Water in Eastern Africa, Institute of Environment and Water (IEW), Nairobi, present

conservation, rainwater harvesting, agronomy, in-field water management, integrated watershed management and all relevant aspects of the management of water and land. The main objective of Agricultural water is to increase agricultural production and productivity through its efficient use.

5.1.2.2 .Irrigation potential

Kenya's economy remains vulnerable to climatic shocks that typically impact more on the poor. Close to 26 million hectares of agricultural land under crops is farmed under highly unpredictable rain-fed conditions characterized by a high climatic variability that has a significant impact on both farmers and the national economy. There is an estimated irrigation potential area of 1.3 million hectares (ha) and a drainage potential of 600,000 ha. However, 540,000 ha of the irrigation potential can be developed with the current available water resources base, while the remaining 800,000ha will require water harvesting and storage equivalent to annual water storage of about 25 billion m^3. Currently, 114,600 ha and 30,000 ha of land is under irrigation and drainage respectively. This translates into 21% and 5% of the existing irrigation and drainage potential. However, the area under irrigation is only 9% of the possible 1.3 million ha that can be irrigated with development of storage.

The main objectives of irrigation and drainage development in the country may be summarized as increased optimal utilization of national irrigation potential, attainment of food self sufficiency and security, improvement of income generation, employment and wealth creation.

Irrigation directly contributes 3% of total GDP and provides 18% of the value of all agricultural produce. Furthermore, based on empirical evidence, it has been demonstrated that intensified irrigation can increase agricultural productivity fourfold, and depending on the crops cultivated, incomes can be increased tenfold.

Many countries (especially in Asia – India, Malaysia, Indonesia) have used irrigation and drainage development successfully as a tool to achieve Sectoral and national objectives such as food self-sufficiency, alleviation of poverty and stimulation of economic growth especially industrialization and it is therefore envisaged and planned to use the same process in Kenya by addressing the constraints hindering sector development (as stipulated in the 9th National Development Plan).

The main strategic thrust for Irrigation and drainage under Vision 2030 is to expand the area under irrigation and drainage from 140,000 ha to 300,000ha by 2013. This will require rapid expansion of the water harvesting capacity within the same period to support the expanded area. This will be achieved through the following:

i. Rehabilitation and extension of existing large and small scale irrigation schemes,
ii. Developing new irrigation schemes through optimum utilization of available resources including water.
iii. Increase water storage from current 5.3 m^3 to at least 16 m^3 of water storage per capita.
iv. Increase water harvesting, conservation farming, drip/sprinkler irrigation, water conservation and storage at farm level.
v. Mobilize resources and investments in irrigation and increase Government financial allocation to irrigation to at least 2% of the annual national budget.
vi. Improve sector financing and investments by development partners, private sector and stakeholder contributions.
vii. Create an enabling environment for the participation of farmers, water user groups

and all stakeholders in the planning, implementation and management of irrigation.

viii. Enhance business orientation and commercial farming in irrigated agriculture.

ix. Build human resource capacity for irrigated agriculture.

x. Enhance the utilization of innovation, research, science and technology in irrigation.

xi. Promote and adopt a multi-sectoral approach to sustainable irrigation development.

xii. Promote, coordinate, manage and regulate activities of stakeholders within the sector.

xiii. Establish an appropriate institutional, legal, and regulatory framework for the sector.

Reforms with far reaching implications for the improvements in the economic utilization of agricultural water resources have been undertaken since the year 2000. The reforms in the water sector resulted in the removal of government from active participation in water supply and the creation of water sector institutions with increased stakeholder participation in the management and utilization of water resources. Similar reforms are being undertaken in the irrigation sector. The irrigation sector reforms will result in creation of an institutional framework that will promote more efficient utilization and harvesting/storage of water for irrigation. It will also result in promotion of water efficient technologies and crops or pastures among the farmers. This will increase the economic value of agricultural water resources. Private sector will also participate fully in the supply of appropriate technologies, delivery of support services and marketing/processing of farm produce.

The main reasons for the low development and utilization of the irrigation potential are firstly the high costs of development of irrigation, (technology and land development costa average about US$ 5000 per ha for the large scale schemes and US$500 per ha for the small holder schemes, the difference being that the scheme owners do most of the manual works on the small schemes), and secondly the scarcity of water affecting most of the areas where irrigation development is highly suitable.

The country is severely water scarce and this situation is worsening continuously due to two reasons that are interrelated. First there is the rapid growth in population that requires increasing amounts of water for domestic, industrial and sewerage use. Significant amounts of water that should have been used for irrigation are constantly being diverted for this purpose. Secondly the there is rapid loss of forest/vegetative cover as more land is opened up for settlements and rain fed agriculture.

The expected expansion of irrigation will not therefore be based on base flow from existing rivers. New irrigation development will be based on the following:

- Rain water harvested from runoff or roofs and stored in pans, dams and tanks at the farm level and household level by individuals and at regional level by state organs. This will require review of current laws to allow those with substantial land units or have valleys with suitable dam/pan sites to harvest water and retail this to irrigators. The new laws should also allow harvesting of urban storm or roof waters and channelling these separately from sewerage waters for use in agriculture in areas near urban settlements.

- Development/Introduction/adoption of new water efficient technologies and water efficient crop varieties so as to save on water use. The aim should be to increase crop yield per unit of water applied. In areas where crop production will be done under rain fed

conditions, continued research into drought tolerant crops will receive attention. New technologies will include:

- Sprinkler systems as a transitional mechanism,
- Lining of canals
- Piping water reticulation systems,
- Drip and green house technology,
- Hydroponics under green houses.

- Development of appropriate processing facilities to produce food products requiring less water to cook at the house hold level and thus saving on water.

The new Policy on Irrigation, Drainage and Water Harvesting already foresees this new change and proposes measures for the promotion of water harvesting as the basis for rapid irrigation development. The policy also proposes new institutional set ups that promote increased stakeholder participation in irrigation, reform of irrigation sector institutions and increased financial allocations to the sector.

To support a rapid development of the irrigation sub-sector the government has prepared a new Policy on Irrigation, Drainage and Water harvesting. The objective of the policy is to:

- Establish a new institutional framework that will promote extensive stakeholder participation in irrigation development and management and remove government from active participation in irrigation development,

- Share the overall functions within the sub-sector between various stakeholders. The Department of Irrigation, Water harvesting and Drainage will be responsible for policy guidance and resource mobilization. The National Irrigation and Drainage Service will be responsible for services delivery in full collaboration and participation of the private sector. The farmers and the non-state actors will support irrigation development through their Irrigation Water Users Associations.

- Government will support investments in irrigation, drainage and water harvesting by repealing the Irrigation Act Cap 347 (NIB Act) and replacing it with the Irrigation Act 2009 that will support the above reforms.

- Government will support large scale water harvesting through the existing water boards and private sector land owners for resale to irrigators while individual small holder/irrigators can harvest water for irrigation.

The main beneficiaries of the expanded irrigation development as envisaged in the Irrigation and Drainage Policy will be:

- The smallholder farmers with small land units who can not expand productivity under rain-fed conditions,
- The landless and especially the youth had women who will have increase opportunities for employment,
- Women who are the majority farm operators and who will have some marketable produce,
- Those facing periodic food shortages especially due to rain failure,
- The nation through savings on relief costs and increased foreign exchange earnings.
- Service providers and traders who will benefit from the increased demand for services such as farm inputs supplies, transportation, artisan services and agro processing,

5.1.2.4 Industries and Manufacturing

The manufacturing sector contributes about 10% of the GDP annually. Currently: 1132 manufacturing industries in Kenya and expected to grow at the rate of 5.2% per annum. Water demand for industries is 45,785 m3 per day (current) and is growing at the rate of 5.2 %.

5.1.2.5 Domestic water industries

Domestic water supply (treated water) and sanitation are relatively low in the country. Treated water is mainly available in urban centres and a few areas along the major water pipelines supplying towns such as Nairobi, Mombasa and Nakuru.

The result of the combined water and sanitation crisis in Africa is that at the moment an estimated 1 million Africans die every year from diseases caused by poor sanitation and hygiene and unsafe drinking water.

Diseases and productivity losses related to lack of clean water and basic sanitation are estimated to cost Sub-Saharan Africa about 5% of GDP or more than $28 billion per year. The situation in Kenya is very similar to that in other African countries as they all have similar constraints.

There is therefore need to facilitate private sector stakeholders/create conducive environment to promote development of industries for multi-purpose use which will in turn improve health status of the people, increase income and create jobs. (See example of bottled clean safe water industry)

5.1.2.6 Tourism and sports

The tourism sector sustained an upward growth in year 2007. It earned the country an estimated Ksh 65.4 billion representing a 16.4% increase over the Ksh 56.2 billion in 2006. The main water requirements for tourism are for water sports (sailing, swimming and fishing), and water for wild life. Because of its importance there in to continuously improve quality of services in the sector. One way of doing this is through promotion and expansion of water based industries in tourism, sports, and related sectors

5.1.2.7 Power generation and energy:

The total electricity generation grew by 7.3% from 5,894.9 GW in 2006 to 6,324.6 GW in 2007. Due to increasing demand, there is need to expand hydro power system by implementing projects on the basis of least cost criteria and also exploit other sources of energy such as wind power, solar, geothermal in order to minimise stress on water resources.

5.1.2.7 Environment

The main sources of water in the country are the water towers (Mt. Kenya, Aberdares ranges, Mau forest, Cherangani/Tugen Hills and Mt. Elgon). These have been affected by rapid destruction of vegetative cover as a result of encroachment for human settlement causing negative climate change and reduced water flows while at the same time increasing the alternating severe and frequent floods and droughts. There is therefore need to consider economic issues for mitigation e.g. conservation and utilization of flood water as the basis for development in the areas where they occur.

5.1.3 Challenges and Constraints

The Water Sector is faced with several Challenges and constraints. These will require joint efforts from all sector players and beneficiaries/stakeholders to surmount. Some will require

considerable resources and time to redress but this is necessary if water availability will be guaranteed in the future and if the county wishes to continue on an upward economic growth path.

5.1.3.1 Challenges

The main constraints and challenges are:

Population growth and urbanization that is exerting pressure on demand for water resources for domestic, irrigation and other uses. The population is sparsely distributed in most of the country and increasing the costs of water distribution.

Varied and unpredictable weather: The destruction of water towers and ground recharge areas has the impact of reducing water in rivers/springs leading to low supplies for production in downstream areas, increasing probability of flash floods and siltation of water bodies and destruction of aquatic life and water sport/tourist beaches. This reduces fisheries harvests and also causes abandonment of tourist areas on account of siltation. It also leads to siltation of salt manufacturing areas along the seas. The main remedial measures lie in:

- Development of alternative livelihood means other than agriculture so as to absorb that segment of the population that can not subsist on agriculture production. This will include rapid development of the industrial and services sectors to provide alternative employment and income sources.

- Increasing productivity of agriculture and achieving food security so as to obviate the need for everybody wanting to farm. This would lower the costs of food and products of agricultural origin for all.

High cost of water harvesting/storage infrastructure: The high costs of water harvesting and storage and distribution of water and the dispersed population make it difficult to implement strategies for flood/ drought mitigation and meet the water supply requirements. The impact of this slow development translates to delayed development of certain areas and foregone realization of their economic potentials. Measures to support this would include:

- Review of building codes and urban bi-laws to facilitate harvesting of water from urban centre buildings and separation of sewerage and storm water drainage and facilitate harvesting of such water for domestic or agricultural use,

- Review of highways building codes to require development of barrow pits for road construction materials and reclaimed denuded areas for use as water harvesting and storage areas along roads and on farms or quarries.

- Multiple use of water harvesting bodies such as dams for recreation, sports, power generation, domestic and agriculture water supplies thus increasing the revenue base and economic value of such water bodies.

Resource use conflicts: Resource conflicts especially over water, pastures occur especially among people living in arid areas. Conflicts also arise between humans and wild life over water, land and access points. In other cases banditry and insecurity inhibit development and expansion of trade/investments thus slowing down economic development.

Low or lack of budget provision: This does not allow for rapid development of irrigation and related services as it takes a long time to initiate and finalize development programmes. This delays realization of the economic potential.

High levels of poverty: This limits investments by individual's in turn affecting the rate of literacy impacting on the quality of labour and purchasing power therefore obviating the need for expanded economic production as the market and purchasing power are diminished. This could be addressed through the following measures:

- Supporting the rapid development of the micro-financing institutions in most areas of the country,
- Reviewing the institutional and legal arrangements and measures to promote access to credit to all majority of who have no collateral for making easy borrowing, especially the poor.

Inadequate linkages between economic sectors and water resources: The development of economic activities has not been well planned; their locations have not directly related to water resources availability, water resources have been assumed. Many are the cases where industries have been established only to run short of water or power. Some hydro power facilities have run short of water as the sources of water have been opened up for settlement affecting water supply. These are cases occasioned by poor planning of development initiatives without linking economic development in one sector with inputs from the other sectors.

Gender and Youth issues: This relates mainly to the choice of technology that is either too unfriendly to women (requires heavy manual exertion) or is too expensive for the women and youth to afford. The Government has created the Youth Fund and the Women Fund by allocating special financial resources to be lent to the two groups who previously could not easily access credit due to lack of collateral. The funds are to be used to initiate economic activities. In some areas women and youth have obtained the funds and invested in retail of water to communities (water kiosks) or in development or expansion of irrigation. Others run shops that retail bottled water as part of the shop stocks. The introduction of these targeted funds for the youth and women is a step aimed at solving an economic problem and water related enterprises are included. Generally women and the youth have no assets that they could offer as collateral to access funds from formal financial institutions. Group guarantee systems under these two Funds will increase access to investment finance for these two groups of the population.

Limitations by international treaties: Investments in economic activities are often affected by international agreements and treaties that place impediments to utilization of resources that are shared in one way or the other. Treaties on trans-boundary waters limit the country from utilization of the Nzoia, Yala, Sondu-Miriu, Dauwa and Lake Jipe waters for irrigation or industrial and domestic water supplies.

5.1.3.2 Opportunities

The main opportunities for economic development in the water and related sectors emanate from the existing high potential for expansion and diversification of economic activities. These include irrigation and livestock production under intensive systems especially in ASAL areas, tourism and wild life farming, fisheries development (especially fish farming), environment protection and farm afforestation (for commercial purposes), expansion of rain fed agriculture (through intensification and research services to develop high yielding varieties) suitable for reduced water resources and improvement of agronomic practices. Development of livestock

production and marketing industry and tourism development in ASAL areas is a significant opportunity for the development of economic potential in a large part of the country.

Integrated development of water resources presents opportunities for integrated economic development. These could include but not limited to:

- Production of high value crops under irrigation especially in ASAL areas where growing conditions are excellent and crop scheduling possible to meet market demands year round,
- Hydro Electric Power generation and water sports using water harvested from rivers,
- Increasing agriculture production and distribution to attain Food security and lower poverty levels using water harvested from farmlands, quarries and roofs especially in the neighbourhood of urban areas,
- Time saved in water fetching (women and girls) will be used for productive purposes and education.
- Minimized resource use conflicts between various communities, with wild life and also between countries.

Resources mobilization for development: With the launch of Vision 2030 which sets out the agenda for development, resource allocation has already taken an upward trend.

Reforms have already started in key sectors (Water, agriculture, tourism, trade, industries and transportation). These present a good starting point. The individual sectors have started preparing their development strategies, revised policies and new legal and institutional setups for the implementation of the supporting reforms.

The country is located on a vantage geographical point (at the intersection of trade routes from the east to the west, from the north to the south, has a well developed financial and communications hub and a good climate for production of tropical products) that can be used to spar economic development.

Opportunities exist for Water transfers from flood prone areas (high abundance areas) to scarcity (inter, intra-basin) areas which can then be used for economic development in the new areas. This would spread the overall impact of economic development and reduce the effects of development such as pollution and rapid urbanization but requires careful planning.

See experience based example of increased Water and Economic Gains in box below:

Box 5.1: Successful economic development: via irrigation:

Yatta is a dry place where crop production under rain fed conditions is only successful in about 4 out of 10 years. The introduction of irrigated agriculture after construction of the Yatta furrow has transformed agricultural production in the area, increased reliability and productivity of crop production, improved incomes for the farmers, increased food security for the communities in the region and increased economic activities in the area. Farmers grow food and high value crops including horticultural crops for export. The reticulation of water has enabled the communities to take advantage of market opportunities arising from both local and export demands and contributed to national and local economic gains. These communities would otherwise be frequent recipients of relief. Similar experiences have been gained in areas like Mitunguu Mwea Pekera, Katilu, Bura, Hola, Morulem and Kibwezi.

Some communities living near mountains are using the rivers to build small hydropower generating stations to supply power to for their use. This has contributed to development of small economic circuits such as food processing, repairs and maintenance of electronic appliances and preservation of foods. It has

also led to improvement of domestic lighting that gives school age children improved opportunities to read at home, reduced expenses on hydrocarbon usage and pollution and reduced incidences of domestic fire accidents and burning of children.

5.1.4. Gaps and Contradictions in laws and policies

5.1.4.1. Water and land use: - lack of a land use policy and plans for appropriate land use promotion has resulted in expansion of settlements into water catchments and wetlands resulting in destruction of water sources and resources. This results in diminishing rainfall and water resources for domestic, agricultural, industrial and hydropower usage and destruction of aquatic life and heritage.

5.1.4.2 Dispersed Sectoral policies and laws on catchment/environmental conservation (in Agriculture, Public Health, Local Government, Forest Act Water, Water Act/Policy, EMCA (NEMA). This makes rapid implementation difficult as each agency takes its time. This may also introduce conflicts such as conflict in water/forest tariffs way-leaves and waivers

5.1.4.3 Lack of trans-boundary frame-work for managing trans-boundary water use and conflicts arising among communities along the borders. The trans-boundary waters are significant and could be used for industrial, agricultural, transportation, fisheries and sporting purposes for rapid economic development in the countries.

5.1.5.3 Objectives

Over 80% of the population live in the rural areas primarily engaged in agriculture (crops, livestock, fisheries, forestry) production. The farmers have relied on this system for subsistence. With only a small population and adequate rain fall resources this system was sufficient. With advances in science and medicine and improvements in living conditions the population has grown fast resulting in the demand for agricultural products and water being outstripped by supply. This trend will persist in the future unless remedial measures are taken urgently. Immediate steps will include:

Improvements in the productivity of rain fed agriculture through expanded research for high yielding crop varieties and livestock, development of new agronomic practices, use of fertilizers and manures, on-farm water management practices, timely planting and pests control and soil and water conservation practices. It will also require expansion of forest and vegetative cover in order to maintain and expand levels of rainfall.

Intensification of irrigated agriculture in order to increase the productivity per unit area,

Development of support mechanisms for agriculture such as credit, improvements in inputs supply and marketing aimed at reducing production costs.

Land Reclamation: This implies improvements in the soil conditions in order to improve the growing conditions. This may include removal of foreign materials such as chemicals, stones and supplementing the natural process in harvesting water and retaining it by construction of structures to stop flow of water and retaining it in situ. There is potential for increasing productivity of agriculture, forestry and pastures through reclamation. Demonstrations in Turkana have shown significant potential exists for land reclamation.

Water harvesting from runoff also has great potential for increasing water resources. Harvested water could be used for irrigation, livestock, domestic and industrial use. This also allows for treatment of such water significantly reducing the risks of spread of infectious diseases and their economic impact. Opportunities also exist for trade in harvested water especially among irrigation farmers.

Irrigation: Kenya has a relatively short history of irrigation dating back to the turn of the 19th century when slave columns used irrigation to produce rice in the Vanga and other areas of the coast. There are undated irrigation works along the Marakwet escarpments in the Rift Valley. Formal irrigation was introduced in the mid 20th Century by European settlers growing coffee and pineapples. In the period after the emergency the government

opened up Mwea, Perkerra, Bura, Hola and West Kano Irrigation Schemes that were centrally managed by the National Irrigation Board. New irrigation farming schemes by the private sector and small holders expanded the application of irrigation technology in the 1990s with the introduction of horticulture and floriculture for export purposes. Irrigation has also been developed as a recovery measure after droughts (especially in ASAL areas) with success. The rate of development however is very slow to have marked impact on the economy. A rapid expansion programme will be required and will also call for rapid expansion of irrigation support services such as supply of water, new technologies and a change in the management of irrigation to allow for participation of stakeholders.

5.2. Benefits/ Impact of improved water and sanitation

Development of water resources will have direct positive benefits to the people and the economy that include but not limited to the following:

- Communities and especially children and women in arid and semi arid areas spend between 3 to 7 hours daily fetching water. This leaves them little time to engage in other productive economic activities. Fetching water from long distances also has the effect of wearing them down physically. Developing water resources in a manner to reduce the distances travelled would save much time. Time saved in water fetching (women and girls) will be used for productive purposes and education. This will have a positive economic benefit and also allow the girl child time for education and a better chance for gainful employment in future.
- Production of high value crops for export that will result in improved income and employment opportunities for the rural communities and development of other secondary services such as inputs supply, artisan services, transportation and processing.
- Development of water resources especially for multi- use will minimize resource use conflicts between various beneficiaries and users.
- Development of hydro electric power generation will lead to development of industries, power supply to homes and improving communications. These will create job opportunities and contribute to improvement of living standards significantly.
- Clean water availability will lead to rapid reduction of waterborne disease incidents and costs of medical bills to the individual and the economy by improving sanitation, reducing infections and lost time looking for treatment. These will lead to economic development as the saved costs can be invested for productive economic activities and improvement in labour productivity.
- Water development processes will facilitate development of water transfers from flood prone areas (high abundance areas) to scarcity (inter, intra-basin) thus creating opportunities for forward linkages and economic or job opportunities within the source and destination regions.
- Water development will lead to development of related businesses (kiosks, water bottling, sports, tourism, industries and services etc).
- Some communities living near mountains are using the rivers to build small hydropower generating stations to supply power to for their use. This has contributed to development of small economic circuits such as food processing, repairs and maintenance of electronic appliances and preservation of foods. It has also led to improvement of domestic lighting that gives school age children improved opportunities to read at home, reduced expenses on hydrocarbon usage and pollution and reduced incidences of domestic fire accidents and burning of children.

5.3. The stakeholder perspective

5.3.1 Impact of economic Issues

The main impact on stakeholders has been the declining supply of water for economic activities such as hydropower generation which affects industrial production, water quality and quality that affects domestic, industrial, tourism and agricultural usage. The major impact has been reduction of production and increased costs of cleaning the water.

5.3.2 Responses by stakeholders

The major responses have been expensive as they have included installation of generating sets to supply electric power, sinking of boreholes and purchases of bottled water for domestic water. Agriculture producers have had to cut on production or augment supplies through water harvesting and storage for at least 90 days demand.

These response measures are likely to persist in the future and perhaps become more frequent as water resources dwindle. This will affect the small scale operators and the poor significantly unless new sources of water and new water efficient technologies are developed. There may also be more frequent power rationing programmes and a decline in tourism as power and water resources affect tourism negatively. Other impact will include food insecurity and rising unemployment as industries and other businesses close which could result in civil instability.

5.3.3 Impact of stakeholder participation in WSSP preparation and implementation

The participation of stakeholders in the WSSP Process has several advantages. These include but not limited to:

- The process will create ownership of the development through wide stakeholder consultation at various (all) levels before finalization and during implementation. This also allows them to participate in implementation through funding.
- Create mechanisms for periodic review at all levels WS TWG, WESCOORD, WSDG, regional and catchment levels. (GOK, civil society, private sector communities)
- Participation in guidance and M&E of the process of development and implementation of the WSSP (including mid-term review)
- Participating in develop integrated framework to implement the strategy

5.3.4 Priority capacity development needs

Capacity development will be required at three different levels:

i) National level:

At national level capacity development needs will include Institutional, policy development and M&E, technical supervision, stakeholder coordination (CICT, R&D)

ii) Provincial/District level:

At this level capacity development will include development management, coordination mechanisms, skills (leadership), O&M management, research and development governance, - economic analysis, participatory tools/ techniques (ICT), R&D.

iii) Community level:
At community level capacity development requirements will include: Leadership, Organizational skills, O& M management, action planning, proposal development, social mobilization and feed back mechanisms management.

Box 5.3:Current Status in Tourism Sector

Rapid development of tourism and national parks in the Kenyan coast was as a result of water development programs and other infrastructure development. In the earlier years there were frequent water shortages resulting in underutilization of tourist facilities. Development of water in wild life parks has considerably reduced human wild life conflicts which were fatal in most cases as wild life strayed out of parks in search of water during periods of scarcity.

Water sports has not developed significantly at the competitive level although potential exists for white rafting, yachting and speed boating in some of the water bodies.

Box 5.4: Policies, Laws, Water and Development: industrial perspective

- Water is required for production of electricity for industrial use and to facilitate industrial process.
- Most of the industrialist contributes to pollution through disposal of industrial waste to rivers
- Need to develop and implement effluent discharge control plan.
- Need to develop adequate water storage policies to improve reliability
- Need to formulate policies to maximize benefits from water transport
- Need to promote productive use of waste water

5.3.5 Best practices and successful solution

The application of good practices in the use water for economic development has improved performance and returns in many areas some examples are cited below:

- Political Will
    - Removal of eucalyptus from riparian areas in Muranga and Kirinyaga (rivers had dried up but started to flow again after removal) - Intervention by Minister for Environment
    - Nairobi river cleaning initiative – Minister for environment
    - Food for assets; in Turkana District-food insecurity, resources, resources use conflicts, lack of water for domestic and livestock , sanitation and forestry and agriculture through water harvesting the land has charged from desert to highly productive area. Started with 20Km2 and has extended to 120km2 through community adoption and up-scaling with more neighbour hold joining.
- WRUA" In Tana catchment water use conflict, river bank and encroachment was a major problem. RWUAs took up WRM/catchment management issues – as a result of this reduced conflict.
- Supply of water, power and land to EPZ ATHI RIVER and other industrial PARKS. Before, there was no provision of these facilities resulting in slow development.

- Water and livestock: water for livestock and pasture development in ASALs (pans, boreholes, shallow wells, small dams).
    - IMPACT: Livestock used to travel long distances.
    - 2004, Turkana was very dry and L/S was moving long distances as far as Uganda.
    - After introduction of pans, BH, shallow wells and small dams L/S distance reduced, environment protected through regulation of watering points.
    - School enrolment increased, especially for the boys.
- Water and Fisheries
    - Initially there was low preference for fish products in the country generally.
    - After awareness and sensitization campaigns coupled with high cost of beef, preference for fish as a source of protein etc has increased tremendously and hence mushrooming of fish hatcheries, e.g. Sagana , Narumoro.
- Water for horticulture/Agriculture
    - Heavily dependency on rain-fed agriculture with low productivity and quality.
    - Current status: A number of public, individual and private companies' schemes have increased e.g. Mitunguu, Kibwezi, Yatta, Home grown, Evergreen etc.
    - Increased productivity, food security, employment opportunities income and wealth.

5.4 Strategies to implement the agreed economic objectives

To achieve the stated objectives the following strategies will be implemented. It is worth noting that some of these broad strategies cut across ministries or a particular strategy may be the mandate of a single ministry. The following strategies will be employed:

5.4.1 Strategy 1. Increasing domestic and irrigation water supplies. This will include:

- Harvesting water and storage by state, private and non state actors.
- improvement/removal of non-facilitative macro-economic policies
- Maintenance of attractive business opportunities for the use of water resources.

5.4.2 Strategy 2. Developing Effective and Efficient water use systems to encourage Water for Economic Purposes

- Developing new regulatory and control systems and rules
- Developing new irrigation systems,
- Water reticulation systems to factories and other uses,
- Development of multi-use water storage systems.
- Expand hydro power system by implementing projects on the basis of least cost criteria

- Exploit other sources of Energy such as Wind power, Solar etc to minimise stress on water resources

- Encourage use of water/rivers for power generation and other uses at all levels as the stakeholders are likely to protect the water sources to sustain their micro hydropower stations. This may result in reduction of fluctuation of water levels in lower dams and siltation of reservoirs.

- Increase areas of land reclamation through in-situ water harvesting and storage systems and forestation

5.4.3 Strategy 3. Develop policy, regulations, guidelines and standards and pilot programs for efficient utilization of irrigation water including Recycled Waste water:

This will make a significant impact on the supply of water and reduce the deficit.

- Develop irrigation, drainage, storage, land reclamation and water harvesting polices
- Carry out studies to establish available water fit for recycling and areas where available,
- Development of appropriate technologies for efficient water use
- Establish potential users of recycled water for industrial, agricultural production and forestry uses.
- Develop modalities for distribution of recycled water and
- Set quality standards and guideline to be followed by those recycling such water,
- Establish funding mechanisms and incentives to encourage recycling of water.

5.4.4 Strategy 4. Development of Water Parks as the basis for development and industrial planning

- Surveying and locating appropriate water sources and estimating available water resources and mapping them out,
- Developing its development, distribution and disposal of waste water and sewerage,
- Inviting industries and settlements to set up within the locality of the water source instead of conveying the water to consumers far away from the sources.
- Facilitate private sector stakeholders / create conducive environment to promote development of industries for multi-purpose use
- Promote and expand water based industries in tourism, sports, and related sectors

  This would also include provision of power, infrastructure and other amenities along the same lines as the EPZ. The current EPZ model is not based on water availability and some of them have faced severe water shortages.

5.4.5 Strategy 5. Develop measures to mitigate/manage disasters

and impact of climate change: (floods, droughts) as they take considerable resources to redress.

- Economic issues for mitigation e.g. conservation, utilization of flood water should form the basis for development of flood mitigation measures.

- Developing locally adaptable mechanisms to address the impacts of climate change and for participating individuals and communities to benefit from the adoption of mitigation measures and carbon credit, and water harvesting and storage at various levels e.g. floods and rain water.

5.5. Key result areas to be achieved

5.5.1 Water and Sanitation

The Key results to be achieved in the water and sanitation sector as a result of implementation of the WSSP are:

1. Reduction of water borne disease burden significantly and saving of time and costs of medical care for the individuals and the nation.
2. Improved public health and reduced burden to health facilities/health budget.
3. Reduced pollution of environment/water.
4. Population will be free from sickness and more economically productive,
5. Sustain school attendance by the girl child,
6. Improved social health/well being in homes and public setup/stress free,
7. Creation of favourable conditions for tourism development,
8. Improvement in livestock production daily farming and irrigated economic activities.

5.5.2 Economic results

The Key results to be achieved in the economic water sector as a result of implementation of the WSSP are:

1. Increase productivity, efficiency, effectiveness in the utilization of the water resource,
2. Increased economic productivity as a result of Reductions time losses as a result of water borne diseases,
3. Reduced degradation of water catchment, siltation of dams and reservoirs and conflict issues that threaten investments in water supplies and infrastructure.
4. Improved standards of living, wealth creation, poverty reduction and employment creation.
5. Expansion of industrial processing parks (EPZds), tourism sites,
6. Increased school enrolment, improved economic sectors in rural areas as a result of time savings and development of small economic cycles etc.
7. improved sanitation services
8. development of related businesses (kiosks, water bottling etc),
9. Increased economic development from improved performance of related sectors such as power generation, agriculture, tourism, fisheries etc as a result of improved economic management and development of the water sector.

5.6. Capacity development

There will be need for capacity building at all levels in order to secure the success of this strategic plan.

At the stakeholder level efforts should concentrate on improving their capacity to plan and utilize the water and sanitation resources efficiently, protect sources, minimize pollution of water bodies and maintain the water resources sustainably.

At the state level capacity building needs will include those for planning and resource mobilization for water and sanitation development, protection of the environment, maintenance of appropriate policy, institutional and macro-economic framework conditions for the sustainable development and utilization of national water resources.

5.7. Areas and cases where special attention should be paid to collaborative efforts to avoid conflicts

5.7.1. Rural

- Conflicts between pastoralists and irrigators – over land, access to water and pasture e.g. schemes along major rivers and springs.
    - Solution: Development of inclusive/collaborative WUA, RWUAs and committees, technical departments DSGs and other stakeholders.
- Large scale leasing of land by government for irrigation development contrary to the interests of local communities e.g. lower Tana/Tana delta, Yala swamp.
    - Solutions
        - Development of more inclusive Private Public Partnerships in consultation with the communities
        - Include wider stakeholders' consultation participation before initiation of the project.
        - Enforcement of all development tools and legislation, regulations, guidelines and standards e.g. EIA, ESIA, EA, PLSD.

5.7.2. Water and Urban Settlement

- Conflict between source and users, e.g. –
    - Nairobi city water vs. irrigators/domestic users in upper Tana.
    - Nairobi city Water vs. Hydro-Electric Power (KenGen) along the Seven Folks dam. Nairobi vs. other smaller towns e.g. Thika

Solution:

- Include all stakeholders (MWI, WRMA, WSBS, WASREP, Communities and resource owners, consumers/users, NGOs, external donors other GOK departments/Ministries.

5.7.3. Trans-bounder Water Resources

There exist different development priorities among the riparian countries, e.g. Dauwa/Omo in Ethiopia, Lumi River in Tanzania.

Solutions:

- Develop a collaborative framework for utilization and conservation of the shared waters.
- Develop a mechanism for implementation and dispute resolution

5.7.4. Water Use Conflicts

Conflicts over water for environment and tourism/wildlife, human, industrial and agriculture usage:

Solution: Collaboration bet development agencies e.g KWS, KFS, NEMA,WRMA, NGOs, WRUAS, development partners, research institutions (both Local and International)

5.8. Examples: Improved Effectiveness and Efficiency in the use of Water for Economic Purposes

- Collaboration between WRMA, KFS, Agriculture and communities in riparian areas/catchment management will increase chances and opportunities for sustainable water resource uses.

- Collaboration with communities especial the youth in developing econ-tourism circuits together with KWS, KFS within SCMP implementation as livelihood activities.

- Promotion of methods that reduce water losses in conveyance, distribution application (e.g. lining of canals, use of drip system, piping open furrows, in imposition of water use fees (user pays), metering, control devices, community capacity building, cooling industrial and geothermal vapors for re-use.

- Adopting methods to reduce UFW in water service provision will reduce the costs to water companies and increase sustainability of supplies.

5.9: Resource requirements

The major resource requirements for economic use of the water are:

- Water it-self in sustainable quantities for all uses. The recent trend of decline of water from natural sources such as rivers and ground water and increasing incidences of pollution will require augmentation from harvesting of rain and flood waters and enforcement of environmental protection measures.
- Funding for the financing of development and maintenance of water and its appropriate usage,
- Human capacity to manage the water resource sustainably.
- Strategies and plans for sustainable development of water uses across the many sectors.

Box 5.5 Policies, laws, water and sanitation development: an entrepreneur perspective

Entrepreneurship practices are required to explore innovative ways to harvest water, make effective utilization through reuse and recycling for domestic and irrigation purposes and also to develop responsive and economical sanitation businesses like commercial wastewater treatment systems, solid waste collection, treatment and disposal/reuse. The Government should also develop policies for promotion of good and affordable sanitation and

encourage public private partnerships. Sanitation should be looked at from the entrepreneur's eye as 'wealth' and not an 'eye sore'

5.10. Communication and Mobilization

The success of the implementation of this strategic plan will depend for the most part on how well and accurately it is communicated and received by the target stakeholders and beneficiaries. Efforts should be made to get them to view it as a positive measure to increase the sustainability of water related economic activities rather than a measure to introduce controls. They must be involved in the implementation and promotion of its uptake through their organizations such as the Kenya Association of Manufacturers, Kenya Federation of Agricultural Producers, Kenya Association of Tour Operators and Water Users Associations at all levels. They must be co-opted into the various committees formed for implementation of the strategic plan while some of the resources for implementation and mobilization should be made available through them.

5.11. Further Actions

The following areas require further actions by the sector ministries, industries and other water users:

- Preparation of master plans estimating their water demands for the next 10 years.
- Preparation of a water demand master plan for all stakeholder demands by the water ministry and,
- Preparation of a master plan for meeting this demand including the costs of doing so,
- Preparation of water supply areas to be developed as water parks or Economic Zones (for industry, tourism, settlements and environmental conservation,
- Preparation of master plan for ground water recharge, reforestation of public and private farms and modalities for extending the green carbon credit to stakeholders,
- Policy and measures to promote water harvesting on private land and promotion of trade in harvested water for economic activities,
- Policy on promotion of sanitation facilities in public areas across the country as a youth economic activity,
- Tax measures to promote efficient usage of water for industries, micro-hydropower and sanitation.

6.0. SOCIAL DIMENSION

6.1. Background

The Water Sector Strategic Plan will play its role towards the Social Pillar of Vision 2030 i.e. building a just and cohesive society that enjoys equitable social development in a clean and secure environment. The Plan includes Sanitation, normally under Public Health, as it is part of provision of water supply services. Development of water supplies has not been matched by corresponding increase in sanitation facilities development. The rapid rise in population along with the rural to urban migration has increased the demand for sanitation facilities with demand outstripping supply leading to waste water being discharged into rivers and dams. National sanitation coverage increased from 45% in 1990 to 48% in 2006.[13] There is also a difference in access to adequate sanitation between the formally planned urban areas and the rural and informal urban areas with the former being served better than the others.

Water supply coverage on the other hand is estimated at 40% in the rural area and 60% in the urban area[14]. Within the urban area we have the informal settlements where supplying water has been a greater challenge than providing water in the planned urban settlements. In the rural areas, women and the girl-child spend disproportionate amounts of time and energy trekking long distances to water sources at the expense of other productive work and schooling. Lack of (and inaccessibility) to sufficient water reduces potential for conflicts this is evident in the ASALs where different pastoralist communities have skirmishes. This has led to high insecurity in those areas

Box 6.1: Some evidences of water conflicts in Kenya.

Yang'at organization are helping people in dry, rural communities in the West Pokot region of Kenya and Uganda develop clean water resources for human consumption and for livestock. The new water supplies have served to ease fighting between people from the two communities who cross borders to poach water from each other.

Police were sent to the northwestern part of Kenya to control a major violent dispute between Kikuyu and Maasai groups over water. More than 20 people were killed in fighting in January. By July, the death toll exceeded 90, principally in the rural center of Turbi. The tensions arose over grazing and water. Maasai herdsmen accused a local Kikuyu politician of diverting a river to irrigate his farm, depriving downstream livestock. Fighting displaced more than 2000 villagers and reflects tensions between nomadic and settled communities.

A clash between villagers and thirsty monkeys left eight apes dead and ten villagers wounded. The duel started after water tankers brought water to a drought-stricken area and monkeys desperate for water attacked the villagers.

6.2. Vision and Strategic Objectives

In light of the above situation, the **vision** of the WSSP social dimension is ***a clean and healthy Kenya in which every person lives and participates in a peaceful hygienic environment***

[13] First Medium Term Plan 2008 - 2012

[14] Implementation Plan for the National Water Services Strategy

that has safe, adequate and affordable water for consumptive and productive use as well as sanitation that promotes health.

The Strategic Objectives to realise the Vision above will be:

i) To reduce inequality in service provision on water sanitation.

ii) To reduce incidences of waterborne and water washed diseases.

iii) To provide water and sanitation services to enhance peaceful co-existence amongst communities.

The social dimension looks at the socio-economic settings as well as themes such as equity, health and peace, as seen in the strategic objectives. Water is a basic need to all and therefore access to it is a human right as recognised by the International Committee for Economic, Social and Cultural Rights in 2002. In designing water policies and programmes, the rights based approach needs to be embraced. This will not only reduce inequality in accessing water but will also contribute to peaceful co-existence amongst communities. Critical also is community participation in water development programmes especially in decisions making on technology and determining the level of service they require. Active and meaningful participation throughout all levels of the programming process both ensures those community needs and priorities are addressed, and foster a sense of ownership in the programme. Communities are thus willing and able to maintain the programme when the government and donors have withdrawn.

Water management is a priority concern for many communities in Kenya. Kenya's new Water Act provides a role for the community in water management, through formation of Water User's Associations. However, despite the policy focus on community involvement, community organization for water management is not forthcoming. This is due to a number of factors including property rights and access issues and ownership of water systems and the land on which such systems are located. Property rights issues arise where a river is the main source of water and yet all the land along it has been adjudicated as private property thus restricting access. Securing land easement is a difficult process that often delays implementation of projects or even stalls them. Communities should consider establishing water systems on land acquired from individuals through outright purchase rather than the prevalent system involving land donation. The land acquired through purchase can then be registered as public trust land. A public trust land is an open access area with everyone enjoying equal access to water sources located on it

The Social Dimension will focus more on the users of water as opposed to the uses of water in the development of policies and programmes. Both men and women needs should be put in consideration during planning for both water supply and sanitation. Generally, in many parts of Kenya, women have less access to education and other resources such as extension services and credit; have heavier work burdens; are more constrained by poor health; have a lower social status; and are poorly represented in decision-making at both household and community levels. Women and men make different, sometimes unequal contributions to water and sanitation management at both household and community level. Women collect water for household use, manage its use and play key community management roles, in some cases including construction and maintenance of traditional sources. Whereas in sanitation, men often construct latrines, women keep them clean and useable. Women assist children, the aged, and the sick with their hygiene and sanitation needs.

6.3. The Socio-Economic Setting

6.3.1. Water and Sanitation in Rural Areas, Urban and Peri-urban Areas

(i) Rural Areas

Much of Kenya's population lives in rural areas where water supply coverage is estimated at 40%. Rural areas can be broadly categorized into arid and semi arid lands (ASAL) and high–potential agricultural areas. ASALs are largely served by point sources situated far from most residents.

In an attempt to improve service levels, the Water Services Trust Fund (WSTF) has implemented the Community Project Cycle (CPC) for underserved rural areas. Through the CPC, communities create Water Users Associations (WUAs), legally recognized organizations with service provision agreements from Water Service Boards (WSBs), whose capacity can be built to provide sustainable water services in rural areas. However, such projects are faced by challenges of sustainability, reliability and quality. Sustainability of community sources is tied to ownership demonstrated by willingness to pay and active participation in maintenance - values not yet fully embraced by communities. WSTF should train communities in managing these schemes as well as raise awareness on the sector reforms. WSBs and WSTF should also ensure monitoring and documentation to support future planning.

(ii) Urban and Peri-urban Areas

Access to water in the peri-urban areas is through unregulated, informal service water providers. Water kiosks sell water at three or more times the price charged by NCWSC and are the only source of water for poor residents despite the high prices and poor water quality. Nearly all these connections are illegal, leading to huge revenue losses. Given poor environmental sanitation conditions water related diseases such as diarrhoea, cholera and typhoid are common.

Dwindling water resources against rapid population increase in these areas requires MWI to fast track the implementation of pro-poor sector reforms, although this is currently hampered by the lack of strong regulatory frameworks. Active engagement of the poor, through effective consultations, can develop trust and enhance the willingness to pay, while at the same time establishing effective means of allocating funding not only for capital development and capacity-building, but also for operation and maintenance. Pro-poor WSS issues are crosscutting and therefore require support from other sectors. Sanitation should be given equal prominence in the sector. This requires new approaches possibly including provision for emergency programs. There is a critical need for more accurate information on sanitation in these areas to enable planning and budgeting.

6.4. Water for Health

Access to quality water services and sanitation is a necessity for health. This must be accompanied by good hygiene practices. Community health demands an integrated approach comprised of community mobilization, health and hygiene education, water supply and sanitation. Under this sector strategy the MWI will:

- Develop national water quality objectives after substantial water quality testing through sample surveys.
- Support point source water quality interventions through appropriate technology approaches.
- Undertake a national behaviour change campaign to target areas that have past cases of waterborne diseases.

6.4.1. Women and Children in Water and Sanitation Development

Women and children are the first to suffer and disproportionately affected by the disruption of water supply and the provision of sanitation services. Their central role in the sector is seldom reflected in institutional arrangements for the development and management of water and sanitation resources.

The Ministry should ensure that the needs of women and children are addressed by:

- Facilitating access to grants or credit on concessionary terms for women's groups for water supply and sanitation facilities;
- Allocating resources to civil society organizations and small-scale providers of water and sanitation services, particularly those that include women as full partners;
- Providing micro-credit and creative alternative financing mechanisms to gender-sensitive organizations for improving or building community-based water and sanitation services.
- Recognizing women's role in agriculture, livestock and fisheries, ensuring access to water for productive uses and improving productivity through training, market linkages and access to information.
- Supporting and promoting equitable land and tenure arrangements that enable female producers to become decision-makers and owners.
- Earmarking funds for hygiene promotion in schools and for more separate sanitation facilities for boys and girls.

6.4.2. Water, Sanitation and Schools – for now and in the future

Access to safe drinking water and environmental sanitation is universally recognized as a human right, which has special significance to school going children. These rights are guaranteed by the Convention on the Rights of the Child (CRC) and in the African Charter on the Rights and Welfare of the (ACRWC) which considers the provision of adequate sanitation a basic right for survival, development and protection of the child.

The Ministry of Education recognizes that inadequate water and sanitation facilities and poor hygiene pose a serious setback for smooth implementation of the free primary school education

policy goals, which has seen a sudden increase in primary school population since 2003, seriously straining school water and sanitation facilities.

To achieve a healthy school environment that optimizes children's learning capacity, the health, education, and water and sanitation sectors must work together to ensure that school sanitation programs succeed in achieving their strategic objectives. The Ministry of Health has been developing an Environmental Sanitation & Hygiene Policy (with the support of UNICEF, WHO and the World Bank's Water & Sanitation Program) which has a chapter on School Sanitation and Hygiene. Moreover, whereas requirements for ideal school sanitation are stipulated in various statutes such as the Public Health Act, the Education Act & the Building Code often these statutes are not complied with due to financial constraints. The MWI proposed strategy should promote a favourable policy environment based on the following principles:

Scaling up of advocacy campaigns to put school sanitation on the political agenda as well as development of a minimum policy for the sector with inter-sectoral agencies.

- Promoting a demand responsive approach to service delivery so that schools make informed choice regarding their level of participation, service level and service delivery mechanisms.
- Encouraging stakeholder participation, setting policies and standards, financing facilities, and promoting appropriate hygiene behaviors
- Promoting cross-sector linkages among the education, health, and water and sanitation sectors

Operation and maintenance (O&M) of existing facilities in many schools has been hampered by lack of capacity to mobilize resources from users, lack of O&M plans, and insufficient O&M training. To ensure long-term financial sustainability to school hygiene, sanitation, and water projects the MIW strategy should focus on establishing a financial policy to ensures sustainable operation and maintenance and establishing sustainable financial policies preferably ones in which O&M costs are in the education budget.

Collaboration among Key Stakeholders in Water and Sanitation for Schools

Stakeholder collaboration in school water and sanitation should be incorporated in the MWI strategy and incorporate the following principles:

- Establishing a strong institutional framework that links existing policies and creates incentives for pursuing integrated approaches.
- Building institutional capacity to link activities among sectors effectively and to manage multi-faceted programs.
- Improving communication and networking among organizations in different sectors.
- Maintaining an effective policy advocacy campaign to raise awareness and win policymakers' support for cross-sectoral collaboration.
- Creating mechanisms for institutional collaboration.
- Strengthening human and institutional capacity within MWI to implement the strategy.

6.5. Water for Peace

Since water is irreplaceable and indispensable to life, it is a valuable and contested resource. Water management is a complex issue with far-reaching and contentious effects. Water-related tensions emerge on different geographical scales, but a number of political, socioeconomic, and cultural factors determine whether these tensions lead to conflict. The following are some of the factors that may accelerate conflict:

- Unequal distribution of water
- Inefficient water use
- Increase in Population
- Pollution
- Rising cost of water
- Inflexibility, inefficient, and inequitable agreements for managing waters
- Control (Politics)
- Water supplies located in basins and aquifers that cross international borders/shared resources

Tensions over water allocation can increase when water is scarce, but even when the resource is not severely limited, its allocation among users and competing uses e.g. rural and urban populations, subsistence and commercial production or pastoralism and crop farming, can be highly contested.

6.5.1. Enhancing Peace through Water and Sanitation

In most cases, it is not the lack of water that leads to conflict as outlined in the previous section but the way it is governed and managed. Water and sanitation should be used for cooperation rather than conflict. The following are the strategic measures:

Quick Results Programmes: Capacity-building to enhance peace through hosting regular community water and hygiene awareness meetings at water sources and providing training and awareness materials on the linkages between, water poverty and conflicts for senior managers, officials, decision makers and technical staff within WASREB, WSB and WSPs.

Five Year Programmes: Providing sustained water supply to farmers and pastoralist communities so as to reduce conflicts. This will entail: drilling and equipping 180 boreholes and 200 small pans in ASALs; constructing a 54km inter-basin water transfer canal in Rahole area connecting Tana River in Garissa district; constructing large water storage facilities to harvest flood waters in disaster-prone areas to include multipurpose dams along Rivers Nyando and Nzoia and water dykes along lower Nzoia and Nyando; encouraging the development of new skills and expertise within an Integrated Water Resources Management (IWRM) framework, linking social and gender aspects with the ecological, technical and economic dimensions of water management; enacting a transboundary water management policy.

6.4.2. Water and Sanitation for Peace in Emergency Situations

Emergency situations in Kenya on a large scale emanate as a result of causes of politically-instigated violence or environmental causes such as drought and flooding. MWI should devise approaches of using water and sanitation as a tool for cooperation and crisis management for future social stability. MWI's strategic response will be as follows:

One Year Recovery Programmes: providing direct funds to community water projects and support household to put up sanitation facilities in the regions affected by the recent post–election violence and capacity building and training for WUAs and WRUA to encourage peaceful co-existence amongst communities by using these local water sector institutions as agents of peace.

6.6. Water for Equity

In the context of this strategic plan, MWI addresses equity in terms of water and sanitation availability, allocation, distribution and use where the principle of "some for all and not all for some applies." Equity takes into consideration differential needs of different sections of communities and aims at approaches that respond to specific needs. At a macro level, the dynamics which result in certain regions being favoured over others, or certain sections of the population enjoying greater influence and hence better service are examined and strategically addressed. At a micro level, relative disparities within the family/community in accessing services are examined.

Efforts have been made in the past to address inequities in allocation of water resources. The *National Water Resources Management Strategy (2007 – 2009)* focuses on putting in place mechanisms that promote equal access for all Kenyans through legal and institutional provisions and recognizing the needs of various sectors, based on mainly pro-poor principles.

In attempt to enhance equity the Ministry of Water and Irrigation lays out a strategic focus on informal settlements, ASAL areas, small and medium towns, big towns, rural high potential areas. The government plan is to ensure that the inequality gap is not widened by social, economic, political, environmental or geographical factors. To address equity MWI will focus on the following strategies:

- Working with water sector institutions to better understand how affordability issues of the poor can be tackled.
- Focused research using water and sanitation mapping as a tool to determine levels of investments required for sustainable services in areas and for communities considered 'hard to reach'
- Analyzing water and sanitation sector budgets, identifying constraints that restrict effective use of the funds and targeting the poorest
- Strengthening national level networks of civil society and facilitating a more coordinated approach of dialogue with key stakeholders on addressing issues of exclusion
- Understanding the impact of climate change on issues of sustainability that will affect the poorest and excluded the most
- Engaging with the media to increase the visibility for the sector and the role that effective water and sanitation can play to help eradicate poverty.
- Formal representation of community concerns on service delivery through various consultation forums and initiatives that focus on the rights of people to services and the need for service providers and governments to be accountable
- Mapping of water and sanitation facilities in terms of access and functionality, analyzing results from community planning and mapping processes to identify pockets of un-served

or underserved communities based on the above and planning for appropriate levels of investments and interventions.

- Identifying physical and financial targets at the district level to achieve MDGs and ensuring that these are further tailored to meet the needs of the poorest and the excluded
- Analysis of resources available and working with line ministries and other stakeholders to advocate for the need to reach out to the poorest.
- Organizing sensitization and capacity building workshops to enable WSBs and WSPs and service providers to integrate equity and inclusion.
- Continuous research on constraints (social, physical, financial) faced by the poorest and the excluded in accessing services to ensure services are designed to better meet the needs of such people.

6.6.1 Equity in Informal Settlements

High population density with little access to adequate services such as housing, water and sanitation, roads are characteristic of informal settlements. The mushrooming of informal settlements is partly as a result of inequalities in terms distribution of resources across the country. Due to the perception that livelihood opportunities are "readily" available in the urban areas, people flood to towns in search of better opportunities. Majority of these people end up in informal settlements where the strain on resources including water is exacerbated. Traditionally, informal settlements have been sidelined in terms of service provision due to a number of reasons including perceived low economic viability and limited access to the settlements by service providers. Women and children are further marginalized and their needs are rarely properly included in the design of services. Solution to the needs of informal settlements is a multi-stakeholder issue with the participatory contribution of all line ministries and development partners, NGOs, CBOs, the civil society and the community. The Ministry of Water and Irrigation will in the next five years target to increase access to water and sanitation to all residents of informal settlements at an affordable price and in a sustainable manner. The strategic response to this will be through:

Quick Results (1 Year Programmes) - these will include: developing a National Policy on Informal Settlements Water and Sanitation; developing a database for the urban poor; social mapping of informal settlements to determine social tariffs; protecting the rights and needs of poor and marginalized groups.

Five Year Programmes – these include: integrating a concept for low-cost technology on sanitation; implementing the policy identified in the first year of this strategic plan with an aim of increasing water and sanitation coverage; incentives to WSBs and WSPs to serve informal settlements

6.6.2. Equity in Rural ASAL Areas

Arid and semi arid areas suffer intermittent rainfall and are prone to persistent drought. Natural water resources distribution is low and unreliable for economic activities. The social structure of these areas is affected by increasing poverty levels, dwindling food security, disease and low security. Over the years, the government has continued to unearth available opportunities in ASAL through up scaling of investment on amenities in these regions. MWI focus is to eliminate disparities in water and sanitation services to enable communities to engage more productively in economic activities. Strategic response in the ASAL areas will be through:

Quick Results (1 Year Programmes) - collecting and developing baseline data in all ASAL areas to prioritize and target investment to areas of low coverage.

Five Year Programmes - coordination with relevant government bodies, UN agencies, donors, development organizations, networks, federations, schools, and community-based organizations to: drill and equip 180 boreholes and 200 small pans; construct ecological sanitation and improved on – site sanitation facilities to cover 38 ASAL districts as identified in the ASAL policy[15]; integrate sanitation programmes with the health, education, economic, social, environmental, and tourism sectors, and promote public, private, community and school partnerships at district and local levels; emphasize the needs of the poor, disadvantaged, female-headed households, and rural areas; encourage participation by women, school children and local institutions in developing, planning, implementing and monitoring water and sanitation programmes; enhancing gender equity in control of community water and sanitation projects.

The government should develop a national Rainwater Harvesting Programme in ASAL in collaboration with other stakeholders and direct funding to it.

6.6.3. Rural High Potential Areas

Rural high potential areas are faced with diverse competing needs for water due to the multiplicity of activities supported in these regions. Though availability of the resource is not a major problem as compared to ASAL areas, water for domestic use is supplied alongside increasing needs for irrigation and livestock. There regions also have high population growths that continually increase daily water demands. Due to climate change factors people, living in high potential areas find it increasingly difficult to rely on rainfall for agriculture and livestock farming and are therefore compelled to result to irrigation. In order to guarantee equity in water resources, there should to be a water balance such that availability of safe adequate drinking water is not compromised. In addition, downstream users must also benefit from the resource equitably. Some high potential areas are also sources of water for big towns. Residents of these rural areas should also have access to this water supply.

6.6.4. Small and Medium Towns

Kenya is faced with the challenge of rapid growth of urbanization as more people are migrating into existing towns in search of opportunities thereby increasing demand for services such as water and sanitation. Small towns are also emerging as a result of creation of new districts. In addition to the emerging towns, existing ones are expanding often without corresponding improvement in infrastructure. A lot of these towns exist as "pockets" within rural economies, targeting them as potential markets. This creates competing demands that sometimes finds surrounding rural areas getting priority over small towns. The goal for this strategy is to progressively improve equitable access to water and sanitation services for small and medium towns.

Quick Results (1 Year Programmes) - undertake liquid waste treatment feasibility studies in the towns of Malaba, Lagdera, Lodwar, Wajir, Elwak and Liboi where the water table is too high to support latrine construction.

[15] April 2007; National Policy for the Sustainable Development of Arid and Semi Arid Lands of Kenya, Office of the President Special Programmes

Five Year Programme - undertake a satellite town water and sanitation intervention for the towns of Nairobi, Kisumu, Nakuru and Kisii and develop water supply for the Vision 2030 proposed resort towns of Isiolo and Lodwar. Also, water and sanitation supply for 26 medium sized towns of Narok, Machakos, Maralal, Wajir, Wote, Hola, Chuka, Ruiru, Athi River, Siaya, Ol Kalou, Matuu, Maua, Moi's Bridge, Limuru, Moyale, Kapsowar, Maseno, Kapenguria, Kitui, Lokitaung' Karuri, Lamu and Chogoria as proposed in the Medium Term Plan (MTP) of Vision 2030.

6.6.5. Big Towns

Water and sanitation in big towns (Nairobi, Mombasa, Kisumu, Eldoret and all provincial headquarters) needs to be approached on a wider scope rather than mere expansion. Big towns are subjected to daily influx of new inhabitants from rural areas as well as from other countries (Nairobi for instance observes annual increase of refugee population). Water and sanitation in Kenyan big towns could slowly turn out to be a source of socio-political conflicts as being connected to a water sources does not always guarantee access. For instance, taps in some residential parts of Nairobi run dry for months forcing residents to depend on water vendors who charge exorbitant rates. Big towns also need industrial water.

There is need for efforts to ensure big town residents are equally serviced with sanitation. Sewerage infrastructure in big towns is minimal or non-existent people resorting to on-site sanitation. Service inequality in big towns is more of a governance than an investment concern. The MWI will take the following actions to address equity in big towns:

(i) Short Term Measures

- Increase budgetary allocations for rehabilitation and improvement of existing schemes.
- Establish programmes to progressively install new sewerage facilities giving priority to the un-served.
- Strengthen community participation in water and sanitation decision-making as well as dissemination and implementation of decisions.
- Rollout demand management programme focusing on conservation measures such as eliminating UfW, training and raising public awareness on responsible water use.
- Work with stakeholders to encourage industries to recycle water.
- Through WASREB the MWI will put in place a realistic pricing policy that will allow water conservation and discourage waste while ensuring that the poor can meet their basic needs at a price they can afford.

(ii) Long Term Measures

- Additional sources of water require to be sought including inter-basin transfers.
- Focus on recycling and re-use of waste water in big cities

6.7. Implementation Plan

Implementing the social dimension of the WSSP will take the coordinated effort of all the concerned stakeholders. All water sector institutions will entrench and propagate the established social dimensions over the next five years. The MWI will coordinate the sector institutions and ensure that the social goals are streamlined in institutional strategies and action plans. It will also

coordinate cooperation with other line ministries, development partners, non-governmental agencies and the private sector to ensure efficient and effective implementation. The MWI will thus need to:

- Evaluate the institutional strategic plan to ensure social dimensions are mainstreamed.
- Develop and incorporate measurable indicators of social dimensions to enable monitoring and evaluation.
- Provide guidance to NGOs and the private sector to ensure that implementation by these stakeholders is in line with the social dimensions of this strategic plan.
- Coordinate with development partners in accordance with the SWAP and advocate for financing of programmes that satisfies the social goals of this strategic plan.

6.7.1. The Legal and Institutional Framework to Favour Coordination and Joint Efforts

The water sector reforms have brought about an elaborate legal and institutional framework that favours coordination and joint efforts to achieve social goals of the WSSP. The legal framework of the water sector is entrenched in the Water Act 2002, which fundamentally separated policy formulation from regulation and service provision, created new institutions and provided room for stakeholder participation. Resulting policy documents include the National Water Services Strategy 2007 – 2014, the National Water Resources Management Strategy and the Pro-poor Implementation Plan (PPIP). The Sector Wide Approach to Planning (SWAP) further provides a coordination framework for the MWI and Development Partners along a number of agreed partnership principles.

6.7.2. Stakeholder Analysis

6.7.2.1. Water Sector Institutions

The various roles of water sector institutions provide an opportunity for participation of stakeholders in both water resources management and water services provision. These include the Water Resources Management Authority (WRMA), Water Services Regulatory Board (WASREB), CAACs, Water Service Boards, WSPs, WRUAs, Water Services Trust Fund, National Water Conservation and Pipeline Corporation and Kenya Water Institute.

6.7.2.2. Other Stakeholders within Government

These include **the** Ministry of Planning and National Development, the Ministry of Public Health and Sanitation, Ministry of Education, Ministry of Finance, Ministry of Local Government and the Ministry of Environment and Mineral Resources **and the Ministry of Gender and Children.**

6.7.2.3. Stakeholder outside Government

These include development partners, NGOs, the private sector and civil society organizations.

6.7.3. Opportunities/Constraints in Improving Social Aspects of Water and Sanitation

The water sector reforms have generated numerous opportunities that the MWI can harness in the process of improvement of social aspects of water and sanitation. Moreover the Ministry is also faced with a number of constraints and risks as illustrated in the table below:

	Opportunities	Constrains / Risk
1.	Willingness of the government to invest in water and sanitation.	1. Continued reduction in national water resource
2.	More donor interest in the sector	2. Development of strategies and policy options in a context of an ecosystem approach to satisfy all water needs for the population
3.	Recent Adoption of Sector Wide Approach to Planning	3. Limited human and institutional capacity to mainstream gender in water and sanitation
4	Increased decentralization of decision making	4. Limited finance compared to needs
5	Water Sector Reform	5. Climate change
		6 Poor Governance, corruption, and inefficient use of public resources

6.7.4. Financial Resources

The funding needs of the water sector are guided by the Sector Investment Plan informed by business plans of water sector institutions. For the purposes of this strategic plan, the basis of identifying the financing needs is the Kenya Vision 2030 Medium Term Plan.

The targeted sources of funding include:

- On budget funding from the government
- Donor following funding mechanism founded under the partnership principles of the SWAP.
- Support from NGOs working in collaboration with the water sector institutions
- The Private sector
- Water and sanitation revenue user contribution
- WRM fees and water user charges
- CDF funds
- LATF funds

Water through collaboration and joint approaches

7.1 Overview

While the ongoing reforms in the water sector have addressed some of the institutional weaknesses and challenges by clarifying roles and responsibilities of public institutions in the sector as contained in the Water Act 2002, there is need to recognize and incorporate the input of other stakeholders in the sector while addressing the current institutional and crosscutting constraints. It is also necessary to integrate youth and undertake gender mainstreaming in the sector activities at all levels including community.

The key sector activities will be guided by the desire to achieve the Millennium Development Goals and Vision 2030 which is the government's blueprint for social and economic development in the long term. The sector will use participatory and transparent decision-making processes involving the government, private sector, civil society, academia, media, development partners and communities at the local level, including active participation of youth and women. The sector being one of the key pillars to achieving Vision 2030 will endeavour to create incentives to improve the country's competitiveness.

7.1.2 Goal of the institutional and crosscutting dimension

To ensure sustainable management of and access to safe water and reliable sanitation to all competing needs in Kenya through maximum stakeholder participation.

7.2 Current situation

Institutional inefficiencies, constraints and challenges have affected water resource management and water services delivery to the stakeholders. Similarly, failure to adequately address issues such as human rights, gender, youth and HIV/AIDS has impeded the effectiveness of current approaches and programmes in the sector. Key among these challenges are the following.

7.2.1 Institutional challenges

- Conflicting laws and policies affecting the sector
- Many uncoordinated sector players
- Political interference with institutional activities
- Inadequate financial resources
- Slow pace of adopting new technology
- Dilapidated infrastructure
- Poor incentives to attract and retain qualified staff

7.2.2 Crosscutting challenges

- Integrating the human rights approach to water resource management
- Integrating the youth in water resource management and water and sanitation activities
- HIV/AIDS vulnerability
- Marketing awareness of good practices in water and sanitation management (public health)
- Managing disasters caused by water and sanitation
- Creating adequate awareness about environmental sustainability
- Creating awareness of water use efficiency (demand management)
- Improvement in project development, implementation and sustainability
- Mitigation of climate change impacts

7.3 Constraints and contradictions in the current legal and institutional frameworks

At present there are a significant number of overlaps and contradictions between the mandates and policies of various institutions engaged in the water sector. These include:

- Regulation of effluent discharge (NEMA vs. WRMA)
- Forest vs. WRMA
- Lack of clarity on who is responsible for development of water storage structures
- Local Authorities vs. Water Service Boards on assets
- Ministry of Public Health vs. Ministry of Water on sanitation
- Ministry of Regional Development vs. Ministry of Water on water storage facilities
- Ministry of Agriculture vs. Ministry of Water and Irrigation
- Ministry of State for Development of Northern Kenya and Arid Lands vs. Ministry of Water
- Ministries of Lands, Local Government vs. Ministry of Water on wetlands, river banks and other catchment areas.

There is need to identify and harmonise the conflicting legislation affecting sector performance. Specifically the national laws, policies, guidelines and regulations on water and related resources should:

- Provide guidelines to ensure equity and access involving all stakeholders in protection, control and management of water resources
- Encourage water harvesting to increase water availability
- Tackle water and sanitation issues based on demand management
- Encourage settlement and economic activities based on water availability
- Promote recycling and reuse of water
- Enhance capacity building on water protection, control and management

- Have deliberate strategies to target the poor in all programs
- Ensure control and effective management of pollution
- Establish formal mechanisms for accountability to the public
- Prioritize human resource capacity development, as well as mechanisms for learning and knowledge management

Box 7.2. Policies, Laws, Trees and Shambas – a farmer's perspective
• Agriculture is the leading sector of the economy and is estimated to cater for about 80% of the employment in the country. Water plays an important role in maintaining livelihoods because it is the basic resource for agriculture which is the single largest source of livelihood in Kenya.
• There is need to have a consolidated policy for management of land, water and forests and environment. Currently the farmer has to contend with the demands of the various legislations including - Water Act 2002, The Agriculture Act, Cap 318, Forest Act 2005 and The Environmental Management and Coordination Act 1999.

7.4 Objectives and strategies to address institutional and crosscutting issues

In working towards the vision of the Kenya Water Sector Strategic Plan, the following objectives are to be addressed under the institutional and crosscutting dimension.

Objective 1

To harmonise and communicate conflicting policies and strategies addressing water and sanitation issues

Strategies

1. Review and harmonise laws and policies
2. Develop modalities of communicating the reviewed laws to those affected
3. Embrace and implement SWAP

Objective 2

To improve institutional governance, including developing mechanisms to mitigate political interference

Strategies

1. Change in attitude and culture of public institutions
2. Lobby for political support
3. Develop mechanisms to promote transparency and accountability

Objective 3

To develop water sector standards and quality control mechanisms

Strategies

1. Establish a strong standard and quality unit at MWI
2. Develop reporting mechanisms for the water sector
3. Develop an effective monitoring and evaluation framework
4. Benchmark performance with best practices

Objective 4

To improve learning and knowledge management in the water sector

Strategies

1. Ministry of Water and Irrigation to play a key role in custody of data, information and experience sharing and monitoring and evaluation
2. Support capacity building for Water Sector Institutions
3. Regular review of training needs of the water sector
4. Establish a resource and research centre within MWI
5. Encourage sharing of experiences between water sector players

Objective 5

To mainstream gender and integrate youth in management of water resources services

Strategies

1. Integrate gender and programs that recognise the youth at sector levels
2. Incorporate women and youth in water resource and water and sanitation services management by enhancing use of women and youth friendly technologies

Objective 6

To ensure equity and access to water and sanitation for all

Strategies

1. Cooperation at all levels to address Millennium Development Goals
2. To develop suitable mechanisms for funding to increase water supply with aim of minimising the distances between households and water sources
3. Planning and investment in technologies to improve sanitation in urban and rural set ups
4. To review laws and barriers that limit access to water masses-rivers, lakes and oceans
5. Encourage increased community-driven approach in water and sanitation management-involving the community members in planning, management and delivering services
6. Develop deliberate policies targeting the poor
7. Increase awareness of the benefits of clean water and sanitation programs in schools and communities

7.5 Roles and required commitments of major stakeholders

i. Ministry of Water and Irrigation in WSSP.

- Develop relevant laws and policies
- General sector oversight
- Quality control and standards
- Co-ordination of water resources management
- Resource mobilization
- Custodian of information/ coordination of community hubs
- Coordinate SWAP
- Spearhead cross-sectoral activities
- Produce annual sector reports
- Develop master plans on water and sanitation/national pro-poor/gender/youth Watsan policy
- Overall sector capacity monitoring
- Research and information dissemination

ii. Water sector institutions with specific mandates under the Water Act 2002– Specific roles stipulated by the Water Act 2002

Institution	**Responsibilities**
Water Resources Management Authority	Implementation of policies and strategies relating to management of water resources Development of catchment level management strategies, including appointment of catchment area advisory committees and their facilitation.
Water Services Regulatory Board	Overseeing the implementation of policies and strategies relating to provision of water and sanitation services Regulating the provision of water supply and sewerage services Licensing water services boards and approving their appointed water services providers. Monitoring the performance of water services boards and water service providers.
Water Services boards	Planning for improvement in provision of water supply and sewerage services. Appointment and contracting of water services providers. Asset holder of central government facilities.
Water Services Trust Fund	Assisting in the financing of provision of water services in areas that are inadequately provided for.
Water Appeals Board	Adjudicating disputes between sector players

Source: Water Act

iii. Ministry of Finance – Budgetary control and coordination with the development partners

iv. Ministry of education – Promotion of water and sanitation education in schools (Wash programs), creating awareness on water for health and water conservation education.

v. Universities – Support water sector institutions capacity building and undertaking research

vi. Ministries of Regional Development, North Eastern and Arid Lands – Partners in development of boreholes, water for livestock and management of catchment areas by encouraging development that takes into consideration water and environmental sustainability

vii. Ministry of Public Health and Sanitation – Lead Policy Institution on sanitation and public health, lead in development of sanitation and public health standards, partners in sanitation and public health education and awareness campaigns

viii. Ministry of Forestry and Wildlife – Partner in conservation and management of water catchment areas including water towers, develop water for wildlife

ix. Ministry of Local Government–Develop bylaws that affect water services and environmental management at local level, involved in management of solid waste which affect ground water, partners in management of waste water and toilets.

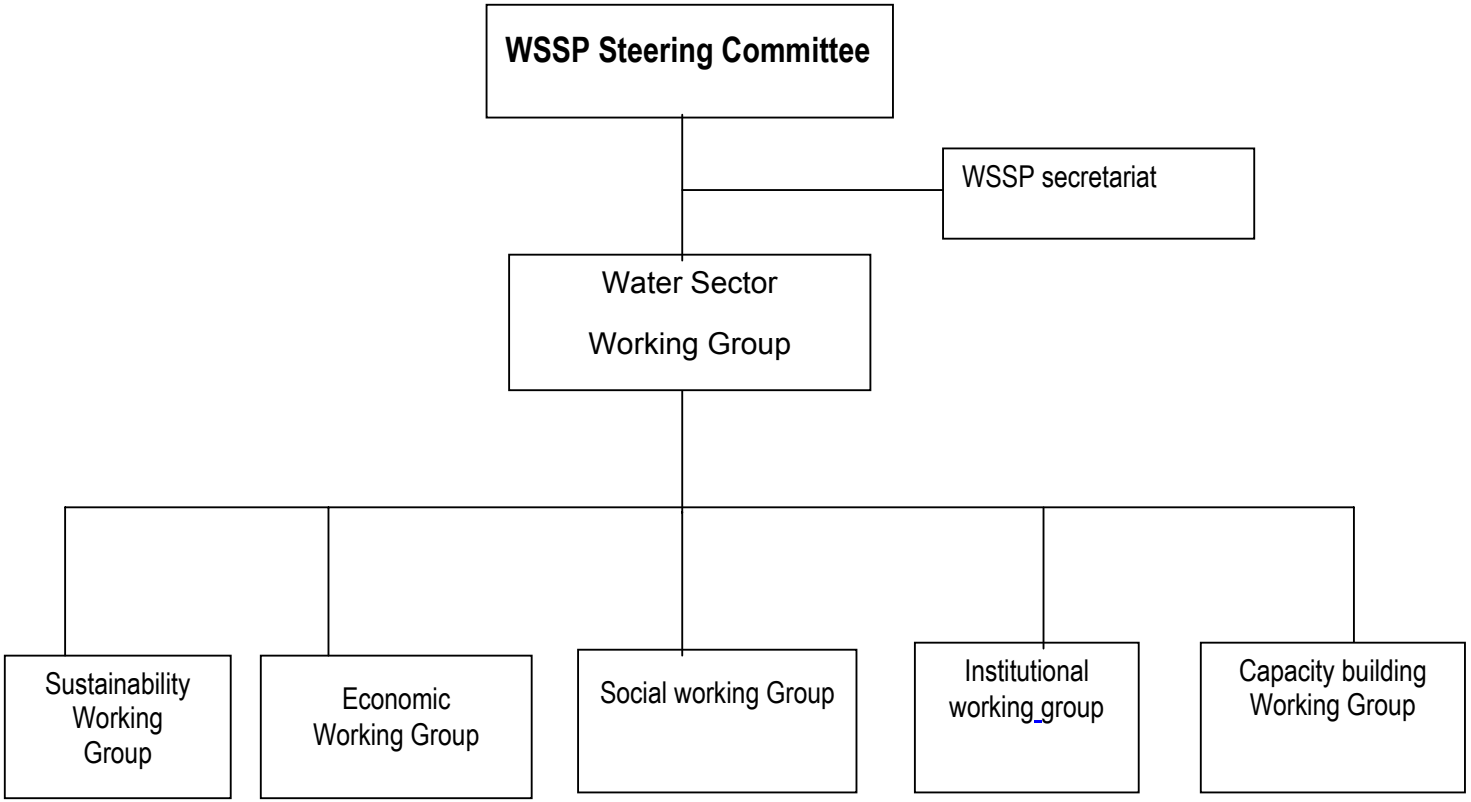
x. Ministry of Environment (+NEMA) and Ministry of Energy - Partner in conservation of water resources

xi. Ministry of Agriculture – Partner in encouraging water harvesting and land use that encourages sustainable resource utilization, water use for irrigation, pollution control from farms

xii. Private sector – Develop and manage water supplies for internal use, sell water to public, bottle water for sale, use water for production and internal domestic use, investment and management of water and sanitation activities, finance water programs as part of corporate social responsibility, as well as for business investment.

xiii. NGOs- Implement and manage water projects, build capacity of water users, champion causes for the poor and carry out advocacy

7.6. Proposed Organization Structure to Coordinate WSSP



7.7 Further Studies required

i. How to link the WSSP with other institutional plans

ii. Legal and policy alignment

iii. Harmonised policies, approaches and procedures for implementation and reporting in the Water sector

iv. Appropriate monitoring and evaluation mechanisms to ensure implementation of activities as per the plan

v. Identify practical ways to provide access to quality water and sanitation by all

vi. Exploring ways to promote water and sanitation management based on the roles played by women, men and youth in the community set up

vii. Addressing community attitude in project management

viii. Identification of suitable community driven water management mechanisms

ix. Best modalities of coordinating research activities

x. Mechanisms for bench marking

xi. Studies on the limitations of the on-going water sector reforms and actual autonomy status of semi-autonomous institutions vs NWI and non-decentralised departments

xii. The rationale and relevance of having different (and non-aligned) structures for WRM and WS, etc.

8.0. FRAMEWORK FOR JOINT IMLEMENTATION

8.1. Methodological aspects and overall implementation strategy

Sustainable water and sanitation development in Kenya will only be attained if millions of people take millions of correct water/sanitation-related decisions in their daily lives, where 'correct' means decisions that are favourable to them (in social and/or economic terms), as well as favourable to society in terms of contributions to sustainable natural resources management. For the millions of decisions to contribute to sustainable natural resources management, they need to concur with a well-known framework, based on adequate policies and regulations. The WSSP provides such a framework.

The millions of decisions are taken either by i) individuals in their personal capacities (such as: what kind of water & sanitation solution do I choose, and what kind of land and tree management do I opt for on my farm?) or ii) by decision-making members of organizations / institutions (what are the socio-economic and natural resources consequences of the decision that we are about to make?).

The worsening water situation in Kenya gives reason for urgent implementation of the WSSP. The challenges are great, since changes are happening so fast that their full consequences are difficult to understand even for a specialist, let alone for the common Kenyan. The situation is made worse by the fact that the sector for many years was neglected in terms of attention and resource allocations.

The WSSP implementation strategy has four major elements:

a) General awareness-creation to make as many Kenyans as possible aware of the challenges ahead – and provide them with tools to be 'water-smart' in their every-day activities;

b) Improved water and sanitation knowledge among politicians and other private or government decision-makers, including major efforts to foster collaboration and coordination among actors who so far have acted in a fragmented and uncoordinated manner. These efforts aim to reach decision-makers from the local to the national level;

c) Targeted efforts to strengthen vulnerable groups, in particular women and children, and reach out to potential agents of change, not the least students and other representatives of the youth.

d) Overall coordination of implementation

The water and sanitation sector is a diversified multi-stakeholder sector, a fact that is reflected in the implementation strategy. Thus, each of the dimensions identified in this Plan, viz. the sustainability, economic, social and cross-cutting / institutional dimension, will be used as a base for reaching out to different groups of stakeholders. This will be done through established networks for each dimension. The networks will consist of the major stakeholders in each dimension, representing various arms of government, the private sector and civil society, including a consumer's voice. The mandate of the networks will be to facilitate and support collaborative and coordinated efforts, with backing from MWI.

WSSP recognises the need for common focus in planning, reporting and monitoring and evaluation in conservation of water resources, water harvesting and water use and sanitation, prioritizing

investments, reducing wastage of resources and creating more opportunities for women and youth involvement in holistic water management

The implementation of the WSSP will require some, but limited, additional resources. Every effort should be made to use existing structures and resources more efficiently, as well as promoting personal commitment of those involved in the implementation process, be they from the private sector, civil society or various arms of government.

8.2 General awareness-creation

From a WSSP perspective, general public awareness and concern about the situation are essential points of departure, since support and pressure from public opinion will be important in backing up inconvenient but necessary decisions, as well as to help increase public awareness and facilitate changes in attitudes and behaviour. Measures under general awareness-creation aim at i) reaching – through media and debate –members of the public who have no immediate reason to engage in water and sanitation issues but whose general understanding and support are essential for adequate handling of water and sanitation issues in e.g. political contexts; and ii) providing sector specialists, lobbyists and media with opportunities to present and debate the latest findings on the water and sanitation situation and measures that should be taken. This is in recognition of the observations in the NWRMS that 'stakeholders must understand the need for water demand management.' Furthermore, 'many urban consumers have no knowledge of their water source, supply capacity or availability, and necessary treatment and distribution costs.'[16]

8.2.1 WSSP launch and Water Sector Forum

The current water situation (2009) gives reason to much concern and provides an environment that is conducive to serious discussions on measures to be taken. The launch of the WSSP will provide an opportunity to capture concerns and contribute to public debate and better understanding of the factors behind the water and sanitation situation. The launch will serve as an entry point to long-term public awareness activities, especially when combined with side activities that allow experts, media and the public to debate the situation at hand and the measures that should be taken.

In the National Water Resources Management Strategy it is noted that 'There is need for a national forum for communication on water issues, e.g. the Kenyan Water Forum"[17]. This concept will be taken up as an annual event to contribute to general awareness-creation and as an element in continuous updating and follow-up of the WSSP. Events of this type in other parts of the world, such as the annual World Water Week (WWW) in Stockholm, have been successful in drawing attention to water and sanitation issues. The African Ministers' Council on Water (AMCOW) has instituted and annual Africa Water Week, launched in Tunis in March 2008. The 3rd Africa Water Week is to be held in 2010 in an East African country.

A similar concept will be introduced in Kenya, if possible to be launched in conjunction with the East African 3rd Africa Water Week. The event will be of high scientific standard and will, among other things, promote research and science through prestigious awards within the subject areas of the four dimensions. Award areas will be selected among WSSP priority areas, such as water storage and catchment; effectiveness in the use of water for productive purposes; advances in conflict prevention and resolution; and progress relating to gender and human rights.

[16] National Water Resources Management Strategy (NWRMS); page 20.
[17] NWRMS. 2007, p. 27.

In addition, the Forum will serve as arena for information-sharing and debate among government institutions, academics, public opinion leaders and non-governmental organizations. The Forum will not be restricted to water and sanitation issues in a narrow sense but will consider other natural resources as well as socio-economic aspects. The Forum will reflect the complex interplay between water and socio-economic development. The four dimensions will be natural points of departure for high-lighting different aspects of complex interrelationships.

The Forum should be of high scientific standards but will not be restricted to scientific presentations. It will also help popularise water and sanitation issues through public exhibitions, information campaigns and entertainment activities, preferably combined with water and sanitation-oriented activities, including competitions, at schools and other learning institutions. Such activities will be encouraged at all levels. Special events during the Kenya Water Forum may include a youth forum on water and sanitation, special theme events such as on rainwater harvesting, climate adaptation approaches, etc. In essence, it will be an opportunity to bring together the multiple stakeholders involved in Watsan issues to showcase and celebrate the idea of "All for Water".

Institutionally, the Water Forum will be anchored in the Water Resource Centre that is planned as support to MWI's efforts to promote collaboration and coordination. At lower levels, networks of water sector institutions, representing both water resources management and service delivery, will be encouraged to take the lead in organising the activities in conjunction with NGOs and the private sector.

8.2.2 The handling of water and sanitation issues at extra-ordinary events

Droughts, floods, social conflicts and the effects of climate change regularly feature as news items in media and the public debate. The WSSP provides approaches to the handling of all such situations. Formal and informal networks and interest groups will be encouraged to contribute impartial and factual information to help increase awareness and understanding among the public and decision-makers. The WSSP communication plan in greater detail describes the procedures for such interaction.

8.2.3 On-going communication and mobilization of the public

[overview of communication strategy here]

8.3. Implementing the WSSP at the national level

8.3.1 WSSP for promotion and consultation

The measures described above serve to raise awareness at a general level. They are eye-openers and providers of information that will make leaders and the public interested in improving their knowledge of water and sanitation-related issues, and to mobilize increasingly broad participation in action to address the country's water crisis. At an operational level, a more focused and institutionalised approach will be required.

In the consultative framework of the WSSP, MWI will play a leading role, as host, broker and facilitator to other water sector institutions, other arms of Government, academia, civil society and the private sector. To fulfil this function, the Ministry will establish a resource centre that will serve as a forum for collaboration and coordination among stakeholders. The resource centre will be equipped with meeting room facilities, reference materials in water and sanitation-related subjects, as well as ICT-based systems for studies and research. The centre will have staff with capacity to deal with all dimensions of water and sanitation development, as well as skills in negotiations and dialogue. The ambition is a centre that is attractive and supportive to meetings across institutional and professional boundaries.

An attractive and supportive resource centre is an important element in building a new era of collaboration and cooperation, but it will not in itself be enough to make people change behaviour or introduce new practices. For the latter to happen, pro-active measures will be taken to gradually reform communication and interaction patterns and, not the least, demonstrate concrete advantages and increased effectiveness as a result of improved collaboration and coordination. For the resource centre concept to succeed in practice, it will require backing at executive levels not only within MWI, but also in other Government institutions, civil society and the private sector. MWI will work actively to bring other stakeholders on board, using the formal and informal networks that were established during the preparation of the WSSP as entry points.

8.4. Implementing the WSSP at the lower levels

The participatory WSSP approach does not stop at the national level but will characterize what is being done also at lower levels. Water sector institutions of different types are represented at all levels, down to community, but they frequently do not work in harmonized and coherent ways. As at the national level, a first priority will be to streamline and harmonies internal sector operations as a basis for reaching out to other stakeholders.

The institutional structure of the water sector at levels below the national level is complex, even in a narrow definition of the sector. Water resources and water services are represented through different structures, which do not include sub-sectors such as irrigation and land reclamation. The MWI will initiate measures to establish consultative mechanisms that have the potential of including broad representation of sector stakeholders. It is yet to be determined whether the basic units of the consultative mechanisms will be based on water catchment areas or administrative boundaries.

The four dimensions would be represented through sub-networks to the national ones, where WRUAs or WRMA regional offices and WSBs are examples of institutions that could play complementary roles. Several sub-national resource centres – based on the model to be established at national level – will be piloted in the first two years of the WSSP roll-out. They will have a strong focus on strengthening locally-available capacity development services in the sector, including increasing knowledge development through, in particular, documenting and sharing case studies of best practices in multi-stakeholder and participatory approaches to water resource management and enhancing water services and sanitation.

8.4.1. Implementing the WSSP at community level

Implementation of the WSSP at community level presupposes close interaction with NGOs and community-based organisations, as well as extension services on the ground. The communication strategy includes measures for interaction at this level.

8.4.2. WSSP and special target groups

Targeted efforts will be required to strengthen vulnerable groups, in particular women and children, and reach out to potential agents of change, not the least students and other representatives of the youth. Activities aiming at these groups are identified under each dimension. Measures to reach and involve them will be found in the WSSP communication strategy.

8.5. Coordination of the WSSP

8.5.1. WSSP coordination mechanisms

The implementation of the WSSP will require multi-sectoral, multi-level as well as delegated responsibilities, and a lead organization. The implementation may be divided in to five-year blocks, namely, the short-term (2008 –2012), medium term (2013 – 2019) and long-term (2019 – 2024 and to 2030). The proposed institutional arrangement shall involve the establishment of the following Committees or Working Groups:

- WSSP Steering Committee – (Ministerial, KNESC, KPSA) Mandate - ensure political commitment necessary for the implementation of WSSP
- Water Sector Working Group – (Permanent Secretaries, representatives of Development Partners, parastatals, NGOs, CBOs, private sector) Mandate – manage stakeholder commitments
- Technical Groups – Five technical groups: sustainability, economic, social, Institutional/crosscutting, and capacity developement – Composed of Technical Directors or Coordinators, representatives of water-related ministries and parastatals, NGOs, CBOs, development partners, private sector.
- WSSP secretariat to coordinate information sharing and learning

As lead agency, MWI will play a key role but with a partly new profile. Much of its policy-making and guiding role will need to be supplemented by mechanisms to facilitate collaboration and coordination among sector stakeholders. This would be an additional MWI approach which will require capacity development and organisational changes to better adapt to the new tasks. Furthermore, one of the early challenges of MWI will be to align and harmonise the divergent procedures and practices within the sector itself. Other MWI roles will be less affected, but will

remain equally important, such as the role of overall custodian of the sector, including the role of being the overall supervisor of the institutions responsible for implementation, funding, regulation, monitoring and evaluation.

8.3.2 WSSP monitoring and evaluation

While the WSSP aims at enhancing collaboration and coordination, it plays an equally important role in providing a basis for the monitoring and evaluation of actual progress. The WSSP provides annual impacts and targets for the sector as a whole and thus also provides the basis for follow-up.

Reports from water sector institutions and entities in other arms of Government (in particular regulatory bodies), civil society and the private sector will form the basis of MWI's monitoring and evaluation. The role of MWI will be to analyse the reports and provide policy guidance for future action. This is a sensitive role, due to a tradition of non-collaboration and distinct boundaries between actors. The MWI will take pro-active measures to gradually build the trust and mutual understanding that will be required.

Effective regulation is key to improved sector performance and will be given special attention in MWI's monitoring and evaluation activities.

8.4. Information, Education and Communications Framework

8.4.1. Introduction

Stakeholders in the water sector are finalising the development of a sector-wide strategic plan (the Water Sector Strategic Plan, WSSP) that reflects perspectives from stakeholders as well as related policies and strategies. The WSSP aims to capture key recent developments in the sector and provide a clear framework for sector investment with needs and costing as part of helping to ensure effective channelling and use of resources. The WSSP is also envisioned as a means to better inform the public about overall sector goals and developments. In essence, the WSSP provides a framework and roadmap to achieving sector vision and goals.

As this is a sector-wide initiative encompassing numerous actors and stakeholders, the need for effective communications in developing, implementing and continually improving the WSSP cannot be overstated. While many sector institutions have developed respective communication strategies, there is need for a cohesive communications framework for the WSSP, in order to ensure harmony in practitioners' and stakeholders' actions in the sector.

Communications will help ensure a sense of ownership of the emerging roadmap by all stakeholders, support for the implementation process from the public and continual engagement of stakeholders to innovate and improve the Strategic Plan. WSSP communications will help build strategic agreement on key issues, messages, approaches, resource allocation and responsibilities. Effective communications will help crystallise the unique identity and position of the water sector in Kenya's development strategies. The creation and adoption of a strategic communications framework is a significant step for the sector - it represents a cultural shift towards coherent information-sharing and a clear recognition that all water sector activities have a communications element. A strategic

communications framework has the potential to transform the sector, both in terms of credibility and in terms of how actors work together to achieve the sector's vision and mission.

8.4.2. Proposed objectives of the communications framework

To effectively make known the messages of the WSSP among sector actors and wider stakeholders, including an effective and well-observed launch of the WSSP, and the dissemination of updates of the Strategic Plan.

8.4.2.1 Aspects of the framework

These include identified sector issues, key messages, audiences, tools and activities.

a) Key issues: these can be grouped under the four dimensions of the WSSP as follows:

- Social dimension: water as a rights issue; poor service delivery; need for attitude/behaviour change in water use and resource management; equitable access; water quality
- Economic dimension: prioritising various uses of water for economic activities; lack of integrated planning of water activities; slow implementation of reforms in the sector
- Sustainability dimension: the threat of water scarcity due to destruction of catchments, water resource pollution and overall poor resource management is real; climate change; comprehensive planning, monitoring, and evaluation; financial sustainability; change of attitudes by all water actors, ensure of good governance; knowledge generation on how to protect this resource
- Institutional collaboration dimension: weak implementation, enforcement and accountability capacity; need to build on networks/linkages and synergies between sector actors; confusion on institutional mandate; engaging consumers through effective communication and effective customer service.

Concerns over sector communication and weak M&E systems featured across all four dimensions. Matters to do with communication, particularly on the sector reforms, should be clear. Lack of appropriate information due to poor communication strategies has hampered planning for the sector.

b) Key overall messages include:

- Water is both a social and economic good i.e. the water sector generates a lot of economic benefit and should therefore not be seen as only providing a social good.
- In order to plan for, provide, utilise and manage such a valuable resource, the collaboration of all actors and stakeholders in the sector is critical. Such a fundamental social and economic good must not be left to one actor in the sector - it is the responsibility of all (linked to theme).
- In the same vein, all sector players are responsible for sector communications

c) Audiences:

Key audiences include both internal (practitioners) and external stakeholders. Internal audiences include ALL levels of staff at the Ministry of Water (the lead institution) and other water sector institutions (WSIs). Critical external stakeholders include staff of key ministries such as Public Health and Sanitation, Education, Planning, Finance, and Forestry. Other key external stakeholders

include the media, private sector, civil society (plus user associations, academia, etc), the provincial administration and the general public. Each audience group has special information requirements at various stages of the development, implementation and innovation stages, which the WSSP communications framework should aim to meet.

d) Tools:

These vary according to different messages, audiences and stages in the WSSP process and include press briefings/press releases, brochures/fact sheets, periodic newsletters, outdoor advertising, sector publications, the internet, publications, public forums, workshops, periodic national sector forums.

e) Activities/strategies:

Launching the WSSP: key audiences are the general public and the media. This will ensure general awareness of the Strategic Plan and follow-up. Develop and launch a popular version soon after for easy use by the public, sector practitioners and other stakeholders. Publish a WSSP pullout in the media at launch (similar to Vision 2030 popular version), editorial briefings before, during, after WSSP launch (requires PR expertise). Branding the WSSP as a unique initiative to ensure familiarity and easy recognition of emerging information materials (Vision 2030 is a great model for this – the logo is strong and simple yet easily identifiable – requires design/creative expertise).

Proposal: Large public event including exhibition/open day/public forum e.g. at KICC; special, formal invitations with follow-up to key representatives in all the stakeholder institutions. Agenda will include a keynote address, public launch, exhibition (by WSIs) and a concluding formal networking event e.g. a cocktail ; press kit including a press release; press briefing; preparation of WSSP fact sheet or brochures for dissemination in the regions on the launch day (to complement the media pullout as highlighted above).

Disseminating WSSP messages: WSBs will take the lead in carrying the message to the regions with the support of WSIs. Key messages from the 4 dimensions will be appropriately packaged to suit specific audience groups. This should include organising open days/public forums and use of branded giveaways such as stationery and t-shirts to communicate simply and clearly.

Keeping up sector communication/ events to form the backbone in a continuous communication effort: (from MWI to sector players and /public; among stakeholders; from the public to MWI/WSIs). Maji House/MWI establishes a communications hub (open to all actors) for sector information e.g.

- through publishing monthly sector information and disseminating widely,
- building the website to be a water resource centre for Kenya,
- sector awards (possibly by the regulator)
- MWI annual report to sector,
- ensure WSIs document best practices as a requirement and publish at least one annually
- build a water network/water community
- internal training for sector managers on communications

- media award scheme/media training on sector reporting
- sector capacity building in communications (develop communication toolkits, etc),
- public information materials to be shared and displayed in all WSIs including being featured by high-advocacy stakeholders such as KARA to include in newsletter,
- work with other stakeholder ministries to include on websites

Refreshing the WSSP: quarterly regional water forums culminating in a national water forum to report on progress and challenges/lessons learnt. These lessons are documented and used to update the WSSP and publish a new popular version/new edition every year.

8.4.2.2. Quick evaluation of impact

- Increased interest in WSSP among stakeholders and improved collaboration among sector players
- Increased commitment of resources to WSSP issues including communication and follow up
- High public awareness/attendance of the WSSP launch
- Good (useful) media coverage

8.4.3. Various publics and the objectives and modalities of communication with each

Communication by its very definition implies a source and a recipient of information. For the WSSP, the MWI and other WSIs are the key communicators (and internal audiences), while sector stakeholders, consumers and the general public are the recipients.

MWI is the lead institution in the water sector and should therefore set the pace/trend for sector communication. MWI shall set the tone through:

- consistent/regular communication
- cultivating a culture of partnership/team effort to achieve sector goals
- working for and with consumers

As such, communication must be two-way and ensure strong **feedback mechanisms**. This may be in the form of contact points on the Maji website such as emails with guaranteed responses or through feedback forms on the website.

1. **Internal (MWI) –**communication for culture change i.e.:

- placing greater emphasis on information sharing
- more focus on partnership e.g. with WSIs, private sector partnerships
- access to information resources
- MWI as facilitator rather than 'authority', etc.

The key message will be that of **common purpose/strengthening linkages.** The better we communicate internally, the better we work together for sector goals.

How? regular departmental staff meetings, circulars, notices in open access areas, intranet, staff training/brainstorming workshops on the WSSP (at least one before the launch of the WSSP)

2. **WSIs –** clear communication on respective roles and how to tap into various opportunities and synergies (e.g. WSPs' direct links with consumers can act as useful feedback channels that can help inform MWI's strategic direction). The key message will be that of **collective effort to achieve sector goals.**

How? correspondence from MWI to all WSIs in the form of emails, letters, telephone calls. This will require compiling/updating a contacts list for WSIs as a matter of urgency; build a practitioner's network with an internet user group or an internet mailing list at the verleast where information can be shared among members quickly. All senior managers of WSIs should be on the mailing list with subscription from other practitioners growing as the network develops.

3. **Consumers/general public –** awareness raising:
   - create awareness on right to water (stimulate demand for affordable/accessible service);
   - create awareness on responsibility to ensure sustainability e.g. by encouraging recycling, reducing/preventing waste
   - promote understanding of the responsibility to pay for service.

   Communication will start before the launch to raise awareness on the launch, and escalate after the launch to build consumer understanding of overall sector objectives, what they can expect and when, and what their roles/responsibilities are (e.g. reporting leakages, illegal connections, pollution, etc.). This will help drive demand for quality, accessible service. The key message will be **water services are your right; we need you to work with us to meet common goals.**

How? strategic IEC campaign led by MWI and incorporating regional and national-level WSIs, the media (through pull-outs on developments in the water sector, radio, TV and print adverts on the WSSP launch), communication materials at the various WSIs – particularly those that interact directly with customers, regularly updated content on the Maji website.

4. **Other ministries –** communication as a matter of urgency:
   - continued constituency-building to ensure momentum builds and is maintained towards the launch
   - promote clear understanding of the roles of each stakeholder and the synergies that can be exploited to ensure sector goals are achieved.

The key message will be **we all need water - let's make it happen.**

How? exploit formal and informal communication channels including letters between top management, telephone and email communication, meetings, invitations to key forums in the WSSP process (as co-owners of the process), regular updates on progress in the WSSP process.

5. **Media –** capacity building:
   - on water sector issues

- on development of the WSSP (as a participatory process/sector-wide approach)
- on intended implementation/roll out including key milestones to look out for. Critical champions for sector issues, to get public informed and on board. Media as agenda setters – what is publicised grows in importance. Raise the profile of water issues as development issues. The key message will be **Water is key to development and is the responsibility of all.**

How? Media/editorial briefings can be held before the launch and more extensive training workshops after the launch. Press release before the launch accompanied by press kits containing key information on the WSSP/sector developments.

6. **Private sector –** key stakeholders e.g. as water shortage affects business, etc. it is in their business interests to champion the WSSP, also as part of CSR. Communicate to explore opportunities for partnership to ensure realisation of sector goals.

The key message will be **water for all = success for everyone.**

How? Through communicating with private sector networks such as KARA, KAM, and KEPSA using both formal and informal channels including letters between top management, telephone and email communication, meetings, invitations to key forums in the WSSP process (as co-owners of the process), regular updates on progress in the WSSP process.

8.4.4. Institutional anchorage

Water communication is not solely the responsibility of MWI – all WSIs and stakeholders should play a key role in communicating various dimensions of water. Such communication should be based on key messages from the WSSP.

As such, each WSI should meet some minimum communication requirements (preferably as part of performance contracting). Some requirements would include:

- each WSI to document at least one best practice per year
- train managers in communications
- have a website
- produce an annual report
- have communications personnel
- have a communications budget
- have IT provisions
- have a consistent channel of internal communication e.g. weekly/bi-monthly staff meeting
- have a channel for communicating with consumers/clients
- communication materials e.g. brochures, etc for quick information on organisation
- information storage/sharing policy
- email addresses (and intranet for the larger organisations)
- organisational chart

- clear job descriptions
- clear strategic plan (well distributed)
- personnel policies (eases communication – for example, who is responsible for communicating with the media?)
- annual performance reviews

8.4.5. WSSP launching plan

- Large, public event including exhibition/open day/public forum. Proposed venue – KICC.
- Key audiences: general public and the media.
- Purpose: ensure general awareness of the Strategic Plan and follow-up

Activity	Details	Timeline	Communication Channel
Venue for launch	identify venue, make necessary booking. Should accommodate exhibition/open day by WSIs other stakeholders to facilitate awareness raising and interaction, networking. Proposed venue KICC	Begin immediately	
Branding the WSSP	brand as a unique initiative to ensure familiarity and easy recognition of emerging information materials. Commission a graphics/branding expert to develop an identity which will also be used to advertise the launch and brand the launch venue (e.g. banners)	Begin immediately	
Public communication/IEC materials	Develop messages and produce communication materials informing the public of the WSSP and sector developments in preparation for the launch. These will be distributed at consumer level WSIs and made available at MWI HQ and district offices as far as possible. Dissemination in the regions (to complement the media pull-out)	Begin immediately From August 1st September 1st	posters, brochures/flyers, post materials on the Maji website Fact sheets
Press liaison	Editorial briefings to ensure media buy-in for good coverage of launch and raise awareness of the importance of the WSSP Prepare a press kit including briefs on the WSSP process, document,	To begin immediately and run through July and August. Take	breakfast meeting or press briefing followed up by one-on one meetings with editors and senior journalists as necessary.

Activity	Details	Timeline	Communication Channel
	expected outcomes, and a press release Will require PR expertise	advantage of final workshop (July 9th) to submit press release	
Programme for launch	listing key activities including officials' remarks, keynote address, ceremony to officially launch the WSSP, exhibition/open day opening, press briefing, entertainment, formal networking/closing event (e.g. an invites-only cocktail),	Finalise by July 27th	distribute by hand delivery/email/regular mail as appropriate together with invitations to exhibit and attend (see below)
Invitations to exhibit	prepare a comprehensive list of WSIs and sector stakeholders and invite them to exhibit at the launch Follow-up with	Begin list-building immediately Finalise and send invitations from July 27th - 30th	hand delivery email follow-up phone calls/email
Invitations to the launch	prepare comprehensive guest list, prepare special/formal invitations with follow-up for key representatives in all the stakeholder institutions	August 18th	distribute by email as appropriate and regular mail together with invitations
Site logistics	indoor venue for official launch outdoor venue for exhibition/open day (including site map, allocation of stands site branding press statement location closing ceremony venue/menu Will require PR expertise	August 15th - 31st	
Printing WSSP	Final copy First proof Preliminary copies for launch (depends on printer's capacity)	August 17th August 24th August 31st	**(Note: the printing timelines are very tight)**
WSSP pull-out	Publish a pull-out in the media just before the launch	August 31st	print media
Launch date	activities as highlighted in the programme	September 1st	launch event
popular version	Develop and launch soon after for easy use by the public, sector practitioners and other stakeholders.		online version print version

8.5 Summary of resource requirements; funding arrangements

8.5.1 Summary of resource requirements

8.5.2 Funding arrangements

GoK allocations, private sector, communities, development partners etc.

9.0. MONITORING AND EVALUATION

10. ANNEXES

Annex 1: Cost Estimates

A1.1. Sustainability Dimension

Strategy	Costs in Kshs Million					
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Institute measures to halt and reverse the degradation of the main water towers as a matter of priority	1,200	900	800	700	400	4,000
Carry out water resources assessment, document and disseminate (avail) necessary information to stakeholders	433.4	433.4	433.4	433.4	433.4	2,167,
Carrying out an inventory and preparing Master Plans of the water resources	50	70	50	-	-	**170**
Strengthen regulatory institutions (WRMA, KFS, NEMA, water quality division of MWI, etc) to enforce existing policies, legislations and environmental regulations and community watchdog organizations to enforce compliance.	300	300	200	200	102	1,102,
Water conservation, catchments restoration, rehabilitation	13917.4	13917.4	13917.4	13917.4	13917.4	69,587
Strengthen and harmonise existing laws relating to water within and across related sectors	50	35	32	30	30	177,
Increasing and modernising the urban sewerage services, including ecosan (ecological sanitation) systems	4140	4140	4140	4140	4140	20,700
Transboundary Water Resources Management	60	50	30	40	20	200
Total Sustainability	**20,151**	**19,846**	**19,603**	**19,461**	**19,043**	**98,104**

A1.2. Economic Dimension

Strategy	Costs KShs. million					
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
IRRIGATION						
Strategy 1. Complete the Sector Reforms Process and initiate implementation of WSSP	3000	4000	4000	3000	2000	**16,000**
Strategy 2.Increasing Domestic and irrigation water supplies.	3,000	4,000	4,000	3,000	2,000	**16,000**
Strategy 3. Developing Effective and Efficient water use systems to encourage Water for Economic Purposes	500	1300	1500	1200	800	**5300**
Strategy 4 Develop policy, regulations, guidelines and standards and pilot programs for efficient utilization of irrigation water including Recycled Waste water.	70	70	70	70	90	**370**
Strategy 5. . Development of Water Parks as the basis for development and industrial planning	29500	16500	22000	25000	36000	**129000**
SANITATION						
Strategy 1. Eco-san/ eco-toilet models promoted	90000	110000	90000	80000	60000	**430000**
Strategy 2: Develop regulations, guidelines and standards and pilot programs for use of Recycled Waste Saline/ Salt Water	70	70	70	70	90	**370**
Strategy 3. Promote appropriate technologies and commercially viable models for water and sanitation	39	39	39	34	29	**180**
INDUSTRIAL						
Strategy 1. Development of Water Parks as the basis for development and industrial planning.	10,500	14,000	19,650	20,500	31,000	**95,650**
ENVIRONMENT						
Strategy 1. Develop measures to mitigate/manage disasters	1059	1049	1049	1044	1039	**5,240**
Strategy 2. Develop and implement locally adaptable mechanisms to address the impacts of climate change	452	752	1040	1030	1030	**4,304**
Strategy 3. Developing or introducing new Improved Effective and Efficient water use systems to encourage Water for Economic Purposes with stiff penalties for misuse or pollution.	300	800	1200	4000	5000	**11,300**
DOMESTIC WATER						
Strategy 1. Increase rate for domestic water supplies in Urban and rural areas as a means of combating water borne diseases and their social and economic impacts.	860	39,000	33,650	26,840	13,000	**113,350**
POWER						
Strategy 1. Encourage use of water/rivers for power generation and other uses at all levels as the stakeholders are likely to protect the water sources to sustain their micro hydropower stations.	1,839	2,539	3,739	4,034	4,229	**1,6380**
Total Economic Dimension	**141,189**	**194,119**	**182,007**	**169,822**	**156,307**	**843,444**

A1.3. Social Dimension

Strategy	Costs Ksh' Million					
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Capacity Building within the WSIs and the community with an aim of enhancing peace	150	150	150	150	150	750
Development of sustained water supply to the farmers and pastoralist communities so as to reduce conflicts.	300	1000	1000	1000	500	3800
Construction of large water storage facilities to harvest flood waters in disaster prone areas	2,000	3,000	3,000	4,000	4,000	16000
One year recovery programmes for areas affected by the post –election violence.	200	-	-	-	-	200
National Policy on Informal Settlements Water and Sanitation	50	-	-	-	-	50
Development of a database for the urban poor	20	20	-	-	-	40
Social Mapping of informal settlements to determine social tariffs	10	-	-	-	-	10
Low cost technology on sanitation	250	500	500	500	500	2250
Implementation of water and sanitation projects for water and sanitation to be identified under the policy	125	250	250	125	125	875
Capacity building - Equity in Informal Settlements	65	125	125	65	65	695
Development of a database for ASAL	30	30	-	-	-	60
Water and Sanitation Programmes for ASALs	2,000	2,700	3,550	3,900	4,500	16650
National Rainwater harvesting programmes for ASAL	400	540	700	780	900	3320
Capacity Development- Equity in Rural ASAL	100	135	178	195	225	833
IWRM Programmes in rural area	300	400	400	400	400	1900
Water and sanitation for rural high potential areas	1,000	1,350	1,775	1,950	2,250	8325
Capacity building-Rural Areas	1,400	1,885	2,353	2,545	2,875	11058
Undertaking of liquid waste treatment feasibility studies at the towns of Malaba, Lagdera, Lodwar, Wajir, Elwak and Liboi	60	-	-	-	-	200
Undertake a satellite town water and sanitation intervention for the towns of Nairobi, Kisumu, Nakuru and Kisii.	1,000	1,350	1,775	1,950	2,250	8325

Strategy	Costs Ksh' Million					
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Water and sanitation supply for 26 medium sized towns identified in the MTP of vision 2030	2,000	2,700	3,550	3,900	4,500	16650
Capacity Development in small and medium towns water and sanitation	100	135	178	190	225	825
Water and Sanitation Programme for Big Towns	3,600	5000	7,400	8,000	8,400	32400
Capacity development in big towns	180	250	370	400	420	1620
Capacity Building within the WSIs and the community with an aim of enhancing peace	150	150	150	150	150	750
Development of sustained water supply to the farmers and pastoralist communities so as to reduce conflicts.	300	1000	1000	1000	500	3800
Construction of large water storage facilities to harvest flood waters in disaster prone areas	2,000	3,000	3,000	4,000	4,000	16000
One year recovery programmes for areas affected by the post –election violence.	200	-	-	-	-	200
Total Social Dimension	**17,990**	**25,670**	**31,404**	**35,200**	**36,935**	**147,199**

A1.4. Institutional Dimension

Strategy	Costs Kshs Million					
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Objective 1						
Strategy 1.Review and harmonise laws and policies	15	15	-	-	-	**30**
Strategy 2.Develop modalities of Communicating the reviewed laws to those affected	20	15	-	-	-	**25**
Strategy 3. Embrace and implement SWAP	8	7	-	-	-	**15**
Objective 2						
Strategy 1.Change in attitude and culture in public institutions	12	12	12	12	12	**60**
Strategy 2. To lobby for political support	1	1	1	1	1	**5**
Strategy3. Develop mechanisms to promote transparency and accountability	2	2	2	2	2	**10**
Objective 3						
Strategy 1. Establish a strong standards and quality unit at MWI	4	4	4	4	4	**20**
Strategy 2.Develop effective monitoring and evaluation framework	3	2	-	-	-	**5**
Strategy 3.To benchmark performance with best practices	15	10	-	-	-	**25**
Objective 4						
Strategy 1.Ministry of Water and Irrigation (MWI) to play a key role of Custody of data information, research and experience sharing and monitoring and evaluation of activities	30	20	20	20	10	**50**
Strategy 2.Support capacity building for water sector institutions	20	20	20	20	20	**100**
Strategy 3.Regular review of training needs of the water sector	5	5	5	5	5	**25**
Strategy 4.Establish a resource and research within	70	60	50	40	30	**250**
Strategy 5.Encourage sharing experiences between water sector players	2	2	2	2	2	**10**
Objective 5						
Strategy 1.Integrate Gender and programs that recognise the potential of the youth at sector levels.	2	2	2	2	2	**10**
Strategy 2.Incorporating women and youth in water resource and water and sanitation services management by enhancing use of women and youth friendly technologies	7	7	6	5	5	**30**

Objective 6						
Strategy 1.Cooperation at all levels to address millennium development goals	5	5	5	5	5	**25**
Strategy 2. To develop suitable mechanisms for funding to increase water supply with the aim of minimizing the distances between households and water sources	5	5	5	5	5	**25**
Strategy 3.Planning and Investment in technologies to improve sanitation in rural and urban set ups	10	10	10	10	10	**50**
Strategy 4.Review Laws and barriers that limit access to water masses-rivers, lakes and oceans	10	10	-	-	-	**20**
Strategy 5.Encourage increased community –driven approach in water and sanitation management-involving the community members in planning, managing and delivering of services	4	3	3	2.5	2.5	**15**
Strategy 6.Develop deliberate policies targeting the poor	5	3	3	2	2	**15**
Objective 7						
Strategy 1.Lobby for inclusion of water and sanitation education curriculum in schools	5	5	-	-	-	**10**
Strategy 2.Develop appropriate sensitization programs on water and sanitation targeting communities	2	2	2	2	2	**10**
Total Institutional Dimension	**262**	**227**	**152**	**139.5**	**119.5**	**900**

A1.5: Total Costs Summary

Dimension	**Costs: KShs' Million**					
	Yr 1	**Yr 2**	**Yr 3**	**Yr 4**	**Yr 5**	**Total**
Social	17,990	25,670	31,404	35,200	36,935	147,199
Economic	141,189	194,119	182,007	169,822	156,307	843,444
Institutional and cross cutting	262	227	152	139.5	119.5	900
Sustainability	20,151	19,846	19,603	19,461	19,043	98,104
Total for all Dimensions In KShs Million	**179,592**	**239,862**	**233,166**	**224,623**	**212,405**	**1,089,647**

Annex 2. Logical Framework Analysis

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
1. To operationalise an effective framework for collaborative action in the water and sanitation sector in Kenya, characterized by: comprehensiveness, transparency, inclusiveness and result-oriented	1	2 Social Dimension: 80% of the population have access to potable water within a distance of 2 kilometres by 2014	2.1 water endowment increased by 200m^3 per capita by the year 2014, through catchments rehabilitation and construction of dams 2.2 10% appropriate forest cover achieved by 2014	▪	▪ Political climate, stability and policy environment conducive (M) ▪ Capacity development & training remain high priority strategy (M) ▪ Funds available (L) ▪ Collaborative action continues to be seen to add value to participating stakeholders (M)
To increased prosperity through effective and efficient use/utilization of water.	2.1	2.2 Economic Dimension: improved water resources management and services result in 30 % growth in GDP and productivity in 5 years. 2.3 Increased efficient use of water transforms agriculture production from predominantly rain fed to irrigated among the small holder farmers and increase productivity per unit of applied water,	2.6 Per capita storage (amount of water available for economic use) increased from 4m^3 per person Per Annum 10 m^3 by 2016 and to 20 m^3 2030. 2.7 Increased efficient use of water by 30% by 2015 (UFW). 2.8 Financial resources mobilized and optimized, to increase available water resources per capita from 647m^3 (by 20%) and improve water service coverage by 20%. 2.9 Proportion of population on food relief reduced by 75% in 4 years, 2.10 Increased budgetary allocations for water harvesting and irrigation development	▪	▪ The environmental conditions do not deteriorate significantly affecting rainfall

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
			through the WISTF,		
		2.4 Improved production of raw materials results in a 40% increase in industrial processing and employment in 10 years. 2.5 The incidence of waterborne diseases is reduced by 75% in five years			
	3	4 Sustainability Dimension: increased water resources protection and sustainable institutions and mechanisms ensure equitable access to water and sanitation shared wisely for economic and human development	3.1 Access increased by xx% to safe, affordable sustainable water for all. 3.2 resource protection improved to sustain quality	▪	▪
	4	5 institutional and cross-sectoral dimension: an effective institutional framework created to facilitate cross-	5.1 Increased budgetary allocations for training and other capacity development by sector institutions and national authorities 5.2	▪	▪

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
		sectoral collaboration for equitable planning, management and provision of water resources for all			
Dimension		**Outputs**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
Strategies		**Activities**		▪	▪
1. Social Dimension		1.1 water endowment increased by 200m^3 per capita by the year 2014, through catchments rehabilitation and construction of dams		▪	▪
	1.2	1.3 10% appropriate forest cover achieved by 2014		▪	▪
Strategies	**Activities**	**Outputs**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
1. ECONOMIC DIMENSION 2.1 Domestic and	2.11 Water	2.1 Per capita storage (amount of water available for economic use) increased from 4m^3 per person Per	1.1 A national Irrigation and water harvesting Master Plan is finalized by 2011 to identify potential areas and it is subsequently used for water harvesting planning.	▪ Master Plan	▪ Government commitments in the water sector do not alter significantly.

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
irrigation water supplies Increased. 2.2 - Effective and Efficient water use	Resources Master Plans to establish water and harvesting and storage resources prepared 2.12 Initiated Rapid training of farmers on Irrigation Water harvesting at all levels. 2.13 Initiate pilot programs for use of Recycled Waste Saline 2.14 Develop funding mechanisms and appropriate small scale water sales programmes 2.21 Review current water use systems and identify areas of poor performance, 2.22	Annum by 200% by 2030. 2.2 Use of water efficient irrigation technologies such as drip and green house systems among small holder farmers increased by 30% by year 2013. 2.3 Increased efficient use of water by 30% by 2015 (UFW). 2.4 Production of locally grown raw materials (cotton, flux, grains) increases by 75% in 5 years, 2.5 Financial resources mobilized and optimized, to increase available water resources per capita from 647m^3 (by 20%) and improve water service coverage by 20%. 2.6	1.2 Government allocates at least 2% of annual National Budget for irrigation and water harvesting activities nationally, 1.3 The number of outlets selling water efficient application technologies increased to 30 across all regions by year 2013. 1.4 At least every WSP prepares a plan for the reduction of UFW by 2011 and implements it to achieve a reduction of UFW by half by 2015. 1.5 Government increases allocation of funds for seed research, development of the gravity canals for Bura, Hola and Ahero schemes to reduce operating costs and releases GMO cotton seeds for commercial production by scheme farmers. 1.6 Government increases the allocation of funds to reach the Mozambique declaration of 2% of the annual budget by 2015 and a significant proportion of	▪ Government Budget books	

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
systems for Economic Water Purposes Developed 2.3 Appropriate policy, regulations, guidelines and standards and pilot programs for use of Recycled Waste Saline/ Salt Water developed.	2.23 2.22 Identify and adapt new efficient water use systems for local use, 2.24 Introduce and promote the new effective and Efficient water use systems 2.31 Survey and locate appropriate water sources. 2.32 Design and develop water, power distribution systems and disposal of waste water and sewerage for recycling , 2.34 evelop measures and create conducive environment to facilitate development of water for multi-purpose use 2.35 private		the funds used for water harvesting and storage.	▪ Scheme and stakeholder reports, ▪ Economic Survey Reports ▪ Policy and guidelines documents	

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
	sector stakeholders to develop industries for 2.41 Develop and introduce measures to promote and expand water based industries in tourism, sports, and related sectors. 2.42 Survey and locate Water Parks areas, 2.42 Develop a plan for the development of industries and settlements around the water parks, 2.43 Develop multiuse activities such as tourism, sports, fishing and transport around the water parks,				
2.4 Water Parks as the basis for development and industrial planning Developed	2.44 Develop attractive funding and tax incentives to attract private sector participation in implementation of the			▪ Plans	

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
2.5 Measures to mitigate/manage disasters and impact of climate change developed.	water parks programs. 2.51 Identify all disasters affecting each area, 2.52 Collect information on their causes and effects, 2.53 Develop amd introduce measures to mitigate/manage disasters, 2.54 Developed programmes for periodic review of the mitigation measures			▪ Reports	
3. SUSTAINABILITY	4.1	4.2 Access increased by		▪	▪

FOCUS		EXPECTED RESULTS	PERFORMANCE MEASUREMENT		ASSUMPTIONS/RISKS
Programme Goal (Programme Objective)	**Activities**	**Impact**	**Performance Indicators**		**Assumptions – Risk Indicators**
Purpose		**Outcomes (Key Result Areas)**	**Performance Indicators**	**Means of Verification**	**Assumptions – Risk Indicators**
DIMENSION		xx% to safe, affordable sustainable water for all.			
	4.3	4.4 resource protection improved to sustain quality		▪	▪
	4.5	4.6		▪	▪
	4.7	4.8		▪	▪
	4.9	4.10		▪	▪
4. INSTITUTIONAL AND CROSS-SECTORAL DIMENSION	4.1	4.2 Increased budgetary allocations for training and other capacity development by sector institutions and national authorities		▪	▪
		4.2		▪	▪
		4.3		▪	▪
		4.4		▪	▪
		4.5		▪	▪

Annex 4.1: Key stakeholders responsible for sustainability of water resources

Institution	Role/responsibility towards sustainability	Capacity in terms of contribution to sustainability of water resources
Ministries		
Finance & Treasury	Monitor and regulate the finances of all public bodies Manage fiscal activities on national economic policies, mobilisation of sufficient funds for the water sector and Review of the use of such funds	Ministries of Water and Irrigation, and Finance should come up with innovative resource mobilization.
Ministry of Planning and National Development, Vision 2030.	Monitoring of the implementation of national policies Central Bureau of Statistics collects and analyses baseline information on national development and poverty reduction goals Coordinate the collection, interpretation and publication of data related to the water sector in order to provide improved and timely statistics.	Planning should take into account water resources. An element of infrastructure may be necessary in WRMA role e.g., conservation. In sum it is necessary to repackage water resources for resource mobilization.
Environment –including NEMA	Protection of natural resources and the environment common areas with the MWI are the control of effluent, disposal of excreta and raw water quality control.	MWI should be lead agency in matters of water unless unable to. NEMA operations may require streamlining in view of WRMA roles. Can learn from Uganda case.
Forestry and wildlife e.g. KWS	Forest conservation, "water towers", wetlands and policy	Harmonise policies and mandates for integrated management
Office of the President	Provides security where conflicts may erupt	Community mobilization and handling of disputes, conservation
Special programmes	Emergency deliveries	Mobilization of funds, disaster management
Education	Responsible for education common areas of interest with the MWI are training of children and adults on water use, hygiene and basic sanitation as well as protection of water resources.	Workshops, sensitization, mass education campaigns, e.g. on pollution, Nairobi river clean-up
Ministry for Northern Affairs	Controls nearly 2/3 of the country, water scarcity, arid-semi arid, livestock region	Window for resource mobilization and extension services, enhancing water harvesting, control degradation in ASALs
Agriculture including NALEP	Extension services to farmers, land use along riparian lands, use of fertilizers and agro-chemicals, pollution issues by agro-factories	Enforcement of the Agriculture Act, control of factory waste and agro-chemicals and use of fertilizers.
Livestock	Provides livestock water in ASALs	Opportunity for rain water harvesting and enhancement of soil moisture
Fisheries	Requires fresh water for fisheries	Develop/adopt sustainable aquaculture to control river pollution and destruction of wetlands
Tourism, Sports/ Recreation	Supply of sufficient safe water to hotels and other infrastructure for tourism and the environmental friendly disposal of sludge from sewer systems and basic sanitation installations.	Private sector to formulate regulations and establish mechanism for monitoring e.g., ISO certification for sustainable water use
Energy	Regulation of energy and wood fuels	Need to explore and develop alternative energy sources and economic instruments to encourage conservation of wood.
Public Health	Lead in environmental sanitation areas of common concerns with the MWI are basic sanitation infrastructure; Promotion of hygiene through sufficient safe water supply and hygiene sensitisation in order to reduce water borne diseases.	Enforcement of Public Health Act, sanitation awareness e.g. shallow well pollution form solid waste

Institution	Role/responsibility towards sustainability	Capacity in terms of contribution to sustainability of water resources
	Water supply to and disposal of effluents from health installations such as hospitals in order to ensure acceptable condition for treatment of patients and to protect water resources.	
Regional development	Regional development authorities are based on the use of water as an entry point in development planning	Address water resources adequately by providing input to WSSP (regional action plans based on water resources sustainability)
Local Government	In charge of public health and inspectorate of sanitation within the municipalities; All new major constructions shall be obliged to install water harvesting installations; Performance and good corporate governance of public water and sanitation utilities and environmental sanitation related to disposal of excreta.	Formulate bye-laws for water conservation e.g. on Trust Land forests. Devise management plans.
Key stakeholders other than ministries		
National Assembly	Pass laws, mobilisation of financial resources, use of devolved funds for conservation	Increase awareness of pending water-related bills and discussion in the National Assembly; Use of devolved funds for water resources management, mobilize communities to support water activities.
Riparian communities	Use, conservation and protection of water	Awareness raising and capacity building on conservation practices and protection of water sources
Water Users Private sector	Water Demand Management Investment in water management	Weak links with the private sector need to be explored
Civil society e.g. basin, Trans-boundary and cooperative	Mobilise political support for basin organization	Awareness raising necessary for citizens to press for legislative and enforcement of regulations.
MET Department	Meteorological data collection and analysis	Need for a protocol for sharing data in a timely and effective manner
Research and Academic Institutions	Research on technology, wastewater management, etc	Need for inventory and clearing house for research on water, for dissemination, sharing and sustainability. Need for Centre of Excellence in Water-NEPAD proposal to be followed up
Development Partners	Financing of water sector activities	Financial resources mobilization, support for community actions and policy influence.
NGOs	Provides grassroots supporting project formulation, implementation or fund raising	Implementation, monitoring and technical oversight of community projects
Ministry of Water and Irrigation	Improved coordination in Water Sector under one Ministry Clear policy accountability Focused attention to water resources management Development of legislation, policy and strategy formulation, sector coordination and guidance, and monitoring and evaluation Overall sector investments planning and resource mobilization	Provides policy and legislative direction and coordination, financial mobilisation
Water Quality and Pollution Control	Provides policy direction, supervision, coordination and resource mobilisation on water quality and pollution control management, including protection of water resources from pollution, Pollution control monitoring, drinking water quality surveillance, national water quality monitoring surface water and ground water; water quality classification of	Inadequate capacity in terms of skills and equipment;

Institution	Role/responsibility towards sustainability	Capacity in terms of contribution to sustainability of water resources
	water resources; Physical, chemical and biological analysis of water and wastewater and formulation and review of Drinking Water Standards, Bottled Water Standards, Effluent Discharge Standards, Ambient Stream Standards.	
WRMA	River basin approach to IWRM should be extended to flood management in accordance with the IFM concept. Enhance revenue from water use charges, Enhance storage to ensure reliability of water, improving water quality Ensure sustainability in water resources management, consistency in data monitoring and effectiveness in information management, and obtain reliable water resources information and capacity are prerequisites-data collection and monitoring	Have submitted their institutional input to be taken on board
WASREB	Regulation and monitoring of service provision (Water Services Boards and Providers) Issuing of licenses to Water Services Boards Setting standards for provision of water services Developing guidelines (water tariffs etc.)	Ensure that demand management is established as an important criteria for licensing; Ensure that wastewater is treated or disposed of in safe manner
CAACs	Advises on water allocation and resolves disputes over water	Lacks authority and capacity to enforce compliance of water rights
WRUA	Provides a forum for conflict resolution and cooperative management of water resources in designated catchment areas.	Recently established and many lack basic governance structure to carry out their mandates
WSTF	Financing provision of water and sanitation to disadvantaged groups (pro-poor) as water poverty fund	Need to ensure that water sources are evaluated regarding their sustainability and use
Water Appeals Board	Arbitrates in cases of water conflicts	Resolves disputes regarding water use
Water Services Boards	Efficient and economical provision of water services Developing water and sewer facilities, investment planning and implementation Rehabilitation and replacement of infrastructure Applying regulations on water services and tariffs Procuring and leasing water and sewerage facilities Contracting Water Service Providers (WSPs)	Need to emphasise demand management as a criteria for licensing. Ensures equitable distribution of water through zoning of community service providers and enforcing standards as per service provision agreement.
Water Services Providers	Provision of water and sanitation services, ensuring good customer relation and sensitization, adequate maintenance of assets and reaching a performance level set by regulation	Must ensure that water demand management strategies are put in place and economic instruments are used to enforcement.

Annex 4.2. Strategies of water resources sustainability

Strategy 1: Strengthen capacity of the regulatory institutions (WRMA, KFS, NEMA, water quality division of MWI, etc) to enforce existing policies, legislations and environmental regulations and community watchdog organizations to enforce compliance.

Objectives: To ensure strict control of pollution of water resources and restoration of water catchments thus reduce the drying up of rivers, receding of lake levels, heavy siltation in our dams and pans, stabalise hydropower generation and water supplies through regulatory institutions provided for by the law.

Component	Activities	Output	Actor	Cost
Carry out stakeholders' capacity needs in each catchment	Draft the terms of reference Carry out stakeholders' capacity needs assessment	Capacities of regulatory institutions built	MWI/WSB/ NWCPC	17 million
Raise awareness of lawmakers on water sector related issues for better policy formulation, enforcement and political goodwill	Arrange workshops and overseas visits to other countries with best practices in water management MPs and members relevant Committee of Parliament to attend international conferences	Number of workshops, visits, and conferences attended		300 million
Train community organizations, NGOs, CBOs, women groups where the resources are – train and educate the communities on need to conserve water sources	Develop a training course outlines Draw on a concrete plan	Officers trained and are articulate on matters of water resources sustainability.	MWI/WSB/NWCPC	460 million
Develop and/or disseminate appropriate water technologies; especially on use of gravity water distribution; new sources of energy, desalination	Identify centres of water technology improvement Research and report on various water technologies	New and appropriate water technologies adopted by WRUAs		150 million
Support the establishment of WRUAs and build their capacity in participation and empowerment.	Assist registration of WRUAs Train WRUAs on their mandates, lobbying skills, etc		MWI/WARMA	37 million
Strengthen/transform CAACs to boards for better management and sustenance.	Train in governance structure		MWI/WRMA	78 million
Improve analytical capacities of regional laboratories	Rehabilitate and equip Central and regional laboratories with modern equipment for measurement of pesticides, heavy metals and other parameters that require special equipment		MWI/WRMA	460 million

Strategy 2: Water Conservation, Catchment Restoration, Rehabilitation

Objective: To accelerate action towards addressing chronic water scarcity and reduce vulnerability to climate variability

Project	Activities	Output	Actor	Cost (KSh.)
Rain and runoff harvesting	Rain and runoff harvesting- design and construct dams and pans to increase water storage capacities Develop rainwater and runoff harvesting policy Harvest storm rain Roof water harvesting	Available water during dry spell	MWI/WSB /NWCPC	450 million 7.0 million
Catchment management	Enhance the implementation of the catchment management strategies at the catchment or sub catchment levels Support options for providing energy to the poor through policy debate and use of economic instruments Identify, restore and monitor catchment degradation Delineation and Mapping of water Catchment areas. Restore degraded water catchments	Improved management of water catchments	MWI/WARMA	150 million 450 million 17 million 340 million
Wetland restoration and management	Rehabilitation, protection of wetlands, springs		MWI/WRMA	36 million
Water conservation and water demand management	Delineate and zoning areas for water conservation. Unaccounted-for water within Water distribution systems. Construct 2 large and 3 medium sized storage dams for irrigation and water supply Improve water licensing and recall old water permits Capacity development of irrigation farmers Introduce new irrigation methods.	Improved water availability and good Agricultural produce Rational apportionment of water resources and avoiding water use conflicts Improved irrigation efficiency	MWI/WRMA	17 million 1.9 billion 36 billion; 30 billion 110 million 130 million 250 million

3.8.5 Strategy 3: Harmonize existing laws relating to water within and across sectors

Objective: To establish linkages between water sector issues to national policies including the MDGs, PRSP, food security, industrialization, unemployment, gender, water and sanitation and infrastructure

Strategy	Objectives	Activities	Implementation agency	Cost
Study the existing laws and policies and identify areas likely to affect, protect or improve SWRM Organize public forum and gather views to ensure public participation	Understand the relevance of various laws and policies to SWRM Identify areas of policy conflict Identify areas of Law/policy overlap/linkages Develop framework/ Guidelines/recommendations for harmonious SWRM	Study the existing laws and policies relevant to water Collaborate with other Ministries and institutions for any on going or future policy review/ formulation Prepare report on Laws and policies in relevance to SWRM and make recommendation Review of policy changes and prepare annual report on the same Harmonizing water pollution standards through s/holders fora Study the service charters to Evaluate transparency and rule of Law in Water affairs Review economic principals (Polluter pays and water use charges) in view of formulating harmonized charges.	-DWR, W/Rights Division, Relevant Ministries; Relevant Institutions	55 million 120 million

Strategy 4: Increasing the urban waterborne sewage
Objective: To consolidate the effort of sustainable water resources management and development

S/ No	Project	Activities	Timeframe	Cost (Kshs)	Output	Actors
1	Rehabilitate, Expand and Augment the existing urban sewerage system	Review design reports Rehabilitate /expand main sewer lines Connect users to sewer line Rehabilitate /expand sewerage treatment plants and sewerage ponds	5 years	9.15 billion		Water Services Boards and Water Services Providers
2	Construction of new urban sewerage systems	Undertake feasibility studies Undertake design reports Construct main sewer lines Construct the sewerage ponds Connect users to main sewer lines	6 years	9.1 billion		Water Services Boards (WSB's) and Water Services Providers (WSP's)
3	Construct on-site sanitation facilities in informal urban settlements	Undertake study of the area Review design of VIP toilets Construct VIP toilets	2 years	1.15 billion		Water Services Boards (WSB's), Water Services Providers (WSP's) and NGO's
4	Develop a water re-use strategy and policy to include standards, appropriate technology etc	Develop Terms of Reference Procure Consultancy Review the Draft Strategy and Policy Hold stakeholders workshops Gazette the Water Re-Use Policy	1 year By 2013	1.3 billion		MoWI, and WASREB

Strategy 5: Surface and groundwater resources assessment
Objective: Improve understanding and knowledge of water resources potential and limitation

Strategic components	Objective	Activities	Implementer	Cost (million-Kshs)
Carry out groundwater resources assessment	Carry out a comprehensive groundwater assessment	• Develop policy guidelines on groundwater assessment, exploration and protection • Carryout regional hydrogeological and geophysical surveys • Develop exploratory boreholes (100 boreholes) • Develop groundwater monitoring boreholes (50 boreholes) • Develop a comprehensive national groundwater map. • Develop GIS for GW database. • Designing of comprehensive SW monitoring network • Development hydro-meteorological instrumentation of the monitoring network • Classification of water resources. • Assess quality levels of SW and GW resources nationally	MWI, WRMA	300.0 300.0 100.7 5.5 3.6 45.4 40.8 40.9 200.0
Determine Groundwater recharge zones	Determine potential areas for groundwater recharge	• Develop recharge zone protection • Develop a strategy for artificial groundwater recharge. • Pilot project for artificial ground water recharge.		15.0
	Determine optimum hydrometereological instrumentation and monitoring protocol for both surface and groundwater resources			7.0
Establish comprehensive planning, monitoring, and evaluation	• Develop guidelines on monitoring and evaluation of SW and GW management and development • Develop optimum water quality monitoring station.	Analyse existing data on water resources and provide an annual state of national water resources		3.5
Upgrade and equipping automatic stations for water quality monitoring (rivers, lakes and boreholes, etc);	Procure monitoring instruments and equipments			400 million

Strategic components	Objective	Activities	Implementer	Cost (million-Kshs)
Carry out surfacewater resources assessment	Assess the current surface water potential in the river basins		Consultants; Ministries and other stakeholders	40 million
Establish effective water quality surveillance and protect the nation's water resources by improving their quality, reducing pollutants and at the same time supporting the businesses, industry and communities that depend on water for their continued development		Develop National Water Quality Management Strategy/Policy Develop guidelines to manage point and non-point sources Develop Groundwater Water Quality Management Guidelines Develop a national water quality map Develop Guidelines for the protection of fragile ecosystems e.g. wetlands, to improve water resources quality. Promote Integrated (Total) Catchment Management to minimize/eliminate siltation and sedimentation of water bodies. Promote Adoption of Best Management Practices (BMP's), including the use of acceptable modern technology, waste minimization and utilization Set national ambient surface and ground water Quality Standards Classify water resources based on water quality objectives by 2012	MWI	350 million
Determine fluoride/ salinity levels in ground water	Mapping of fluoride/ salinity levels in ground water;		Consultants, Relevant stakeholders	38 million

Strategy 6: Water resource information and documentation

Objective: To improve knowledge of quantity and quality of water resources and safe guard it from misuse.

Strategy	Objectives	Activities	Actor(s)	Total cost (Million Ksh)
Water Resource Information and Documentation	Develop policy /guidelines regarding Water Resources Data and Information Management	Develop Guidelines on water resources data management	MWI, Public	45
		Develop Guidelines on water resources information management	MWI, Consultants, Data manager s	45
	Establish water use monitoring and information management to enhance sustainability of water resources management	Hardware and software needs assessment / identify monitoring sites	-Consultants	5
		Acquire, install and maintain Hardware and software	MWI	20
	Upgrade of the National Database by continously strengthening data acquisition, analysis archiving, and dissemination facilities	Data acquiring using receivers and from other sources	Consultants, Data managers	25
	Upgrade and strengthen the GIS and Cartography section by buying and installing state of the art GIS programmes and cartographic software	Compiling data from other sources	MWI	10
		Soft ware needs assessment	-Consultants; MWI	5
		Purchase Soft ware (GIS and Cartography)	MWI	17
		Produce Maps and other cartographic products	MWI	4
	Water related conflict mapping to enhance equitable water use	Produce conflict maps and potential conflict sites	WRMA/MWI/OTHERS	50
	Provide annually comprehensive information on the status of water resources	Produce maps and status reports	MWI/WRMA/OTHERS	20
	Compile annual national water report(Kenya Water Report)	national water report writers workshops, report compilation, edition, printing and dissemination	MWI/GOVT. DEPTS/UN AGENCIES/CONSULTANTS/NGO's	30

Strategy 7: National Water Quality Management Strategy **Objective: To Coordinate a National Approach to Improve Water Quality in Kenya**					
SN	Components	Activities	Timeframe	Cost (KshsMillion)	Actor
1	Develop National Water Quality Management Strategy/Policy	Develop Terms of Reference Procure Consultancy Review the Draft Strategy and Policy Hold stakeholders workshops Gazette the National Water Quality Management Strategy /Policy	1 year -By 2012	50	MWI
2	Develop Guidelines To Manage Point and Non-Point Sources Of Pollution	Review existing guidelines Hold stakeholders meetings Develop ToRs Procure Consultancy Hold Stakeholders Workshops Publish Guidelines	3 years -By 2012	50	MWI, WRMA, WASREB, WSB,WSP,KEBS, KFS,NEMA, MEMR, MoH
3	Develop Groundwater Quality Management Guidelines	Review existing guidelines Hold stakeholders meetings Develop ToRs Procure Consultancy Hold Stakeholders Workshops Publish Guidelines	5 years By 2012	50	MoWI, WRMA, WASREB, WSB,WSPNWC&PC
4	Develop Guidelines to protect fragile ecosystems e.g. wetlands, to improve water resources quality	Review existing guidelines Hold stakeholders meetings Develop ToRs Procure Consultancy Hold Stakeholders Workshops Publish Guidelines	By 2012	50	MoWI, WRMA, WASREB, NEMA, MEMR.
5	Emphasis on Integrated (Total) Catchment Management (ICM) to Minimize/Eliminate siltation and sedimentation of water resources	Develop Terms of Reference Procure Consultancy Hold stakeholders workshops Create awareness on ICM	-3 months -6 months -Every quarter -By 2012	50	MoWI, WRMA and WASREB
6	Adaptation of Best Management Practices (BMP) including the use	Develop Terms of Reference Procure Consultancy Hold stakeholders workshops	1 year -By 2012	50	MoWI, WRMA and WASREB

	of Acceptable modern Technology and waste minimization and utilization	Create awareness on BMP			
7	Set National Ambient Surface and Ground Water Quality Standards	Develop Terms of Reference Procure Consultancy Hold stakeholders workshops Identify critical research areas Set (preliminary) ambient standards Gazette and create awareness	 -6 months -Every quarter -By 2012	150	MoWI, WRMA, WASREB, NEMA, MEMR.
8	Classification of Water Resources Based on Water Quality Objectives	Develop Terms of Reference Procure Consultancy Hold stakeholders workshops Classify Water Resources Gazette and create awareness on classes of water resources	1 year -Every quarter -By 2012	150	MoWI, WRMA, WASREB, NEMA, MEMR.

Strategy 8: Transboundary Water Resources Management Strategy
Objective: To achieve a peaceful equitable and reasonable utilization of transboundary water resources.

Component	Activities	Output	Agencies	Budget (KSh.)
Development of national transboundary water policy	Identify and map of shared water resources	Mapping of trans-boundary waters GW and SW	Water Resources Department, AG, Ministry of Foreign Affairs, NSIS	200 mill
Negotiation and development of cooperative framework for the management of shared water resources	Set up negotiation frameworks with various riparian states	Negotiation Committees and their Terms of Reference established		
Monitoring of existing projects on shared water resources	Identifying of new planned measures Establishing amounts of water being extracted by existing schemes	Monitoring unit and resources identifies and Unit established		
Establish size and extent of transboundary aquifers	Study the extent and carry out mapping of international aquifers.	Report on transboundary aquifers.		

Annex 6. Social Dimension Logical Framework

FOCUS	EXPECTED RESULTS	PERFORMANCE MEASUREMENT	ASSUMPTIONS/RISKS
Programme Goal	Impact	Performance Indicators	Assumptions – Risk Indicators
Attainment of a clean and healthy Kenya in which every person lives and participates in a peaceful hygienic environment that has safe, adequate and affordable water for sanitation, consumptive and productive uses.			
Purpose	Outcomes (Key Result Areas)	Performance Indicators	Assumptions – Risk Indicators
Increase equity in water and sanitation provision			
1. Equitable water and hygiene and sanitation service delivery promoted throughout the strategy plan period. 2. Improved status and coverage of service delivery in safe drinking water, hygiene, sanitation and health realized among communities by end of the strategic plan period. 3. An environment for peaceful co-existence among diverse communities actively participating in water development, management and productive activities established within the strategic plan period;	Increased access and affordability of water and sanitation services to all especially to the excluded sections of the population who live in urban informal settlements, ASAL areas, small towns and rural areas. Enhanced water and sanitation services to improve people self worth and social status Improved privacy and dignity especially for women through increase in coverage of sanitation Reduced time taken and effort spent naturally by women and children to carry water form distant sources.	Proportion of population in the urban informal settlements with access to available, safe and affordable water supply Proportion of population in the rural ASAL with access to available, affordable safe water supply Proportion of rural population with access to available, safe and affordable water supply 1.2.1 Proportion of population in the urban informal settlement with access to improved sustainable sanitation facilities 1.2.2 Proportion of population in ASAL with access to improved and sustainable sanitation facilities 1.3.1 Percentage coverage in terms of improved and sustainable sanitation facilities. Percentage reduction in incidences of cholera, typhoid and diarrhoea diseases.	Political climate, stability and policy environment conducive (M) Capacity development & training remain high priority strategy (M) Willingness of communities, Ministry and stakeholders to mobilize and allocate adequate resources through out the plan period Collaborative action continues to be productively functional adding value to participating stakeholders (M)
Improved Health status of communities and elimination of death resulting to waterborne/washed diseases			
	2.1Reduced health burden of waterborne and water washed diseases. 2.2 Reduced time taken off school and work by ill as a result of inadequate water and sanitation for children, people and their caregivers.	2.2.1 Percentage increment in primary school enrolment owing to access to sustainable water 2.2.2 Number and level of water related conflicts in ASAL areas	

FOCUS	EXPECTED RESULTS	PERFORMANCE MEASUREMENT	ASSUMPTIONS/RISKS
Programme Goal	Impact	Performance Indicators	Assumptions – Risk Indicators
	2.3 Reduced conflicts consequent from limitations generated by lack of access, availability, affordability, inequitable and inadequate water resources amongst communities		
Programme Goal	Impact	Performance Indicators	Assumptions – Risk Indicators
3. Effective gender mainstreaming achieved in the design and implementation of MWI Strategic Plan resulting into measurable positive impact in the lives of targeted women and men in communities to alleviate poverty.			
1. More efficient, cost effective and demand responsive water and sanitation policies incorporating gender issues developed by the end of the strategic plan period	3.1. Guidelines and procedures for mainstreaming gender in local level water supply, hygiene and sanitation prepared and implemented. 3.2. New policy guidelines inculcated among Ministry staff, water users, providers, communities and stakeholders	3.1.1.Percentage of women employees at the various institutions as per the Water Act 2002 3.1.2.Percentage of female operators of the public and communal water points 3.1.3. Proportion of women in the community water management and decision making entities	
2. Strategic resource mobilization for financial resources for gender mainstreaming realized throughout the plan period	3.3. Gender mainstreaming budgets incorporated as an integral part of the MWI Strategic Plan 3.4. Financial resources are made available for mainstreaming gender analysis and gender-based interventions 3.4. Strengthened gender mainstreaming guidelines, skills, information knowledge and interventions acquired and practiced among water sector professionals and decision makers at national and local levels in targeted regions	3.2.1. Proportion of budget allocated for mainstreaming gender in institutional strategic plans in comparison to other interventions 3.2.2.Number of gender mainstreaming issues raised and addressed strategically 3.2.3. Gender mainstreaming interventions designed and implemented in the MIW, WSB, WSP's business plan 3.4.1. Number of gender issues included and addressed in policy and working papers 3.4.2. Strategic outcomes of issues raised in Gender analysis with disaggregated data in the MIW, WSB, WSP's business plan and key term	A gender analysis outputs informing policy are embraced for mainstreaming process of gender based interventions in WES Staff who make inputs have relevant gender knowledge and a mandate to provide input Senior management support gender based planning and mainstreaming

FOCUS	EXPECTED RESULTS	PERFORMANCE MEASUREMENT	ASSUMPTIONS/RISKS
Programme Goal	Impact	Performance Indicators	Assumptions – Risk Indicators
		reports. 3.4.3. Availability of evidence of change towards gender differentiated practice of water management	
Programme Goal	Impact	Performance Indicators	Assumptions – Risk Indicators
4. To promote and protect the water rights among the disadvantaged poor and vulnerable thus improve their quality of life through the reduction of child morbidity and mortality from water and sanitation related diseases			
Purpose 1. Improved capacity for WES delivery by MWI, WSBs, WSPs and Community including increased active participation from private sector and civil society facilitated or promoted throughout the plan period 2. Capacity strengthening to empower communities and local institutions use WES services hygienically, economically and demand greater choice, access, availability and affordability of equitable and sustainable service delivery.	4.1. Strengthened policy, systems, procedures and human resource capacity for WES delivery at Ministry, community and among users, providers and stakeholders 4.2. Sustainable WES approaches piloted, adapted promoted based on state-of-the art at community and local institutions (schools). 4.3. Effective systems for monitoring, reporting and evaluation developed, piloted and promoted country wide	4.1.1.Availability of guidelines developed, piloted & disseminated for water users, providers, private sector, NGO partnerships an stakeholders in WES 4.1.2.Existence of hygiene & sanitation policy 4.1.3 Strategic framework for addressing human resource development needs in place 4.2.2.Percentage of schools with WES facilities in use 4.2.3. Extent to which hygiene and sanitation education is integrated into school curriculum 4.2.4. Existence if functional children's clubs focusing WES related aspects 4.3.1.Availability and levels at which monitoring, reporting and evaluation framework piloted, evaluated, modified and instituted 4.3.2. Existence of Community-based monitoring reporting and evaluation systems in place in schools and villages	A relevant gender mainstreaming strategy is appropriate at community level for addressing specific gender needs Active participation is used to make gender mainstreaming fully owned at all levels Political interference will into hinder implementation of gender mainstreaming Willingness among key players to engage in Inter-sectoral collaboration that reaches school level School children are inspired to adopt voluntary, creative methods for promotion of WES and water, hygiene, sanitation and health (WASH) activities at their level Level of PTA/Teacher commitment (e.g. time) will support WES and WASH initiatives at the school and community level Culture of supportive professional supervision/monitoring, and reporting would be inculcated at all levels Trust can be engendered with acceptable & affordable systems of verification

Annex 7. Strategies to attain the institutional objectives

Strategies	Output	Timeframe	Indicators	Actors	Budget
Objective 1	**To Harmonise and communicate to stakeholders the conflicting policies/disconnect in legal framework and policies on water and sanitation**				
Review and harmonise laws and policies	Harmonised enforceable legislation within two years	2 years	Reduction in conflicts	MWI and other ministries dealing with Water Resources, AG, Parliament	30 million
Develop modalities of Communicating the reviewed laws to those affected	An effective Communication strategy	2 Years	Seminars, bulletins, newsletters etc	Ministries of MWI,MEMR,Public Health, Agriculture, Energy ,Arid Lands, AG, Parliament	25 Million
		Assumption:	Collaboration and goodwill from stakeholders		
Objective 2	**To Harmonise activities and avoid duplication of efforts within the water sector institutions**				
Embrace and implement SWAP as a starting point	Sector wide plans	2 years	Joint sector planning, reporting and M & E reports	MWI, NGOs, Development partners, CBOs, WSIs and private sector	15 million
		Assumption:	Collaboration and support by stakeholders		
Objective 3	**To develop water sector standards and quality control mechanisms**				
Establish a strong standards and quality unit at MWI	Functioning unit in place	Continuous	National standards and manuals on water and sanitation. Regular and actual reports on water and service quality	MWI, KEBs, NEMA, WSIs	20 million
Develop effective monitoring and evaluation framework	M& E framework in place	2 Years	Regular M&E reports	MWI, WSIs NGOs, Private sector	5 Million
To benchmark performance with	Best practices information	2 Years	Best practice reports	MWI, WSIs	25 Million

Strategies	Output	Timeframe	Indicators	Actors	Budget
best practices	available		Customer satisfaction reports	NGOs, Private sector	
		Assumption:	Goodwill among sector actors		
Objective 4	**To improve institutional Governance to ensure efficiency and effectiveness**				
Change in attitude and culture in public institutions	Improved customer friendly service delivery	Continuous	Customer satisfaction report	MWI, WSIs	50 million
Strengthen governance to ensure equity and access to water by all	Effective and customer friendly institutions	Continuous	Customer satisfaction reports (internal and external customers)	MWI, WSIs NGOs, Private sector	10 million
Develop mechanisms to promote transparency and accountability	Public disclosure on Activities and expenses by all Water Sector stakeholders.	Continuous	Customer satisfaction survey reports, audit reports, corruption reporting mechanism	MWI, WSIs NGOs, Private sector	10 million
Enhance capacity building for regulatory institutions	Enhance institutional capacity	Continuous	Increased budget for capacity building for regulatory institutions. Competent staff	MWI, Dev. partners, MEMR, WSIs, NEMA	10 million
To benchmark institutional performance against best practices within the region and globally	Adoption of best practices	Continuous	Improved competitiveness, economy, and social well being	MWI,WSIs NGOs, Private sector	10 million
		Assumption:	Ability to overcome resistance to change The sector institutions will be flexible enough to learn and adopt to the dynamic operating environment		
Objective 5	**To develop mechanisms to mitigate political interference with water sector activities**				
Enforce adherence to code of ethics	Adherence to code of ethics	Continuous	Discipline of staff and customer satisfaction	MWI and professional bodies	5 million
Lobby for political support to address this objective	Political goodwill	Continuous	Improved provision of water and sanitation services and management of water resources	MWI	5 Million

Strategies	Output	Timeframe	Indicators	Actors	Budget
		Assumption:	Political goodwill		
Objective 6	**To improve reporting and feedback mechanisms by harmonising the water sector information system**				
Ministry of Water and Irrigation (MWI) to play a key roles of Custody of data information, research and experience sharing and monitoring and evaluation of activities	Improved information and data base management Research findings Early warning systems on impending hazards	Continuous	Available information on water resource assessment, water use and sanitation Reports and publications on research findings	MWI, WSIs NGOs, Private sector	50 million
Develop reporting mechanisms for the Water Sector	Standardized reporting templates	2 Years	Regular reports complying with the templates	MWI	5 Million
		Assumption:			
Objective 7	**To mainstream gender and integrate youth in water resource management and water services**				
Integrate Gender and programs that recognise the potential of the youth at sector levels.	Gender and youth friendly policies.	Continuous	Number of policies developed.	NGOs, CBOs, Ministries of Water and Irrigation, Gender and Youth, Planning and Vision 2030	10 Million
Incorporating women and youth in water resource and water and sanitation services management by enhancing use of women and youth friendly technologies	Number of programmes targeting women and youth	Continuous	Proportion of women and youth involved in the programmes	Identification and use of women and youth friendly technologies	30 million
		Assumption:	Development of appropriate laws and policies Identification and use of women and youth friendly technologies		
Objective 8	**To ensure equity and access to water and sanitation for all**				
Cooperation at all levels to address millennium development goals	Halve the number of people living without safe drinking water and basic sanitation by	Continuous	Progress reports	Ministries of Water and Irrigation, Planning and Vision 2030,	25 Million

Strategies	Output	Timeframe	Indicators	Actors	Budget
	the year 2015.			WSIs and Dev. partners	
To develop suitable mechanisms for funding to increase water supply with the aim of minimizing the distances between households and water sources	New fund raising strategies	Continuous	Percentage increase in sector funding	MWI, WSIs NGOs, Private sector	25 Million
Planning and Investment in technologies to improve sanitation in rural and urban set ups	More urban and rural centres having sanitation facilities.	Continuous	Percentage of population covered. Number of innovations.	MWI, WSIs NGOs, Private sector	50 Million
Review Laws and barriers that limit access to water masses-rivers, lakes and oceans	Appropriate laws in place.	2 Years	Number of laws enacted.	AG,NEMA, MWI,MEMR Ministry of lands	20 Million
Encourage increased community – driven approach in water and sanitation management-involving the community members in planning, managing and delivering services	Increased active participation of community	Continuous	Percentage increase in number of community projects	MWI, WSIs, CBOs, NGOs, Provincial administration	15 Million
Develop deliberate policies targeting the poor	Appropriate policies in place	Continuous	Number of policies	MWI, WSIs	15 Million
		Assumption:	Commitment of sector players		
Objective 9	**To enhance the capacity of Water Sector Institutions to enable them to operate efficiently and effectively**				
Support capacity building for all water sector institutions based on training needs assessments	Staff training opportunities	Continuous	Number of staff trained	MWI, WSIs	50 million
Regular review of training needs of the sector	Training review reports	Continuous	Number of training needs identified	MWI, WSIs	25 Million
		Assumption:			

Strategies	Output	Timeframe	Indicators	Actors	Budget
Objective 10	**To undertake research and share experiences to improve the performance of the water sector**				
Establish a centre for Excellence in Water Management and research	Location identified	5 Years	Center identified and funded	MWI	250 million
		Assumption:			
Objective 11	**To enhance project management skills for sustainability**				
Enhance project management capacity building for the sector players	Improve project management skills in the sector	Continuous	Number of trainings on project management	MWI, WSIs	50 million
Encourage sharing experiences between sector players	Appropriate experienced sharing fora	Continuous	Number of forums held	MWI, WSIs NGOs, Private sector	10Million
		Assumption:			
Objective 12	**To increase awareness of the benefits of clean water and sanitation programs in schools and communities (WASH programme)**				
Lobby for inclusion of water and sanitation education curriculum in schools	More awareness created	2 Years	Behavioural change	Ministries of Water and Irrigation, Education	10 Million
Develop appropriate sensitization programs on water and sanitation targeting communities	Programmes in place	Continuous	Number of communities implementing the programmes	Cooperation between stakeholders working with communities	10 Million

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