



2011

**ENVIRONMENT PROTECTION,  
WATER AND HOUSING**

**SECTOR REPORT**  
MTEF 2012/13-2014/15

*“Achieving economic growth through targeted,  
effective and efficient Public Spending”*

**Final Draft**

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## ACRONYMS

ABT	- Appropriate Building Technologies
A.i.A	- Appropriation in Aid
ASALs	- Arid and Semi-Arid lands
CBOs	- Community Based Organizations
CCK	- Commission Communication of Kenya
DANIDA	- Danish International Development Agency
DEC	- District Environment Committees
DRSRS	- Department of Resource Surveys Remote Sensing
EIP	-Expanded Irrigation Programme
EPWH	- Environmental Protection, Water and Housing
EU	-European Union
FY	-Financial Year
GiZ	-German International Co-operation
GHG	-Green Houses Gases
GoK	-Government of Kenya
GDP	-Gross Domestic Product
Ha	-Hectare
IFMIS	-Integrated Financial Management Systems
IPAR	- Institute of Policy Analysis and Research
JICA	- Japan International Cooperation Agency
JKIA	- Jomo Kenyatta International Airport
KEWI	- Kenya Water Institute
KIPPRA	- Kenya Institute for Public Policy Research and Analysis
KMD	- Kenya Meteorological Department
KNBS	- Kenya National Bureau of Statistics
Kshs	- Kenya Shillings
LVEMP	- Lake Victoria Environment Management
MEAs	-Multilateral Environmental Agreements
MEMR	- Ministry of Environmental and Mineral Resources
MoH	-Ministry of Housing
MOU	-Memorandum of Understanding
MSG	-Meteosat Second Generation
MTEF	-Medium Term Expenditure Framework
MTP	- Medium Term Plan
MWI	-Ministry of Water and Irrigation
NCCRS	-National Climate Change Response Strategy
NEC	- National Environment Council
NEMA	- National Environment Management Authority

NEPAD	- New Partnership for Africa's Development
NETFUND	- National Environment Trust Fund
NET	- National Environment Tribunal
NFCS	- National Framework of Climate Services
NGOs	- Non Governmental Organizations
NHC	- National Housing Corporation
NIB	- National Irrigation Board
NWCPC	- The National Water Conservation and Pipeline Corporation
PECs	- Provincial Environmental Committees
PCLNR	- Parliamentary Committee on Lands and Natural Resources
PCC	- Public Complaints Committee
RCMRD	- Regional Centre for Mapping of Resources for Development
RSMC	- Regional Specialized Meteorological Centre
SAGAs	- Semi Autonomous Government Agencies
SOE	- State of Environment
SP	- Sub-Programme
UNCCD	- United Nations Convention to Combat Desertification
UNCTAD	- United Nations Conference on Trade and Development
UNCBD	-United Nations Convention on Biological Diversity
UNFCCC	-United Nations Framework Convention on Climate Change
UN-HABITAT	- United Nations Human Settlements programme
USAID	- United States Agency for International Development
WAB	-Water Appeal Board
WASREB	- Water Services Regulatory Board
WCIC	- Weather and Climate Information Centres
WRMA	- Water Resources Management Authority
WSTF	- Water Services Trust Fund
WSBs	- Water Services Boards

## **EXECUTIVE SUMMARY**

The Environmental Protection, Water and Housing Sector consist of Environment and mineral resources, Water and irrigation and Housing sub sectors. The Sector Vision is ‘Sustainable access to adequate water and housing in a clean and secure environment. The Mission is to promote, conserve and protect the environment and improve access to water and housing for sustainable national development. The Sector’s goal is to ensure that ‘Every person has access to decent and affordable housing with access to portable water in a clean and secure environment’

The Constitution of Kenya 2010 and the Vision 2030 recognize the importance of Environmental Protection, Water and Housing Sector as a foundation for sustainable socio economic development of the country. Most of the sectors including agriculture, livestock, wildlife, tourism, health, housing, water resources, and energy heavily depend on the sustainable management of the environment and prudent exploitation of the natural resources. The Environmental Protection, Water and Housing Sector plays a significant role towards the attainment of the targeted economic growth through the supply of key goods and services.

The Sector’s key policy priorities to address the challenges and exploit opportunities in the medium term include; expansion of water coverage and sewerage facilities; scaling up water storage to improve water security; scaling up irrigation to reduce dependence of rain fed agriculture; protection, conservation and management of catchment areas; mitigation and adaptation measures on climate change; enforcement of sector laws and regulations; restoration of Nairobi Rivers; modernization of meteorological services; mineral exploration and mining cadastre system; enhancing housing development through various initiatives; up-scaling slum upgrading and redevelopment; and lowering the cost of building material to increase access to housing.

The Sector has seventeen (17) SAGAs and three other institutions of which Water and Irrigation sub-sector has fifteen (15) SAGAs, Environment and Mineral Resources sub-sector has one (1) SAGA and three other institutions and Housing sub-sector has one (1) SAGA.

The approved budget for the sector stood at Kshs. 47,396.5 Million during 2010/11, an increase of 30.6 % from Kshs. 36,304.0 Million in 2009/10 and 51.6% Kshs. 31,273.8 Million in 2008/09. The overall expenditure for the sector was Kshs. 36,453.4 Million representing 76.9% of the approved budget of Kshs. 47,396.5 Million. This was due to low disbursement levels of funds from development partners which was 57.1%, at Kshs. 12,351.3 Million out of Kshs. 21,616.0 Million. During the same year, expenditure from GoK was 94.2% at Kshs. 21,528.7 Million of the approved budget Kshs. 22,844.8 Million.

The Sector programmes were ranked according to issues emanating from County consultations, basic requirements in the New Constitution and the overall objectives of the vision 2030. These include; Environment Management and Protection, Water Resources Management and Water Storage, Housing Development and Human Settlement, Meteorological Services, Provision of Irrigation Infrastructure and Land Reclamation, Water Supply and Sewerage, Mineral Resources Management, Environment policy development and coordination, Water Policy and Management and finally Administration and Support Services.

For the Sector to achieve its objectives and above detailed outputs, it will require Kshs.93.2 billion in the 2012/13 FY. This is 70.6% increase from FY 2011/12 budget of Kshs. 54.6 billion. However, the allocation for the FY 2012/13 is Kshs 52,414.7 Million (Kshs. 27,491.7 Million from GoK and Kshs 24,924.0 Million from Donors). The rise in recurrent is due to increased requirement by SAGAs in the Sector. In terms of Development, construction of new large dam to be undertaken in the next financial year, donor commitment is forecasted to increase for major projects and this will require an increase in GoK counterpart funding.

Arising from the findings, it is recommended that:-

- Alignment of the sector policies and legislative frameworks to the Constitution.
- Mobilization of resources for maintenance, rehabilitation, replacement and expansion of sector infrastructure.
- Enforcement of laws regarding protection of public property to avoid fraudulent acquisition and encroachment.
- Mainstreaming of climate change responsive initiatives in programmes and projects.
- Enhance sensitization, collaboration and consultation efforts on the conservation, management, protection and development of the environment and natural resources.
- Adopt new and appropriate technologies to mitigate against challenges in environmental conservation, water supply and sewerage and building of affordable houses.
- Strengthening of research and development for improved service delivery and enhanced environmental management, access to adequate water and housing

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

The Constitution of Kenya 2010 and the Vision 2030 recognize the importance of Environmental Protection, Water and Housing (EPWH) sector as a foundation for sustainable socio economic development of the country. The Sector was constituted during the current MTEF period in cognizance of the strong inter-linkages between the environment and sustainable human settlements. The country's economic growth depends largely on exploitation of natural resources and environmental goods and services. Most of the sectors including agriculture, livestock, wildlife, tourism, health, housing, water resources, and energy heavily depend on the sustainable management of the environment and prudent exploitation of the natural resources. In the recent past, climate change has emerged as a major threat to sustainable development and this has had severe negative impacts on the poor and the vulnerable groups. This poses a major challenge particularly in poverty reduction and threatens to undo decades of development efforts.

The centrality of water as a source of life and socio economic development of the country cannot be gainsaid. Water resources are a key driver of the economy and therefore its availability and reliability is a prerequisite for sustainable and sustained economic growth including food security through expansion of irrigated land. It is important to note that, access to adequate and reliable supply of water is not only a key input to poverty reduction but also an important element for social stability. The provision of safe water in adequate quantities, adequate sanitation for all households and provision of adequate food have been enshrined in the bill of rights in the Constitution of Kenya 2010.

Provision of adequate housing in sustainable human settlements is a key target for the sector. This is critical to the realization of the national development goal of meeting the annual housing demand of about 150,000 housing units versus the average annual supply of about 35,000 units. This is made more urgent by the bill of rights in the Constitution of Kenya 2010 that provides for adequate housing as a right to all Kenyans. Undertaking activities in this sector will reduce development and mushrooming of informal settlements and slums. Provision of adequate portable water and basic sanitation to households is a hallmark of sustainable human settlements.

The Environmental Protection, Water and Housing Sector is expected to play a significant role in the attainment of the targeted economic growth through the supply of key goods and services. Initiatives to be implemented by the sector towards attainment of the Vision 2030 aspirations include; catchment conservation and management, enforcement of policies and regulations to ensure a clean and safe environment, collection and dissemination of data; minerals; and protection of biodiversity resources, provision of clean and safe water; irrigation infrastructure; and facilitate provision of adequate housing in sustainable human settlements. The implementation of these initiatives will be backed by strong research and use of appropriate technologies.



This Sector report reviews the performance and achievements of the programmes and analyses trends in expenditures in the last three financial years (2008/09 - 2010/11). It also presents priorities and the financial requirements to implement programmes geared towards delivering the Medium Term Plan executed through the flagship projects and ongoing programmes. The report has been prepared through a sector wide consultation process involving all sub-sectors namely, Environment and Mineral Resources, Water and Irrigation and Housing. In addition stakeholders' consultations and recommendations in all the forty seven counties have been used to inform the sector priorities.

However, the sector faces a number of challenges that include; Unplanned settlements and rapid urbanization, Inadequate policy and legislative framework, Environmental and natural resources benefit sharing, staffing, old and dilapidated infrastructure, inadequate data and perennial droughts and flooding. In addition, the sector does not receive adequate funding to undertake the planned programmes.

The Sector's key policy priorities to address the challenges and exploit opportunities in the medium term include; protection, conservation and management of catchment areas; mitigation and adaptation measures on climate change; expansion of water coverage and sewerage facilities; scaling up water storage to improve water security; pollution control, waste Management and restoration of Nairobi and other town rivers; enhancing housing development through various initiatives; up-scaling slum upgrading and redevelopment; and lowering the cost of building material to increase access to housing; modernization of meteorological services and dissemination of weather/climate information for early warning systems and disaster preparedness; scaling up irrigation to reduce dependence of rain fed agriculture; mineral exploration and mining cadastre system; enforcement of sector laws and regulations. The Sector will also address issues related to domestication and implementation of relevant bilateral and multilateral agreements.

## 1.2 Sector Vision and Mission

**Sector Vision** *'Sustainable access to adequate water and housing in a clean and secure environment*

**Sector Mission** *is to promote, conserve and protect the environment and improve access to water and housing for sustainable national development*

## 1.3 Strategic Goals/Objectives of the Sector

The goal for the sector is to ensure that 'Every person has access to decent and affordable housing with access to portable water in a clean and secure environment'

The strategic objectives of the sector to ensure the progressive realization of the goal are:

1. Develop and review policies and legislative frameworks in line with Constitution of Kenya 2010;
2. Coordinate effective implementation of sector policies;

3. Enhance sustainable management and development of environment, water and natural resources;
4. Increase access to water and sewerage services;
5. Facilitate production of adequate and affordable housing under various initiatives;
6. Capacity building in environmental protection, water resources management and housing development; and
7. Generate, manage and disseminate timely, efficient and accurate meteorological, natural resources and housing data.

#### 1.4 Sub-sectors and their Mandates

The following are the subsectors and their mandate:-

##### **Water and Irrigation**

To conserve and manage water resources, water storage, provision of water and sewerage services, development of irrigation and drainage, reclamation of wastelands, and capacity building.

##### **Environment and Mineral Resources**

To protect, conserve and manage the environment and natural resources for socio-economic development.

##### **Housing**

To improve access to housing in sustainable settlements through infrastructure development, slum upgrading and redevelopment

#### 1.5 Autonomous and Semi Autonomous Government Agencies (SAGAs)

The sector has a total of seventeen (17) SAGAs and three other institutions created by the various Acts of Parliament. Their roles are as follows;

##### **Water and Irrigation**

The sub-sector has fifteen (15) SAGAs:

- a. **Water Appeal Board (WAB)** which is mandated to deal with conflict resolution within the sub-sector management under the Water Act 2002.
- b. **Water Services Regulatory Board (WASREB)** was established under the Act to regulate water and sewerage services provision including issuing of licenses, setting service standards and guidelines for tariffs and prices.
- c. **Water Resources Management Authority (WRMA)** was established under the water Act 2002 to be responsible for regulation of water resource issues such as water allocation, source protection and conservation, water quality management and pollution control as well as management of international waters.
- d. **Water Services Trust Fund (WSTF)** is responsible for the mobilization of financial resources for development and rehabilitation of water and sewerage services infrastructure, especially to poor and under-served areas.
- e. **Water Services Boards (WSBs)**, eight WSBs were established under the Water Act 2002 to manage water and sewerage service provision in their respective areas of

jurisdiction. These are: Tana, Athi, Tanathi, Lake Victoria South, Lake Victoria North, Rift Valley, Coast and Northern Water Services Boards. Their role is to ensure efficient and economical provision of water and sewerage services, contracting Water Services Providers (WSPs), developing water and sewerage facilities, regulating water services and tariffs in their board areas and procuring and leasing water and sewerage facilities.

- f. The National Water Conservation and Pipeline Corporation (NWPC)** established under the State Corporations Act in 1988 is an autonomous agency reporting to the Ministry. It is mandated under the Water Act 2002, to contract sector.
- g. Kenya Water Institute (KEWI)** was transformed in to a semi-autonomous institution in July 2002 under the Kenya Water Institute Act 2001. KEWI provides training, research and consultancy services in the water and irrigation sector.
- h. National Irrigation Board (NIB)** established in 1966 through an act of Parliament, Irrigation Act is mandated to develop, promote and improve irrigated agriculture through sustainable exploitation of available irrigation and drainage potential in Kenya. Its key responsibility is development and management of the National Irrigation Schemes in Kenya.

## **Environment and Mineral Resources**

The sub-sector has one (1) SAGA and three other institutions:

- a) The National Environment Management Authority (NEMA)**  
The Authority was established to exercise general supervision and coordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of policies, regulations and standards relating to the environment.
- b) Other EMCA institutions include,**
  - **National Environment Trust Fund (NETFUND)**- Facilitates research intended to further the requirements of environmental management, capacity building, environmental awards, environmental publications, scholarships and grants
  - **National Environment Tribunal (NET)** responsible for reviewing administrative decisions made by NEMA relating to issues of revocation or denial of licenses, provide legal opinions to NEMA and carry out investigations.
  - **Public Complaints Committee (PCC)** responsible for investigating any allegations in relation to the condition of the environment.

## **Housing**

This sub-sector has one (1) SAGA whose role is highlighted below

- a) National Housing Corporation (NHC)** is a State Corporation established by the Housing Act Cap 117. The overall mandate of NHC is to develop and facilitate development of decent and affordable housing for Kenyans. The corporation is

guided by the vision of “A decently housed Nation” and a mission of “playing a leading role in the efficient provision of adequate and affordable housing and related services”.

## 1.6 Role of Sector Stakeholders

The sector has a wide cross section of stakeholders. The major stakeholders and their roles are as presented in Table 1.1.

Table 1-1: Stakeholders in the Sector

Stakeholder	Role
<b>Parliamentary Committee on Lands and Natural Resources (PCLNR)</b>	Provide support to the sector through lobbying and mobilization of parliamentary support to sector issues
<b>Parliamentary Committee on Infrastructure</b>	
<b>Other Government Agencies</b>	
<input type="checkbox"/> KIPPRA	Provide technical support to sector policy development
<input type="checkbox"/> KNBS	Development and preparation of national economic data
<b>Development Partners</b>	
World Bank, AfDB, GiZ, KfW, Finnish Government, JICA, AFD, DANIDA, Italy, BADEA, UN HABITAT, Shelter Afrique, IFAD, Sida, IDA, EDF/EEC, USAID, UNEP, UNDP, NEPAD, Switzerland	All have special projects they are implementing in collaboration with the government especially in Natural Resources Management
<b>Institutions of Higher Learning and Specialist Institutes</b>	
Universities,	Joint MOU in research relevant areas, support capacity building in related disciplines especially through short term trainings
Regional Centre for Mapping of Resources for Development (RCMRD)	Support towards capacity development for mapping and natural resources development
IGAD Climate Prediction and Application Centre (ICPAC)	Support towards capacity development for climate prediction for natural resources development
<b>Non-Governmental Organizations, Community Based Organizations and Faith Based Organizations</b>	Community mobilization and engagement to support implementation of government policies and programmes
<b>Private Sector, KEPSA</b>	Resource mobilization and joint implementation of relevant projects
<b>Wildlife Clubs of Kenya (WCK)</b>	Provision of conservation education to the Kenya youth.

## CHAPTER TWO

### PERFORMANCE AND ACHIEVEMENT OF THE SECTOR DURING THE PERIOD 2008/09 – 2010/11

This chapter presents the performance of the sector programmes and sub programmes. Further it gives the budgetary allocation and expenditure trends for the period 2008/09 – 2010/11.

#### 2.1 Performance of Programmes

The planned outputs and the actual achievements are summarized in table 2.1 below

Table 2-1: Performance of Programmes

Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
<b>Environment and Mineral Resources Subsector</b>			
<b>Programme 1: Environment Policy Development and Coordination</b>			
<b>Outcome: Improved environmental governance</b>			
SP1: Environment Policy Development and Coordination	- Institutionalization of Climate Change initiatives in other Ministries and institutions	- Sensitization to Ministries/Departments completed	
	- National Action plan for Climate Change	- National Climate Change implementation Strategy and action plan prepared	
	- Master Plan for Conservation of Water Towers prepared	- Draft prepared.	
	- Chemical and Waste Policy in place	- National chemical profile developed	
<b>Programme 2: Environment Management and Protection</b>			
<b>Outcome: Sustainably managed environment and natural resources</b>			
SP 2.1. Resource Surveying and Remote Sensing	- Spatial maps and trend statistics of wildlife and livestock population in Narok, Garissa, Turkana, Baringo and Laikipia	- Spatial maps and trend statistics of wildlife and livestock population in Narok, Garissa, Turkana, Baringo and Laikipia developed	
	- Atlas of wetlands of Kenya	- Atlas of wetlands of Kenya developed	
	- Map of the quality of Aberdares forest	- Map of forest quality of Aberdares produced	
	- Assessment reports and maps on status and distribution of dams in the former white highlands	- Assessment reports and maps on status and distribution of dams in the former white highlands developed	- The Dams include Gwa- Kiongo, Oloishoibor and Lelongo

Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
	- Land use map, settlement patterns	- Land use map and settlement patterns for Kajiado and Nakuru developed	- The maps will be a key input to the National Land Master Plan.
SP 2.2: National Environment Management	- Multilateral Environmental Agreements (MEAs) Policy	- MEAs draft Policy formulated	-
	- Coastal and Marine resources conservation and biological resources inventory	- Two Inventories prepared	
	- Baseline surveys report and reduced illegal discharges into water bodies	- Baseline survey report prepared - 64 illegal discharges identified out of which 13 were removed against a target of 7	
	- Develop and operationalise Environmental guidelines, regulations and standards	- National Noise and Vibration Pollution standard Regulations operationalised	
	- National Inventory on green houses gases (GHG)	- National inventory on green House gases (GHG) prepared	
	- Finalize and publish State of Environment (SOE)	- State of Environment Report produced	
	- Capacity built on 250 CBOs on sustainable land management and electronic waste	- 5 public Barazas in Kwale and Nandi - 200 CBOs trained	
SP 2.3: Lake Victoria Environment Management (LVEMPII)	- Identify Point Sources pollution control and prevention component - Carry out feasibility study on sewerage treatment facilities and eco sanitary toilets	- Point Sources pollution control and prevention component identified - Procurement of a consultancy initiated to: assess, classify and update data on point sources of pollution in Winam Gulf - Feasibility study for Homa Bay and Bomet sewerage treatment facilities completed	
	- Enhance Watershed management	- Draft wetlands management plans and constitution of wetlands Management committees developed - Protecting, weeding and mulching of 141.5ha planted with indigenous trees in Mau forest	

Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
		complex;	
SP 2.4 :Nairobi Rivers Rehabilitation and Restoration	- Tree planting and maintenance of the restoration activities of Nairobi River Basin	- 50,000 seedlings planted. - Orbit quarry rehabilitated, - Rehabilitation works at Kijabe area finalized.	
	- Rehabilitate River Sosiani within the Eldoret Municipality	- 96,000 tree seedlings planted along the riparian	
SP 2.5: Catchment Rehabilitation and conservation	- Rehabilitate the water catchment in Mau and lake Naivasha	- 2 million seedlings planted in the Lake Naivasha Catchment, - IMARISHA Naivasha Board gazetted and operational, - Inventory of Water pans/dams within the Lake Naivasha Catchment done and estimates done for rehabilitation, - 81 ha of Mau catchment rehabilitated	
<b>Programme 3: Mineral Resources Management</b>			
<b>Outcome: Enhanced Geological and Mineral information</b>			
SP 3.1: Mineral Resources Development	- Develop Mining Law enacted and New Mining Policy	- Draft Mining Bill and Mining Policy prepared	
SP 3.2: Geological Survey and Mineral Exploration	- Revise geological map	- Total of 12,500km <sup>2</sup> re-mapped and reports produced	- 1,400km <sup>2</sup> of Kimangau, Kiminini and 12,100km <sup>2</sup> Garissa areas
	- Map geo-hazard areas in Kenya;	- Sixteen (16) geo hazard areas mapped - Rapid Geo-hazard reporting and response mechanism established	
	- Investigate eight (8) mineral prospects	- Eight (8) mineral prospects investigated and preliminary reports on iron ore produced	
	- Undertake Inventory of geological sites	- 18 geological sites documented in parts of coast, western and Rift Valley regions	

Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
	- Conduct Geotechnical investigations sites for construction and expansion of laboratory facilities	- Thirteen (13) sites investigated and preliminary report prepared - Geo-database established and updated	
<b>Programme 4: Meteorological Services</b>			
<b>Outcome: Improved Meteorological Services</b>			
<b>SP 4.1:</b> Meteorological Systems modernization	- Establish Automatic Weather Stations Network	- Phase I and II completed with installation and operationalisation of 24 AWS - 12 AWS procured	
	Establish Airport Weather Observing Systems (JKIA, MIA, Wilson, Kisumu, Eldoret, Wajir)	Three (3) AWOS installed at JKIA, Wilson Airport and Moi International Airport	
	Establish Four (4) Weather and Climate Info Centre for vulnerable rural communities - RANET FM stations	- Two (2) FM stations established at Kwale and Budalangi - License acquired for Kano stations	Frequency licenses were temporarily suspended by the CCK
	Disseminate Weather and climate information	- Weather forecasts and climate predictions, including monitoring of Tsunami and Seismic Information, were produced and disseminated to all the climate-sensitive sectors including the public. - Spatial resolutions of weather forecast models increased from 28Km to 14 Km while the vertical integration increased from 40 to 60 levels - Forecast period increased from 3 days to 5 days.	
	Establish Regional/County weather and climate information centres (WCIC)	- Constructed Ngong Observatory. - Construction of Wajir and Nganyi WCIC on-going	- Process of acquisition for land suitable for establishing weather observatories still a major challenge
	Transform KMD into a WMO Data Collection and Production Centre (WMO-DCPC)	- IMIS equipment procured	- The last component of the DCPC is to acquire an equipment known as RADOME
	- Establish and operationalise National and Regional Integrated Hydrometeorological	- Seventeen (17) Hydromet stations installed and integrated	- This project is to cover all major watershed/ catchment areas



Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
	Information and Decision Support System (IHyMIDSS)		
	- Establish and operationalise National Seismological Network	- Kibwezi and Lodwar site completed	-
	- Establish stations for Urban climatology, pollution monitoring and climate change detection and attribution	- Station established at Chiromo Campus - Equipment for JKIA acquired - Mobile air-samplers acquired	
	- Establish National Meteorological Research Centre	Construction of the centre completed	
<b>SP 4.2:</b> Advertent Weather Modification Programme	- Conduct Pre-feasibility and prepare project proposal	- Project proposal finalized and submitted to Treasury	- The programme is awaiting full funding
<b>Water and Irrigation Sub-sector</b>			
<b>Programme 1: Water Policy and Management</b> <b>Outcome: Timely delivery of quality water services</b>			
SP1.1 Water Policy and Management	- Review water sub-sector policies	- Draft irrigation and drainage policy and bill formulated - Zero draft water Policy and bill formulated - Draft land reclamation Policy formulated	
<b>Programme 2: Water Supply and Sewerage Services</b> <b>Outcome: Access to adequate and reliable water supply</b>			
SP2.1 Urban water and sewerage	- Expand 26 medium size towns urban water supplies infrastructure	- 40 medium size towns urban water supplies infrastructure expanded	- Expansion in 26 medium size towns' urban water supplies infrastructure is MTP target.
SP2.2 Rural water supply	- Construct 180 new water and sanitation projects in rural areas  - Drill 85 new boreholes and equip 9 capped existing boreholes	- 241 new water and sanitation projects constructed in rural areas - 90 new boreholes drilled and 24 capped existing boreholes equipped	
SP2.3 Water for informal settlements	- Fund 41 new UPC projects funded	- 41 new UPC projects funded	
<b>Programme 3: Water Resources Management and Water Storage</b> <b>Outcome: Per capita national water storage capacity increased</b>			

<b>Programme/ Sub- Programme</b>	<b>Intended Output</b>	<b>Output Achieved</b>	<b>Remarks</b>
SP3.1 Water Resources Management	- Rehabilitate 180 hydro-meteorological stations	- 100 Hydro-meteorological stations have been rehabilitated and are working	
SP3.2 Water Storage and Flood Control	- Construct 5 large dams - Construct/rehabilitate 77 small dams and water pans	- 77 small dams and water pans constructed by NWCP, 5 large dams under construction	- The 5 large dams are MTP targets
<b>Programme 4: Provision of Irrigation and Drainage Infrastructure</b>			
<b>Outcome: Increased Land utilization through irrigation and land reclamation</b>			
SP4.1 Development of Irrigation and Drainage infrastructure	- Rehabilitate 6 public irrigation schemes	- 6 public irrigation schemes rehabilitated.	- The irrigation schemes include; Bura, Hola, Mwea, Ahero, Perkera, Bunyala and southwest Kano
	- Put 5,000 hectares under irrigation	- 6,220 hectares put under irrigation	
SP4.2 Land Reclamation	- Construct 2,200 water conservation and rain water harvesting structures in ASALs	- 2,490 water conservation and rain water harvesting structures constructed.	
	- Reclaim 1,500 hectares of degraded/disused land in ASALs areas	- 3,012 hectares of degraded/disused land reclaimed	
<b>Housing Subsector</b>			
<b>Programme Name: Housing Development and Human Settlement</b>			
<b>Programme Outcome: Decent and affordable housing</b>			
<b>Sub-Programme: Housing Development and Human Settlement</b>	- Construction of housing units	- Housing designs completed and Contractor on site for the construction of 400 housing units at Kibera Soweto East village Zone A - 90% of works done for the construction of 526 housing units for Civil Servants in Ngara Phase II, commercial centre and nursery school - 88% of works done for the construction of 130 housing units for sale to Civil Servants in Ngara Phase I - Construction of 40 housing units for sale to Civil Servants in Nyeri Road complete - Construction of 280 houses along Jogoo Road complete - 99% of works done for the	- On course  - On course  - Project delayed due to contractual challenges  - Houses occupied  - Houses occupied  -Slight delays due contractor's

Programme/ Sub- Programme	Intended Output	Output Achieved	Remarks
		<p>construction of 22 housing units in Makueni Road-Kileleshwa</p> <ul style="list-style-type: none"> <li>- 30% of works done for the construction of 300 housing units in Nyeri, Mombasa and Kisumu</li> <li>- 73% of the works done for the Construct 400 housing units in Mavoko, Athi River</li> </ul>	<p>failure to complete works</p> <ul style="list-style-type: none"> <li>- Topographical survey maps prepared</li> <li>- The construction works were slowed down due to contractual challenges</li> </ul>
	- Installation of social and physical infrastructure in slums and other urban areas	<ul style="list-style-type: none"> <li>- 83% of the works completed in the development and rehabilitation of Social and Physical Infrastructure in main towns and key urban centres</li> <li>- Construction of 5 Km of Trunk sewerage and water lines in Thika Town</li> <li>- 7 Km of Trunk sewerage line and water lines in Athi River Town.</li> <li>- 6 Km of Trunk sewerage line in Eldoret Town</li> </ul>	<ul style="list-style-type: none"> <li>- Projects include schools, health centres, social halls, access roads in Kakamega, Kisumu, Nakuru, Mombasa and Nyeri which are ongoing</li> <li>- Works done</li> <li>- 87% of works done</li> <li>- 98% of works done</li> </ul>
	- Mobilize financial resources in slum areas	- 20 cooperatives formed and operationalised in various slum areas and Kshs 5.7 million mobilized from them.	- The objective is to mobilise resources for housing development in slums and informal settlements where upgrading initiatives are implemented.
	- Promote and disseminate appropriate low cost building technology	- 61 appropriate low cost building technology (ABT) centres established	- ABT centres are constituency based to promote utilisation of low cost building materials and construction technologies
	- Loans disbursement to Civil Servants	- Kshs 2.4B disbursed	- Loans are for either direct purchase or construction-
	- Review of Building Laws and Regulations	- Draft document was finalized	- Being subjected to stakeholder's
	- Estates Management	<ul style="list-style-type: none"> <li>- Draft Maintenance Policy done</li> <li>- 2,388 units refurbished</li> <li>- Inventory of government buildings established</li> <li>- 1,800 government residential houses secured by fencing them in various estates across the country</li> </ul>	<ul style="list-style-type: none"> <li>- Draft Policy document was presented to Stakeholders</li> <li>- This is a continuous exercise</li> <li>- Depends on number of completed government buildings at any given time</li> <li>- This is continuously done to prevent grabbing of government houses and plots</li> </ul>

## 2.2 Review of key indicators of sector performance

### Environment subsector

During the period under review, the programme, focused on a number of issues pertaining to environment such as climate change where a National Climate Change Response Strategy (NCCRS) was formulated. This was completed with a clear road map on how the country should tackle climate change issues. A secretariat on climate Change coordination was established and is currently functional.

In respect to Multilateral Environmental Agreements (MEAs) the Ministry has formulated a draft National MEAs policy. In addition, the programme has domesticated a number of ratified MEAs which include Rotterdam Convention where a country chemical profile and Situation Analysis and Needs Assessment (SANA) on environment and health has been done; Stockholm Convention on Persistent Organic Pollutants (POPs); United Nations Framework Convention on Climate Change (UNFCCC) where a strategy on climate change has been developed; United Nations Convention on Biological Diversity (UNCBD); United Nations Convention to Combat Desertification (UNCCD); Nairobi Convention on Land -based Sources of Pollution and Coastal Zone of East Africa Region.

On catchment protection the subsector rehabilitated some parts of the Mau forest complex through a tripartite collaboration between the Ministry of Environment and Mineral Resources, Ministry of Forestry and Wildlife and Department of Defense by planting indigenous tree seedlings in Amara /Marindas Mau blocks. Further, the subsector is also rehabilitating and restoring river sosiani in Eldoret municipality using the Nairobi river model. The Over 3000 Ha were rehabilitated through planting of over two (2) million indigenous tree seedlings in tree cover enrichment programmes. The development of Green Schools Initiative in conjunction with the Ministry of Education aims at inculcating good environmental conservation practices to school going children who shall later be champions of the same. A total of 150 schools benefitted with a 10,000 litres water tank with appropriate gutters and seed money for establishment of a tree nursery.

On wetland management management plans for lake Jipe and Lake Olbollasat management plans were finalized and launched as planned. Further, preparation of 2 management plans for wetlands in Nyando and Kericho were initiated.

Other initiatives include annual reporting State of Environment for 2009; the development of the mandatory Environmental actions Plans; land use guidelines together with Policy frameworks on wetlands; and integrated coastal zones management coupled with a national action plan for implementation. Further, gazetement of District Environment Committees (DEC), Provincial Environmental Committees (PECs) and National Environment Council (NEC). Under resources surveys and remote sensing, reforms and restructuring of DRSRS to refocus its operations were undertaken. Key

among these processes includes formulation of a national natural resource data and information management policy.

The subsector focused on increasing investment in mining; regional geological mapping, geohazard mapping, mineral exploration, inventorization of geotourism sites, and inspection of mines and explosives. In addition, a number of sensitization workshops and seminars were held in field stations to promote small scale mining operations.

The Meteorological services has also continued to modernise its infrastructure as well as forecasting capabilities and continue to simulate the atmospheric behaviour of the region by use of several schemes to provide refined forecasts that supplemented those produced at the National Meteorological Centre by Steady state/persistence or Trend forecasting and Empirical statistical methods. However, the Department is yet to undertake intended advertent Weather Modification due to low funding.

#### Water subsector

During the period under review 2010/11, the Ministry's overall expenditures stood at 18.9 % for Recurrent Expenditures and 81.1% for Development Expenditures out of the Total Expenditure. The growth in development expenditures is expected to continue as a result of the ongoing reforms in the water sector towards improved water and irrigation service delivery to the people of Kenya in line with the new Constitution. The Ministry's investment programmes cover the Vision 2030 objectives and milestones, and the MTP flagship projects. These programmes will have a strong focus on providing services to the poor while ensuring availability of adequate water for the various competing demands.

More resources were committed to Development during the period under review at Khs 32.8 billion in 2010/11 which was 31.7% from Kshs 24.7 billion in 2009/10. There was also increased funding from development partners by 143.7 % from KShs 8.5 billion in 2009/10 to KShs 20.6 billion in 2010/11. This trend is likely to continue with the increase of funding from GOK and development partners for the implementation of MTP flagship projects especially construction of large and medium size dams and rehabilitation and expansion of irrigation schemes.

#### Housing subsector

Sub-sector performance as highlighted in section 2.1 above has the following key indicators;

- Number of physical and social infrastructure installed in slums and informal settlements.
- Number of Constituency Appropriate Building Technology Centres established.
- Amount of resources available and disbursed to civil servants for home ownership.
- Numbers of Acres opened up for housing development through housing infrastructure development.
- Amount of resources mobilised in informal settlements for housing development
- Housing development initiatives.

- Number of refurbished and secured government houses.
- Number of resolved rent tribunal cases.

## 2.3 Expenditure analysis

This section gives brief on expenditure analyses and it can be seen from Fig 1 that the sector budgetary allocation has been increasing steadily over the three years under review with the revised budget rising by 52% from Kshs 31,274 million in 2008/09 to Kshs 47,397 million in 2010/11. Despite the increased revised estimates the actual expenditure only rose by 40 % from Kshs 26,047 million to Kshs 36,459 million over the same period. This is attributed to various reasons which include; low and slow disbursement of donor funds.

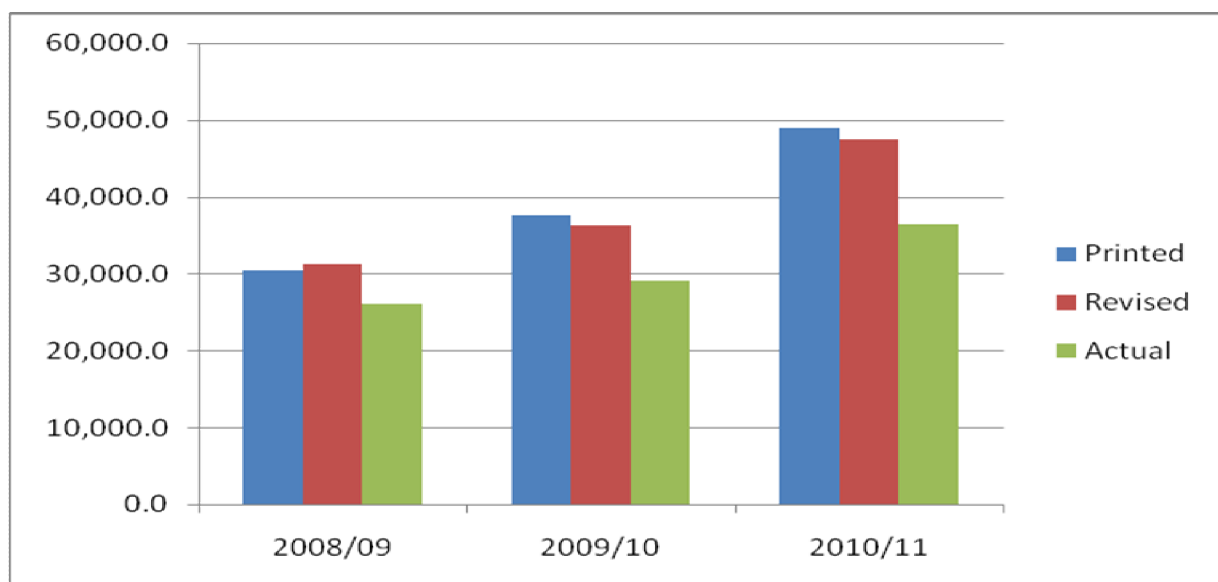


Figure 1 : Sector expenditure analysis

The figure above also shows a general trend on expenditures in the sub-sectors. From the figure it can be seen that there is a steady increase in funding as well as expenditures. However, in 2008/09 disparity is high and in 2010/11 the absorption was low.

### 2.3.1: Expenditure Analysis by Subsector

In the Water and Irrigation Subsector the total budget for the Water Subsector rose from Kshs. 24.07 billion in 2008/09 to Kshs. 38.61 billion in 2010/11, an increase of 37.6%; while the actual expenditures increased from Kshs. 19.5 billion to Kshs. 28.6 billion, a rise of 31.8% during the same period. This indicates that the actual expenditures grew more slowly than the approved budget.

Over the period under review, the Housing subsectors' development allocation as well as expenditure remained slightly higher than recurrent. Development expenditure averages 55% while recurrent takes about 45% of the total expenditure. Major development expenditure goes to slum upgrading initiatives, housing infrastructure development activities as well as promotion of low-cost building technologies.

Table 2-2: Analysis of expenditure by sub-sectors

	Printed Estimates			Revised Estimates			Actual Expenditure		
	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11

MEMR	3,366	4,334	6,827	3,418	4,554	5,009	3,168	3,740	4,370
MWI	22,875	29,175	38,199	24,074	27,789	38,613	19,545	21,748	28,601
MH	4,105	4,112	3,940	3,782	3,961	3,777	3,334	3,578	3,494
<b>Total</b>	<b>30,346</b>	<b>37,621</b>	<b>48,966</b>	<b>31,274</b>	<b>36,304</b>	<b>47,399</b>	<b>26,047</b>	<b>29,066</b>	<b>36,465</b>

The allocation and expenditure of the subsectors is represented in fig 2.

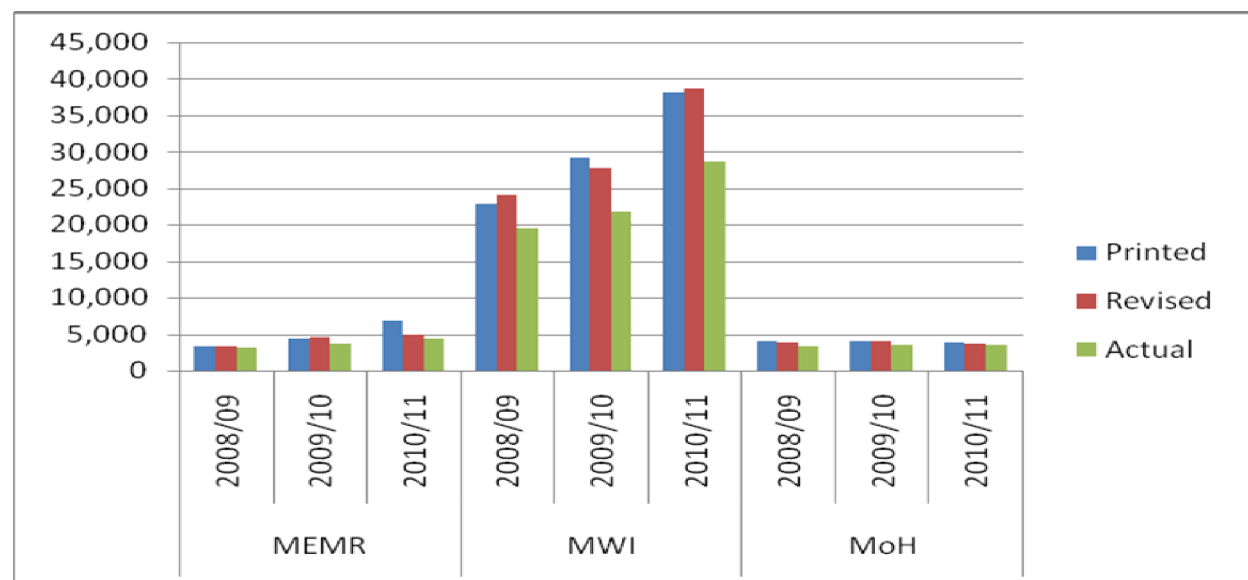


Figure 2: Sector Expenditure Analysis by Subsector

### 2.3.1 Analysis of recurrent expenditure

The approved expenditure rose by 1,441Million from 2008/09 to 2010/11 and the actual expenditures also rose by 1,846Million over the same period. The sector recurrent budget absorption rate has improved over the period from an average of 88% in 2008/09 to the current rate of 93% in 2010/11 FY. The under absorption is due to interruption of IFMIS during the financial year, non release or late release of exchequer, delay in processing of payment documents, cumbersome procurement procedure, inadequate reporting of district based expenditures and under collection of A.I.A.

Table 2-3: Analysis of recurrent expenditure

	PRINTED ESTIMATES			APPROVED ESTIMATES			ACTUAL EXPENDITURES		
	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
MEMR	2,112	2,065	2,397	2,164	2,221	2,453	1,979	2,061	2,424
MWI	4,678	4,479	5,669	4,677	4,536	5,830	4,128	4,012	5,400
MoH	1,775	1,857	978	1,716	1,837	1,715	1,434	1,515	1,563
<b>Total</b>	<b>8,565</b>	<b>8,401</b>	<b>9,044</b>	<b>8,557</b>	<b>8,594</b>	<b>9,998</b>	<b>7,541</b>	<b>7,588</b>	<b>9,387</b>
<b>Absorption rate (%)</b>							<b>88.1</b>	<b>88.3</b>	<b>93.9</b>



The total approved recurrent budget for Environmental Protection Subsector increased slightly from 2,164 in 2008/09 to 2,453 in 2010/11, an increase of 13%. The actual expenditures rose from 1,979 in 2008/09 to 2,424 in 2010/11, an increase of 20%.



Figure3: Analysis of recurrent expenditure

### 2.3.2 Analysis of development expenditure

Table 2-3: Analysis of development expenditure

	Printed Estimates			Revised Estimates			Actual Expenditure		
	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
MEMR	1,254	2,269	4,430	1,254	2,333	2,556	1,189	1,679	1,946
MWI	18,197	24,696	32,530	19,397	23,253	32,783	15,417	17,736	23,201
MH	2,330	2,255	2,962	2,066	2,124	2,062	1,900	2,063	1,931
<b>Total</b>	<b>21,781</b>	<b>29,220</b>	<b>39,922</b>	<b>22,717</b>	<b>27,710</b>	<b>37,401</b>	<b>18,506</b>	<b>21,478</b>	<b>27,078</b>

In Water sub-sector, analysis of approved estimates and actual expenditures under development vote shows that overall in 2010/11 financial year the absorption rate was low as the actual expenditure were less compared to approved estimates by 607 million (24%) lower from 655 million (28%) in 2009/10. It may be noted that most of the funds in development were allocated to use of goods and services and acquisition of non-financial assets. However it was an improvement from 2009/10 financial year. Overall, a comparison between approved estimates and actual expenditure from 2008/09 to 2010/11 shows under expenditure by 30%, 7% and 13% respectively.

Development budget rose by 40.0% from Kshs 23.3 billion in 2009/10 to Kshs 32.8 billion in 2010/11. Actual expenditure was 70.8% of the revised budget for development expenditures.

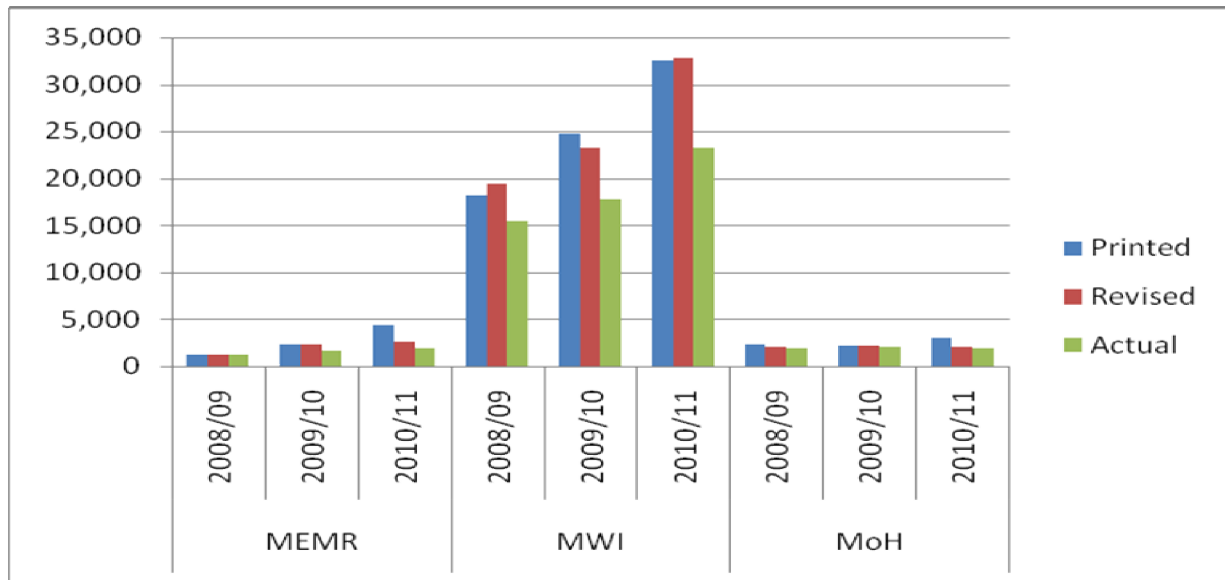


Figure4: Analysis of Development expenditure by subsector

In the development expenditure, the average absorption rate has been going down from 81% in 2008/09 to 72% in 2010/11 FY. However, the absorption rate from Housing subsector has been maintained above 90% for the three years under review mainly due to their funds being GoK funds. The Environment subsector's absorption rate shows a downward trend from 95% in 2008/09 to 76% in 2010/11. The drop in is attributed to non-release of donor funds amounting to Ksh 380 million for LVEMPIII in 2009/10FY.

In the water subsector the rate declined from a high of 79% in 2008/09 to 71% in 2010/11 FY. This is mainly due to late release of Ksh. 2billion revenue for Athi Water Service Board which was incurred in reimbursement basis and by the close of the FY the money had not been availed, slow land compensation process for farmers who were affected to create areas for the construction of dams and untimely reporting of expenditures by districts and development partners.

### 2.3.3 Analysis of externally funded programmes

Table 2.4 presents sources of finances to government programmes for the period 2008/09 to 2010/11. From the table, it can be seen that the major sources of funding has been from government. Other sources through which the programmes have been funded are grants and loan.

During the period under review, sector funding from development partners increased by 24.0% in the approved budget from Kshs. 10,614.0 million to Kshs. 21,616.0 million. This is due to increased donor funding of development programs in environment, and water & irrigation subsectors. During 2010/11, funding from development partners was 48.2% of the total sector approved budget of Kshs. 36,304.0 million.

The sector received a total of Kshs. 6,112 Million against expected donor funding of Kshs. 11,032 Million in 2009/10 financial year, representing deficit of Kshs. 5,920 Million. The average percentage release of external funds was 59% over the period 2008/09 to 2010/11.

The Environment and Mineral sub-sector received support from IDA, DANIDA, UNEP and EDF/EEC. The sub-sector expected a total of Kshs 778.5 billion in the year 2009/10 but received Kshs 487.4 billion in the 2009/10 financial year. This represents 63% of the total funds that were received.

During the year 2009/10, the Water and Irrigation sub-sector approved funding from external resources was Kshs 8.5 billion which is a decrease by 17.8% from Kshs 10.3 billion in 2008/09. In 2009/10, Kshs 4.8 billion was expended which is 56.4% of the approved expenditure. This indicates a lower absorption capacity than in 2008/09 where Kshs 6.4 billion was expended which is 61.9% of the approved expenditure. It also worth noting that Housing sub-sector programmes were fully funded by the GoK.

The following table shows the key externally Funded Programmes during the year under review:

**Table 2-4: Analysis of externally funded programmes**

PROGRAMME	Donor	Approved Estimates			Actual Expenditure		
		2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
Preparation of the second phase management of LVEMP- Loan-Rev	IDA	49	379	290	5	281	100
Kenya Agricultural Productivity & Sustainable Land Management Project (GEF) - Grant-Rev	IDA	0	0	6	0	0	0
Capacity building and bio-carbon fund- Grant-Rev	IDA	10	10	10	33	2	4
Kenya Youth Empowerment Project (ME&NR) - Grant-Rev	IDA	0	0	75	0	0	10
Natural Resource Management Programme (MEMR) - Grant-Rev	DANIDA	0	0	64	0	0	47
Natural Resource Management Programme (MEMR)- Grant-AIA	DANIDA	0	0	36	0	0	0
Natural Resource Management Programme (NEMA) - Grant-Rev	DANIDA	0	0	64	0	0	64
Natural Resource Management Programme (NEMA)- Grant-AIA	DANIDA	0	0	43	0	0	3
(CDEMP) Capacity Building Facilities NEMA (CBF)-	EEC	91	111	27	174	19	6

PROGRAMME	Donor	Approved Estimates			Actual Expenditure		
		2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
Grant-AIA							
Capacity building and technology Assistance- - Grant-Rev	UNEP	8	5	5		5	5
Phasing out ozone depleting substances project -Grant-Rev	UNDP/UNEP	9	9	9	4	9	8
Mt Elgon Regional Ecosystem Conversation Mgt- Grant-Rev	EDF/EEC	18	28	29	1	11	13
Africa Adaptation Project (AAP) - Grant-Rev	UNDP	0	0	37	0	0	0
Africa Adaptation Project (AAP) - Grant-AIA	UNDP	0	0	87	0	0	0
Strengthening Capacity of Kenya to Control Trans-boundary Movements of Hazardous Wastes & Chemicals- Grant-Rev	UNEP	0	0	4	0	0	0
Dadaab Integrated Environmental Management Program- Grant-Rev	UNEP	0	0	3	0	0	0
Mount Kenya East Pilot Project	IFAD	383	338	270	314	265	172
Water services improvement for the urban poor	EU/KfW	50	482	470	50	440	188
Nairobi Water and Sanitation Emergency Physical Investment Project	IDA/AFD	2,941	924	2,200	1,613	326	1,313
Water and Sanitation improvement in Informal settlements in AWSB	EU	-	67	90	-	47	46
Water and Sanitation improvement in Informal settlements in TWSB	EU	-	159	139	-	89	62
Water Services Support Project in CWSB	AFD	344	300	1,202	337	34	504
Kisumu Water and Sewerage Project	AFD/ADB	650	725	1,070	145	157	933
Water Governance in Lake Victoria south	ACP-EU	-	161	110	-	61	56
Lake Victoria Region Water and Sanitation Initiative	UN-Habitat	-	-	-	-	-	-

PROGRAMME	Donor	Approved Estimates			Actual Expenditure		
		2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
Nyeri water and sanitation project	KfW	238	-	-	102	-	-
CETRAD	Switzerland	12	12	12	17	6	-
Water Sector Development Program Phase I and II	KfW/GER	2434	2415	667	1862	1059	1181
Rift Valley Water and Sanitation Project	ADB	813	586	339	743	476	281
Water and Sanitation Services Improvement Program	World Bank/AFD	650	-	-	145	-	-
Water Services Boards Support Project in NWSB	ADB	254	280	572	191	23	121
Garissa Sewerage Project	BADEA/OPEC	-	375	300	-	88	85
Capacity Building for Rural Water Services Providers in Northern Kenya	ACP-EU	-	41	96.4	-	25	75
Kenya Italy Debt for Development Programme	Italy	-	615	7	-	397	7
Kenya Water and Sanitation Program (KWSP)	SIDA/DANIDA	315	380	200	295	380	200
UNICEF WASH Programme	Netherlands	-	389	559	-	336	417
Natural Resources Management Project (NRM)	World Bank	390	1348	800	364	933	696
Water Sector Reform Program	GiZ	-	220	220	-	143	218
Small Holder Irrigation Program for Mt. Kenya Region(ph 2)	KfW	153	150	187	108	143	9
Small Holder Irrigation Program for Mt. Kenya Region	KfW	-	-	162	-	-	153
Project for Sustainable Smallholder Irrigation and Management (SIDEMAN)	JICA	44	61	-	44	61	-
Bura Irrigation Project	BADEA/KUWAIT / OPEC	10	200	500	10	133	6
Hola Irrigation Project	BADEA	240	25	-	202	2	-
Feasibility Study for Kieni Irrigation Scheme	BADEA	-	-	20	-	-	0
Nakayoncho Water Project	ITALY	-	-	120	-	-	108
Small Towns and Rural WSS Bondo and Siaya	ADB	-	-	100	-	-	10
Tigania Water Supply Project	ITALY	-	-	80	-	-	80

PROGRAMME	Donor	Approved Estimates			Actual Expenditure		
		2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
Small Towns and Rural WSS.Maua town water supply and Sewerage project	ADB	-	-	210	-	-	0
Small Towns and Rural WSS.MUKURWEINI water supply and Sewerage	ADB	-	-	110	-	-	0
Small Towns and Rural WSS Othaya water supply and Sewerage	ADB	-	-	150	-	-	11
Small Towns and Rural WSS-Kitui supply and Sewerage	ADB	-	-	55	-	-	0
Small Towns and Rural WSS Yatta dam canal,Irrigation water supply and Sanitation Project	ADB	-	-	90	-	-	0
Umanyi-Mtito Andei Water and Sanitation Project	ITALY	-	-	60	-	-	60
Kenya Youth Empowerment Project	IDA	-	-	50	-	-	150
<b>TOTAL</b>		<b>10,106</b>	<b>10,795</b>	<b>12,006.4</b>	<b>6,759</b>	<b>5,951</b>	<b>7,402</b>
<b>% of funds released</b>					<b>66%</b>	<b>55%</b>	<b>61%</b>

In period under review environment and mineral resource's internally generated funds increased due to new regulations being operationalised and more people came into compliance due to enhanced inspection. Grants receipts from both exchequer and donors were below expectations in 2008/09 and 2009/10. However the trend improved in 2010/11 with Kshs 64 Million being received especially for Natural Resource Management Project (NRMP).

During the period under review, Water and Irrigation sub-sector's external financing increased significantly by more than 100% in the approved budget from Kshs. 10,307.0 Million in 2008/09 to Kshs. 20,638.0 Million in 2010/11. External financing constituted 53.5% of the total budget of Kshs 38,613.6 million in 2010/11. Loans were Kshs 14,411.6 million constituting 70% of external financing in 2010/11, while grants were Kshs 6,326.5 million. Actual expenditure by development partners was Kshs 11,815.3 million which is 57.3% of their approved budget of Kshs 20,638.0 million in the same period.

#### 2.4 Review of pending bills

The sub sector's recurrent pending bills during the financial year 2010/11 amounted to Kshs 138.7 million. These were mainly due to power outages/failures towards the closure of the financial year which lasted over at the Ministry Headquarters. A good portion of the pending bills would have been salvaged had the power supply been normal.

During the Revised Estimates, the Ministry's recurrent budget (2007/08) was cut by the Treasury through the austerity measures but commitments had already been effected. While the exchequer was adjusted downwards, the commitments which had already been made could not be honoured.

The following table shows the analyses of the pending bills for Environment subsector:

#### 2.4.1 Recurrent pending bills (In millions)

Table 2-5: Summary of pending bills-recurrent

Type/ nature	Due to lack of Liquidity			Due to lack of Provision		
	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
<b>MEMR</b>						
Electricity	6					
Water	5					
unpaid supplies	132	36	15			
<b>MWI</b>						
Electricity			36.34			-
Purchase of motor cycles			3.91			-
<b>MH</b>						
Supplies and services	0	6.51				
<b>Total</b>			55.25			

#### 2.4.2 Development pending bills (In millions)

Table 2-6: Summary of pending bills-development

Type/ nature	Due to lack of Liquidity			Due to lack of provision		
	2008/09	2009/10	2010/11	2008/09	2009/10	2010/11
<b>MEMR</b>						
Utility telephone	41					
Electricity	12					
Water	7					
<b>Personal claims</b>						
Others-specify	39.7	102				
<b>MWI</b>						
<b>MH</b>						
<b>Repair and Maintenance of residential and non-residential Houses</b>	0	1.56				

## CHAPTER THREE

### MEDIUM TERM PRIORITIES AND FINANCIAL PLAN FOR THE MTEF PERIOD 2011/2012-2013/2014

#### 3.1 prioritization of programmes and sub-programmes

The sector has three sub-sectors with a total of ten major programmes being implemented. This section looks at various programmes and sub-programmes that will be undertaken in the 2012/2013 financial year by the sector with their objectives, expected outputs, outcomes and key performance indicators.

##### 3.1.1 Programmes and their Objectives

1. Environment Management and Protection
  - To protect, conserve and sustainably manage the environment
2. Water Resources Management and Water Storage
  - To increase availability of sustainable water resources through effective management and protection of water sources
3. Housing Development and Human Settlement
  - To facilitate access to decent and affordable housing
4. Meteorological Services
  - To provide accurate and timely weather and climate information and services for the safety of life, protection of property and conservation of the natural environment
5. Provision of Irrigation Infrastructure and Land Reclamation
  - To increase utilization of land through irrigation, drainage and land reclamation
6. Water Supply and Sewerage
  - To increase access to adequate and reliable water supply and sewerage services to the nation
7. Mineral Resources Management
  - Development of geological and mineral resources databases and formulation, implementation and review of the existing mining policies and legislation
8. Environment policy development and coordination
  - To provide policy and legal guidance for efficient and effective management for the environment and mineral resources sub-sector
9. Water Policy and Management
  - To ensure the water sector is well managed and coordinated
10. Administration and Support Services
  - To ensure the housing sector is well managed and coordinated



### 3.1.2 Programmes, Sub-programmes, Expected Outcomes, Outputs and Key Performance Indicators for the Sector

Table 3-1: Environment Protection, Water and Housing sector programmes and their objectives

No.	Programme Name	Subprogramme	Programme Output	Key Performance Indicators and Targets
1.	Environment Management and Protection	National Environment Management	- Inventory of illegal dumpsites in Nairobi - Reduce Illegal dumpsites in Nairobi	- 1 inventory of dumpsites - Illegal dumpsites in Nairobi reduced by 15% - Monitor Implementation of waste management systems in Nairobi and 5 major municipalities
			- Develop Pollution inventory	- 1 Inventory of pollution sources on selected rivers
			- Develop awareness on climate change Adaptation programmes and Create Clean mechanism projects at community level and at counties respectively	- 5 climate change Adaptation programmes at community level funded - 5 clean development mechanisms projects approved and registered
			- Enhance Levels of enforcement of environmental law	- 100 prosecutions (Successful prosecution of environmental cases). - 1000 licenses issued on gazetted regulations - Increased level of compliance - Finalized chemical management regulations - EIA/EA reports reviewed - Wildlife corridors secured through development control - Participation in Conference of parties on relevant MEAs - 188 Quarterly meetings of County environmental committees - 47 operational county offices - 1 Laboratory
			- Develop Strategies and plans for Management of coastal Zone	- 1 Sensitive habitat guidelines developed - 1 sustainable tourism guidelines developed
			- Develop Management plans for Yala swamp	- 2 Management plans for Yala swamp and Sabaki

No.	Programme Name	Subprogramme	Programme Output	Key Performance Indicators and Targets
			and Sabaki river Estuary	river Estuary developed
			- County state of environment Reports - County Environment Action plans	- 1 national and 47 SOE Reports - 1 National and 47 Environment Action plans
		Resource Surveying and remote sensing	- Establish Land use / cover database	- 3 databases established With their corresponding maps and reports
			- Establish Wildlife/livestock database	- 1 report on Human/wildlife conflict map, satellite imagery
			- Establish Vegetation database	- 1 no. ecological map
		LVEMP II	- Harmonization of water and fisheries policies	- 1harmonized policy and water and fisheries
			- Rehabilitate of wastewater treatment facilities	- Wastewater treatment facilities Rehabilitated at Kisumu and Bomet - Sanitation toilets constructed in public places and schools
			- Catchment and wetland master plans	- 2 management plans done -
			- Area of catchment rehabilitated.	- 600Ha catchment rehabilitated.
		Nairobi Rivers Rehabilitation and Restoration	- Construct of foot bridge	- 1 foot bridge constructed across Nairobi River
			- Construct of public toilet	- 1 public toilet constructed along Nairobi River
			- Tree planting along Nairobi river	- 5 Million tree seedlings planted
			- Clean rivers	- 30km Cleaned in Nairobi And Sosiani rivers
		2.	Water Resources Management and Water Storage	Water Resources Management
Water Storage and flood Control	- large dams constructed			- 5 large dams constructed
	- medium size dams constructed			- 22 medium size dams constructed
		- small dams and water pans constructed	- 100 small dams and water pans constructed	
3.	Housing Development and Human Settlement	Housing development	- Promotion and dissemination of appropriate low cost building technology	- 75 constituency Appropriate Building Technologies (ABTs) Centres established - 5,500 new trainees trained in use of ABTs

No.	Programme Name	Subprogramme	Programme Output	Key Performance Indicators and Targets
			- National housing Survey report	- Comprehensive national housing survey done
			- Construction of housing units	- Develop 8,400 housing units under the civil servant scheme - Completion of 382 housing units under NHC - Construction of 1482 housing units by NHC - 300 acres of land for housing development opened up
			- Review of Building Laws and Regulations	- Operationalise the Building Law and Regulations as - Operationalise Maintenance Policy
			- Installation of social and physical infrastructure in slums and informal settlements	- 12,950 housing units and social infrastructure facilities under slum upgrading programme developed - 10 Housing co-operatives formed in slum areas - Kshs. 20 million savings from slum housing co-operatives mobilized
			- Disbursement of loans for civil servants' housing	- Kshs. 1.5 billion loans granted to Civil Servants to purchase or develop houses - Grant Kshs. 600 million loans for rural/peri-urban housing development by NHC
		Estates Management		- 10,000 government residential housing units refurbished - 12,500 plots/estates secured - 100% registration of Government buildings as they get completed
4.	Meteorological Services and Climate Chnage	Meteorological Services	- Improve data observation systems and networks	- Establish 2 no. new observatories - Acquire 5 no. parcels of land for new observatories - Renovate 5 No. of observatories - Relocate 2 No. airport observatories (Kisumu and Eldoret Airports) - Rehabilitate 300 no. of

No.	Programme Name	Subprogramme	Programme Output	Key Performance Indicators and Targets
				<ul style="list-style-type: none"> <li>Rainfall Stations</li> <li>- Rehabilitate 10 no. Temperature stations</li> <li>- Establish 2 no. upper air observatories</li> <li>- Acquire 24 no. AWS</li> <li>- Acquire 2 no. AWOS</li> <li>- Install 4 no. broadband seismic equipment</li> <li>- Acquire 5 no. hinged buoys for Lake Victoria</li> <li>- Install 20 no. Automatic Hydromet stations</li> <li>- Acquire 100 no Digital basic weather and climate monitoring instruments</li> </ul>
			- Improve data telecommunication system and networks	<ul style="list-style-type: none"> <li>- Acquire Second Generation of Meteorological Satellite ground(MSG) receiving equipment for JKIA</li> <li>- Acquire Pilot Information and Pre-flight Briefing System</li> </ul>
			- Improve data processing, analysis and forecasting systems	<ul style="list-style-type: none"> <li>- Acquire CLISYS for climate forecasting</li> <li>- Acquire RADOME system</li> </ul>
			- Establish Information Systems for effective dissemination of weather and climate information & products to users	<ul style="list-style-type: none"> <li>- Establish Centre for National Framework of Climate Services (NFCS)</li> <li>- Establish 3 No. RANET FM stations</li> <li>- Establish 3 No. County Weather and Climate Information Centres (WCIC)</li> <li>- Acquire 1 No. TV Weather System</li> </ul>
		Advertent Weather Modification	- Conduct domain survey	- Phase I – Domain survey conducted for Hailstone suppression over Nandi Hills, Rainfall enhancement over Wajir and Snowpack augmentation over Mt. Kenya
5.	Provision of Irrigation Infrastructure and Land Reclamation	Development of Irrigation and Drainage	<ul style="list-style-type: none"> <li>- Area developed for irrigation</li> <li>- night storage pans constructed</li> </ul>	<ul style="list-style-type: none"> <li>- 5000 Ha developed</li> <li>- 50 night storage pans constructed</li> </ul>

No.	Programme Name	Subprogramme	Programme Output	Key Performance Indicators and Targets
		Infrastructure Land Reclamation	- water conservation and rain water harvesting structures constructed in ASALs - Area of land reclaimed	- -3500 of water conservation and rain water harvesting structures constructed - -7000 Ha of land reclaimed
6.	Water Supply and Sewerage	Urban Water Supply and Sewerage	- medium size towns urban water supplies infrastructure expanded	- 26 urban water supplies infrastructure expanded
		Rural Water Supply	- new water and sanitation projects constructed	- 180 water and sanitation projects constructed
			- new boreholes drilled and equipped	- 160 boreholes drilled and equipped
7.	Mineral Resources Management	Mineral resources development	- Mining law enacted and new mining policy developed	- Stakeholder's workshops and retreats. - Engagements Consultancy
			- Area geologically mapped	- Increase geologic map coverage by 3,000km <sup>2</sup>
			- Mineral prospects investigated	- 4 minerals assessed
		Geological Survey and Mineral Exploration	- Number of geological sites documented	- 2 geological sites documented
			- Geo-hazard areas mapped	- 4 geo-hazard sites mapped
			- Number of explorations and mining concessions inspected	- 150 inspections of exploration and mining concessions/operations
8.	Environment Policy Development and Coordination	Environment Policy Development and Coordination	- Formulate ESD and review curricula at all levels to address ESD concerns	- -Curricular reviewed at all levels - 8 Monitoring reports on implementation of ESD
			- Undertake Environmental education and awareness	- -8 Exhibitions in National and Regional agriculture shows - -1 environmental expo - -8 Mazingira runs - -Awareness material developed
9.	Water Policy and Management	Water policy and Management	- Policies formulation - Refurbishment of Maji House	-Policies formulated -Maji House (Phase II) refurbished
10	Administration and Support Services	Administration and Support Services	- Provision of efficient and effective support services	- Efficient and effective support services

### 3.1.3 Programmes by Order of Ranking

The Sector programmes were ranked according to issues emanating from Country consultations, basic requirements in the New Constitution and the overall objectives of the vision 2030. The order of ranking is as follows;

- i)** Environment Management and Protection;
- ii)** Water Resources Management and Water Storage
- iii)** Housing Development and Human Settlement
- iv)** Meteorological Services
- v)** Provision of Irrigation Infrastructure and Land Reclamation
- vi)** Water Supply and Sewerage
- vii)** Mineral Resources Management
- viii)** Environment policy development and coordination
- ix)** Water Policy and Management
- x)** Administration and Support Services

### 3.1.4 Key Strategic Interventions in Counties by order of ranking

The following table gives an overview of priorities of key issues and their proposed interventions emanating from County Consultations.

**Table 3-2: Key strategic interventions in counties by order of ranking**

<b>Rank</b>	<b>Key issues</b>	<b>Interventions</b>	<b>Programmes</b>
1.	Environmental Degradation and Protection of Wetlands	<ul style="list-style-type: none"> <li>-Encourage afforestation, re-afforestation and agro forestry;</li> <li>- Build gabions;</li> <li>- Rehabilitate dykes;</li> <li>- Enforce 10% tree-cover policy;</li> <li>- Subsidize alternative sources of energy;</li> <li>- Increased forest patrols;</li> <li>- Identification, mapping and rehabilitation of degraded sites</li> <li>- Enhance enforcement and compliance of laws;</li> <li>- Public sensitization of environmental conservation</li> <li>- Demarcation of water catchment areas.</li> <li>- Promotion of carbon trading</li> <li>- Encourage contour ploughing;</li> <li>- Regulate river stones and sand harvesting</li> <li>- Planting of depleted Mangrove trees</li> </ul>	Environmental Protection and Management
2.	Inadequate access to clean and safe water	<ul style="list-style-type: none"> <li>- Rehabilitate, expand and develop rural and urban water supplies</li> <li>- Exploit other viable water sources e.g. gravity system</li> <li>- Zero rate on water equipments</li> <li>- Develop water storage infrastructure for multipurpose use</li> <li>- Conservation, restoration and protection of water springs</li> </ul>	Water Supply and Sewerage Services.

Rank	Key issues	Interventions	Programmes
		<ul style="list-style-type: none"> <li>- Ensure all water supplies have conventional treatment plants</li> <li>- Remove restrictive regulations on drilling of boreholes</li> <li>- Desalination of water</li> <li>- Set up and operationalise County Water Services Company to carry out operation and maintenance of the existing water supplies and contract agents from community organizations</li> </ul>	
3.	Pollution control and Waste Management	<ul style="list-style-type: none"> <li>- Enhance enforcement and compliance of laws</li> <li>- Mainstream environmental audits</li> <li>- Have designated dumpsites</li> <li>- Awareness creation</li> <li>- Establish a fund for waste recycling enterprises by community groups</li> <li>- Provision of waste receptacles</li> <li>- Biodegradation and recycling of waste matter</li> <li>- Regular collection of wastes</li> <li>- Construction of modern solid and liquid waste sites</li> <li>- Harmonizing existing laws between line ministries</li> <li>- Amend by-laws to mitigate on the current issues</li> <li>- Ban the use of plastics</li> <li>- Recycling plant</li> </ul>	Environmental Protection and Management
4.	Management and Protection of water resources and sharing	<ul style="list-style-type: none"> <li>- Enhance enforcement and compliance of laws</li> <li>- Identify and map out county water towers and upscale formation of water resource users associations</li> <li>- Set up community committees</li> <li>- Provision of water harvesting technologies</li> <li>- Develop MOU and initialize Payment of Environmental services</li> <li>- Construct dams upstream;</li> <li>- Promotion of carbon trading</li> <li>- Enhance enforcement and compliance of laws;</li> <li>- Conversion of disused quarries into water dams</li> <li>- Sensitize the public on water resource management</li> <li>- Water resource sharing;</li> <li>- Protection of underground water sources</li> </ul>	Water Resources management and Water storage.
5.	Inadequate decent housing	<ul style="list-style-type: none"> <li>- Development of low cost housing materials</li> <li>- Encourage vertical expansion</li> <li>- Encourage PPP investments</li> <li>- Adopt new construction technologies</li> <li>- Slum upgrading and prevention</li> <li>- Enhance physical planning</li> <li>- Establish housing database</li> <li>- Compliance to building laws, regulations and standards</li> <li>- Conservation of cultural houses</li> <li>- Enhance housing development schemes</li> <li>- Enforcement / development of physical planning</li> </ul>	Housing Development and Human Settlement

Rank	Key issues	Interventions	Programmes
		<ul style="list-style-type: none"> <li>- regulations</li> <li>- Enforce building codes and regulations</li> </ul>	
6.	Availability and dissemination of weather/climate information for early warning systems and disaster preparedness	<ul style="list-style-type: none"> <li>- Scale up on early warning information on weather</li> <li>- Proper dissemination of weather forecast information</li> <li>- Enhance data collection and dissemination</li> <li>- Establish county weather/climate information centres</li> <li>- Establish well equipped management centres</li> <li>- Capacity building (staff and equipment)</li> <li>- Creation of awareness to the people e.g. poor mining practices</li> <li>- Installation of lightening arresters in public buildings and institutions</li> </ul>	Meteorological Services
7.	Inadequate irrigation infrastructure	<ul style="list-style-type: none"> <li>- Develop, rehabilitate and expand irrigation infrastructure</li> <li>- Drainage of water-logged agricultural land</li> <li>- Proper farm and soil conservation methods</li> <li>- Awareness creation on irrigation techniques</li> </ul>	Development of Irrigation and Drainage Infrastructure
8.	Poor sanitation and sewerage system	<ul style="list-style-type: none"> <li>- Waste water disposal systems in urban centres</li> <li>- Develop sewerage systems and storm water drainage</li> <li>- Enhance solid waste management</li> <li>- Promote construction of Eco friendly toilets in rural and informal settlements</li> </ul>	Water Supply and Sewerage Services.
9.	Exploitation and exploration of minerals and associated impacts	<ul style="list-style-type: none"> <li>- Carry out detail Geophysical mapping of the counties</li> <li>- Exploitation and benefit sharing in mineral resources</li> <li>- Restoration of quarry sites</li> <li>- Issuance of policy guidelines on quarrying</li> <li>- Enhance capacity on value addition on mineral (training, processing and marketing)</li> </ul>	Mineral Resource Management



### 3.2 Analysis of Resource Requirement

The following section shows analysis of resources as required by the sector for the MTEF period 2012/13 – 2014/14.

#### 3.2.1 Analysis of Resource Requirement by Sector

For the Sector to achieve its objectives and above detailed outputs, it will require Kshs.93.2 billion in the 2012/13 FY. This is 70.6% increase from FY 2011/12 budget of Kshs. 54.6 billion. The rise in recurrent is due to increased requirement by SAGAs in the Sector. In terms of Development, construction of new large dam to be undertaken in the next financial year, donor commitment is forecasted to increase for major projects and this will require an increase in GoK counterpart funding.

Table 3-3: Analysis of resource requirement by Sector

Sector- Environmental Protection, Water and Housing				
	2011/12	2012/13	Projected Estimates	
			2013/14	2014/15
<b>Recurrent</b>	10,683.10	16,452.20	30,884.10	35,180.20
<b>Development</b>	43,941.00	76,788.80	109,740.30	123,971.80
<b>TOTAL</b>	<b>54,624.10</b>	<b>93,241.00</b>	<b>140,903.40</b>	<b>162,491.00</b>

#### 3.2.2 Analysis of Resource Requirement by Sub- Sector

Table 3-4: Analysis of resource requirement by sub- sector

Sector- Environmental Protection, Water and Housing				
Sub-sector	2011/12	2012/13	Projected Estimates	
			2013/14	2014/15
<b>Environment</b>				
Recurrent	2,601	6,584	8,855	9,580
Development	4,107	8,440	7,810	7,785
<b>SUB-TOTAL</b>	<b>6,708.00</b>	<b>15,024.00</b>	<b>16,665.00</b>	<b>17,365.00</b>
<b>Water</b>				
Recurrent	6,402.1	7,967.2	20,054.1	23,525.2
Development	37,515.0	63,725.8	97,025.3	111,146.8
<b>SUB-TOTAL</b>	<b>43,917.1</b>	<b>71,693.0</b>	<b>117,079.4</b>	<b>134,672.0</b>
<b>Housing</b>				
Recurrent	1,680.0	1,901.0	1,975.0	2,075.0
Development	2,319.0	4,623.0	4,905.0	5,040.0
<b>SUB-TOTAL</b>	<b>3,999.0</b>	<b>6,524.0</b>	<b>6,880.0</b>	<b>7,115.0</b>
<b>TOTAL</b>	<b>54,595.10</b>	<b>93,241.00</b>	<b>140,903.40</b>	<b>162,491.00</b>

### 3.2.3 Resource requirement by Programmes and Sub-programmes

This section highlights resources are required by programmes and sub-programmes.

#### **Environment Management**

This programme requires Kshs. 10,174 million in the FY 2012/13 up from Kshs. 4,276 million in 2011/12. The large amount of this requirement ( *Kshs. 5,000 Million*) is expected to be utilized by NEMA to undertake its mandate and realise its objectives in Environmental Governance. The details are given under section 3.2.5.

Department of Resource Surveys Remote Sensing (DRSRS) increased their requirement from Ksh.472 M to Ksh. 594 is for funds to cater for acquisition of a modern state of the art digital large format camera for remote sensing and installation of solar panel as an alternative source of energy for AMESD satellite systems.

#### **Meteorological Services**

In Meteorological services there are plans to improve the provision of meteorological information and services, through the following: improve Data Observation Systems and Networks by establishing new observatories and acquiring automatic weather and climate monitoring stations and equipment; improve Data Telecommunication System and Networks by installation of new telecommunication equipment; improve Data Processing, Analysis and Forecasting Systems by acquiring and installing new state-of-the-art systems and software; Establish Information Systems for effective dissemination of weather and climate information and products to users; and enhance Human Resource Capital. The Department is also seeking to undertake initial studies in Advertent Weather Modification programme for the suppression of hailstone over the Nandi Hills – Kericho areas, enhancement of rainfall in the arid and semi-arid regions, fog suppression on the high grounds of central and Nairobi and snowpack augmentation on Mt. Kenya.

As a WMO Regional Specialized Meteorological Centre (RSMC) for monsoonal flow along the coast and forecast of tropical cyclones in the south-western part of the Indian Ocean, Kenya has been designated by WMO to host the Severe Weather Forecasting Demonstration Project (SWFDP) for the seven countries in IGAD. The SWFDP will forecast high-impact weather events like hailstorms, thunderstorms, gusty winds, tropical cyclone, heat waves etc and issue forecasts. Kenya and morocco are also test-beds for the new concept of the world meteorological organization (WMO) titled, "the WMO Integrated Global Observing System (WIGOS) and WMO information system (WIS)". Whereas Morocco has applied to be upgraded to a Global Information System Centre (GISC) {along with USA, France, UK, Japan, China and Russia}, Kenya has not applied for upgrade to a Data Collection and Production Centre (DCPC) because of lack of and. The Department is currently installing an Integrated Meteorological Information System (IMIS) and require Climate Data Base Management System (SDBMS) and RADOME to integrate the Automatic Weather observing network systems being installed around the country. This will cost Kshs. 400 Million.

The Department is also in need of funds to set up Centre for National Framework of Climate Services (NFCS) an outcome of the WMO Global Framework of Climate Services (GFCS) included under the

Integrated Strategy for Meteorology advocated by the African Ministerial Conference on Meteorology (AMCOMET). This venture is to cost Kshs. 567.0 million and the 1<sup>st</sup> phase will cost about Kshs. 350.0 million.

One of the Flagship programme, Advervent Weather Modification, is yet to take shape as no funds has been availed to undertake the Phase I of the programme which entail the initial feasibility study approximated to cost Kshs. 600 Million.

In terms of recurrent, KMD established Regional Meteorological Officers and posted officers to the provincial headquarters headed by Provincial Directors of Meteorology. These offices lack office space and basic office furniture and equipment. The Department requires furniture for the additional floor at the Headquarters, the newly established National Research Centre, the remodelled hostel rooms, the IMTR classes, the Provincial Directors Offices, the newly built observatories (Ngong, Kakamega, Embu and Suba), the outstations and the established RANET offices.

The Department services heavily depend on field work; data observation, instrument installation and inspection. Currently it is faced with an acute shortage of transport vehicles due to the Government policy on transport. The Department was made to surrender many vehicles with no replacement and no budgetary provision to buy new ones for its operations in the International Airports and Airbase as part of network of 37 stations spread throughout the country that work 24 hours, 7 days a week including weekends and public holidays in observing weather, transmission of data, analysis and issuance of weather information and forecasts. KMD last year established 8 Provincial Meteorological offices in order devolve services closer to the people. There is, therefore, an urgent need to provide adequate funds to purchase at least 45 robust vehicles that can work in tough and remote terrain. KMD currently has a fleet of only 18 old vehicles (a number of which are unserviceable).

The department is likely to face succession management challenges as it is estimated that in the next 10 years close to 50% and within next 5 years 19% of the total workforce will have retired. The optimal staffing level is 1,200 while the current level is 531 and more than. However, during the financial year 2010/2011 the Department received Kshs.30 million to employ new staff. The Department was able to employ forty (49) Meteorologists and Engineers. The Department still needs to employ at least 240 meteorological technicians to man its observatories on a 24 hour basis and another number will be required to cater for devolved services.

### **Mineral Resources and Management**

In mineral resources management there will be enhancement of geological surveys and to come up with detailed mineral exploration and regulation of mining sector. In order to operationalise the functions at national, regional and county levels, there is need to increase the number of technical staff and infrastructure, among other resource requirements to facilitate field operations. Coupled with this will be a corresponding increase in operational costs such as utilities and purchase, repair, maintenance and rehabilitation of databases, plant, equipment and machinery.

### **Provision of Irrigation and Drainage Infrastructure**

This F/Y 2011/12 National Irrigation Board was allocated Ksh.8.5 billion over and above their Ksh.1.8b under the Expanded Irrigation Programme (EIP) for putting up 58,000 Ha under Irrigation country wide. These funds are currently not in the printed estimates for

Water sub-sector. It was agreed with treasury that with good utilization of the funds, extra funds will be availed in the subsequent Financial Year. It is also important to undertake expansion of smallholder irrigation schemes to be in line with the parliamentary bill to develop 2000Ha of irrigation in every constituency in the country. This necessitates the increase in irrigation funding by Ksh. 10.9 B for Irrigation Development. When the funds are availed 50,000 Ha will be put under Irrigation and meet the 40,000Ha target under the MTP.

### **Water Resource Management and Water Storage**

NWCPC requires Ksh 1.9 Billion for Chemususu Dam to be completed next financial year, Ksh. 7.5 Billion for new large dams to start namely Nzoia, Siyoi, Bunyunyu, Archers Post and Rare Dams in 2012/2013 Financial Year, Ksh 8.5 Billion and Ksh 5.5 Billion for Financial years 2013/14 and 2014/15 respectively.

The Corporation also intends to strengthen Flood control works in Nyando, Nzoia, Njoro Kubwa, Yatta, Daua and Garsen Town at a total cost of 505 Million in 2012/13 Financial Year and Ksh 700 Million and 820 Million respectively in the following subsequent Financial Years.

The Sector will also drill 160 No. boreholes at 960 Million during 2012/13 Financial Year and 1.0 Billion each in subsequent Financial Years.

Construction of Small pans and small dams will cost Ksh 660 Million during 2012/13 and 700 Million in 2013/14

The additional funding in the water Resources sub programme will be required to rehabilitate 300 existing hydro meteorological stations and install additional 100 regional gauging stations to enhance water resources data collection and management. In addition funding will be used to rehabilitate all water catchment towers to restore them.

### **Water supplies and sewerage**

The requirement for this programme will be used in rural water supplies rehabilitation, expansion and development of 180 rural and community water supplies schemes. It will also be used in urban water supplies in Nairobi, Mombasa, Kisumu, Nzoia and 26 medium size towns in MTP programmes. Counterpart funding for the same increased due to the rise in donor commitments.

### **Housing Development and Human Settlement**

The Kshs 2B allocation requested for as a transfer to NHC is meant to implement the Ministry's Housing policy by providing housing to the low-income groups through low-cost housing programmes. This is to be used for granting loans for rural/peri-urban housing development. This is premised on the fact that housing is now a right for every Kenyan.

In the current financial year, the development partners provide Ksh.20B to support the water sub sector. This will rise to Ksh.29B in the financial year 2012/13. This extra funding will require additional counterpart funding.

Table 3-5: Resource requirements by programmes and sub-programmes

Sector- Environmental Protection, Water and Housing				
Programme	2011/12	2012/13	Projected Estimates	
			2013/14	2014/15
<b>Programme 1: Environment Policy Development and Coordination</b>				
SP: 1.1 Administration and coordination	440.0	550.0	600.0	650.0
<b>Total expenditure programme 1</b>	<b>440.0</b>	<b>550.0</b>	<b>600.0</b>	<b>650.0</b>
<b>Programme 2: Environment Management and Protection</b>				
SP 2.1 Resource survey and Remote sensing.	472.0	594.0	650.0	500.0
SP 2.2: Environmental Management	3,056.0	8,530.0	8,970.0	9,560.0
SP 2.3: Lake Victoria Environmental management	441.0	600.0	700.0	-
SP 2.4: Nairobi Rivers Rehabilitation and Exploration	307.0	450.0	550.0	700.0
<b>Total expenditure programme 2</b>	<b>4,276.0</b>	<b>10,174.0</b>	<b>10,870.0</b>	<b>10,760.0</b>
<b>Programme 3: Mineral Resources Management</b>				
SP 3.1 Mines and Geology Development	182.0	250.0	300.0	335.0
SP 3.2 Mineral surveys and Exploration.	299.0	400.0	395.0	420.0
<b>Total expenditure Programme 3</b>	<b>481.0</b>	<b>650.0</b>	<b>695.0</b>	<b>775.0</b>
<b>Programme 4: Meteorological Services and Climate Change</b>				
SP 4.1: Meteorological systems Modernization	1,511.0	2,900.0	3,300.0	3,850.0
SP 4.2: Weather Modification	0	750.0	1,200.0	1,350.0
<b>Total Expenditure Programme 4</b>	<b>1,511.0</b>	<b>3,650.0</b>	<b>4,500.0</b>	<b>5,200.0</b>
<b>Programme 1: Water Policy and Management</b>				
SP 1.1: Water Policy Direction and Management	818.20	912.70	1,404.70	4,271.60
<b>Sub-Total</b>	<b>818.20</b>	<b>912.70</b>	<b>1,404.70</b>	<b>4,271.60</b>
<b>Programme 2: Water Supply and Sewerage Services</b>				
SP 2.1: Urban water and sewerage	24,281.20	27,000	43,391.00	53,231.70
SP 2.2: Rural water supply	7,634.30	8,464.	9,310.60	10,241.70
SP 2.3: Water for informal settlements	315.80	379.00	454.80	545.70
<b>Sub-Total</b>	<b>32,231.30</b>	<b>35,843</b>	<b>53,156.40</b>	<b>64,019.10</b>
<b>Programme 3: Water Resources Management and Water Storage</b>				
SP 3.1: Water Resources Management	1,952.80	3,891.0	15,048.80	15,267.60
SP 3.2: Water Storage and Flood Control	5,410.00	16,500	23,600.00	26,010.00
<b>Sub-Total</b>	<b>7,362.80</b>	<b>20,391</b>	<b>38,648.80</b>	<b>41,277.60</b>
<b>Programme 4: Provision of Irrigation and Drainage Infrastructure</b>				
SP 4.1: Development of Irrigation and Drainage infrastructure	3,352.40	14,294	23,551.30	24,774.90
SP 4.2: Land Reclamation	152.40	252	318.20	328.80

Sector- Environmental Protection, Water and Housing				
Programme	2011/12	2012/13	Projected Estimates	
			2013/14	2014/15
<b>Sub-Total</b>	<b>3,504.80</b>	<b>14,546.00</b>	<b>23,869.50</b>	<b>25,103.70</b>
<b>Housing</b>				
<b>Programme 1: Administration and support services</b>				
SP 2.1: Administration and support services	192	235	264	280
SP 2.2: Policy Research and Development	-	40	66	70
<b>Sub-Total</b>	<b>192</b>	<b>275</b>	<b>330</b>	<b>350</b>
<b>Programme 2: Housing Development and Human Settlement</b>				
SP1.1 Housing Development	2,353	2,727	2,780	2,900
SP1.2 Estates Management	1,454	1,522	1,570	1,665
	-	2,000	2,200	2,200
SP 1.3 National Housing Corporation (Grants)				
<b>Sub-Total</b>	<b>3,807</b>	<b>6,249</b>	<b>6,550</b>	<b>6,765</b>
<b>Total</b>	<b>3,999</b>	<b>6,524</b>	<b>6,880</b>	<b>7,115</b>

### 3.2.4 Allocations to Strategic Interventions in Counties

Table 3-6: Allocations to strategic interventions in counties

	Key issues	Programmes	Allocation (2012/13)
1.	Environmental Degradation and Protection of Wetlands	Environmental Protection and Management	
2.	Inadequate access to clean and safe water	Water Supply and Sewerage Services.	
3.	Pollution control and Waste Management	Environmental Protection and Management	
4.	Management and Protection of water resources and sharing	Water Resources management and Water storage.	
5.	Inadequate decent housing	Housing Development and Human Settlement	
6.	Availability and dissemination of weather/climate information for early warning systems and disaster preparedness	Meteorological Services	
7.	Inadequate irrigation infrastructure	Development of Irrigation and Drainage Infrastructure	
8.	Poor sanitation and sewerage system	Water Supply and Sewerage Services.	
9.	Exploitation and exploration of minerals and associated impacts	Mineral Resource Management	

### 3.2.5 Semi-Autonomous Government Agencies

The SAGAs in the Environmental Protection, Water and Housing Sector are the implementing Agencies for development projects, thus the high budgetary requirements. Recurrent expenditure transfers requirements will remain at the current levels. The table shows resource required by the different semi autonomous government agencies

## National Environment Management Authority

NEMA needs Kshs 180 M to recruit new staff. The current staff complement of 350 employees is well short of the targeted 1000 employees to undertake the wide environmental mandate. NEMA intends to operationalise counties and will require an additional Kshs 181m in recruiting county staff and transferring current staff. County offices will increase the scope and reach of NEMA's operations and as a consequence the use of goods and services is expected to proportionately increase. The authority has been facing brain drain due to staff leaving to other institutions in search of better pay. The authority intends to enhance staff salaries and will require Kshs 500m.

To enhance institutional capacity and infrastructure, the Authority intends to Purchase to the following non-financial assets. In the current allocations, no development funds were allocated by treasury towards capital expenditure. The motor vehicles (175m), Motor boats (7m), computers (15m), Office furniture & equipment (14m), Compliance equipment (15m), construction of offices (670m), construction of training centre (200m), construction and equipping (450m), improvement of infrastructure and county infrastructure (207m).

Table 3-7: Analysis of resource requirement versus allocation - Semi Autonomous Government Agencies- (Figure in millions)

Semi Autonomous Government Agencies	Allocation 2011/12	Requirements 2012/13	Allocation 2012/13	Variance
Water Appeal Board	15.0	20.0	15.0	(5.0)
Water Services Regulatory Board	20.0	131.0	20.0	(111.0)
Water Resources Management Authority	100.0	1,918.0	100.0	(1,818.0)
Water Services Trust Fund	2,182	2,576.0	2,302	(274.0)
Athi Water Services Board	4,322.0	3,224.0	4,322.0	(902.0)
Tana Water Services Board	3,293	3,293.0	3,293	-
Tanathi Water Services Board	3,770.0	6,387.0	3,640.0	(2,747.0)
Rift Valley Water Services Board	428.0	2,500.0	428.0	(2,072.0)
Lake Victoria North Water Services Board	2,998.0	3,008.0	2,998.0	(10.0)
Lake Victoria South Water Services Board	2,921.0	2,931.0	2,921.0	(10.0)
Northern Water Services Board	1,431.0	2,060.0	1,431.0	(629.0)
Coast Water Services Board	3,947.0	4,000.0	3,947.0	(53.0)
National Water Conservation and Pipeline Corporation	5,588.0	16,969.0	5,598.0	(11,371.0)
National Irrigation Board	6,402.0	12,294.0	6,102.0	(6,192.0)
Kenya Water Institute	120.0	130.0	120.0	(10.0)
<b>Sub-Total Water and Irrigation</b>	<b>37,267.0</b>	<b>63,441.0</b>	<b>37,237.0</b>	<b>(26,204.0)</b>
National Environment Management Authority	829.0	5,705.0	835	(4,870)
National Environment Trust Fund	50.0	100	70	(30)

Public Complaints Committee	23.0	38.0	25	(13)
National Environment Tribunal	33.0	48.0	36	(12)
<b>Sub-Total Environment and Mineral Resources</b>	<b>935.0</b>	<b>5,861.0</b>	<b>966.0</b>	<b>(4,895)</b>
National Housing Corporation	-	2,000.0	80	1,920
<b>Sub-Total Housing</b>	<b>-</b>	<b>2,000.0</b>	<b>80</b>	<b>1,920</b>
<b>Total Grand for the Sector</b>	<b>38,102.00</b>	<b>69,412.00</b>		

### 3.2.6 Analysis of Resource Requirement by Economic Classification.

Table 3-8: Resource requirement by economic classification-Environment and Mineral Resources sub-sector

Expenditure Classification	Estimates 2011/12	Estimates 2012/13	Projected Estimates	
			2013/14	2014/2015
<b>1. Current Expenditure</b>	<b>2,601</b>	<b>6,584</b>	<b>8,855</b>	<b>9,580</b>
Compensation to Employees	957	1,140	1,305	1,500
Use of goods and services	674	1,010	1,200	1,510
Current Transfers Govt. Agencies	880	4,140	5,980	6,085
Other Recurrent	90	294	370	485
<b>2. Capital Expenditure</b>	<b>4,107</b>	<b>8,440</b>	<b>7,810</b>	<b>7,785</b>
Acquisition of Non-Financial Assets	2,390	4,590	5,410	5,185
Capital Transfers to Govt. Agencies	100	1,950	200	300
Other Development	1,617	1,900	2,200	2,300
<b>Total Expenditure</b>	<b>6,708</b>	<b>15,024</b>	<b>16,665</b>	<b>17,365</b>

Table 3-9: Resource requirement by economic classification-Water and Irrigation sub-sector

Expenditure Classification	Estimates 2011/12	Estimates 2012/13	Projected Estimates	
			2013/14	2014/15
<b>Current Expenditure</b>	<b>6,402.1</b>	<b>7,967.2</b>	<b>20,054.1</b>	<b>23,525.2</b>
Compensation of employees	1,720.1	1,971.9	2,031.1	2,092.1
Use of goods and services	2,105.6	2,417.1	3,189.8	3,657.8
Transfers to Gov't Agencies.	2,519.2	3,511.9	14,740.2	16,820.7
Other Recurrent	57.2	66.3	93.0	954.6
<b>Capital Expenditure</b>	<b>37,515.0</b>	<b>63,725.80</b>	<b>97,025.3</b>	<b>111,146.8</b>
Acquisition of non-financial assets	23,650.8	36,502.2	37,996.3	42,331.1
Capital Transfers to Gov't Agencies	12,655.0	20,531.30	52,363.9	61,622.3
Other development	1,209.2	6,692.3	6,665.1	7,193.4
<b>TOTAL EXPENDITURE VOTE 20</b>	<b>43,917.1</b>	<b>71,693</b>	<b>117,079.4</b>	<b>134,672.0</b>



Table 3-10: Resource Requirement by economic classification-Housing Sub-Sector

	2011/12	2012/13	Projected Estimates	
			2013/14	2014/15
<b>Current Expenditure</b>	<b>1,680</b>	<b>1,901</b>	<b>1,975</b>	<b>2,075</b>
Compensation to employees	357	358	370	400
Use of goods and services	613	800	850	900
Current transfers of Govt. Agencies	700	720	725	730
Other recurrent	10	23	30	45
<b>Capital Expenditure</b>	<b>2,319</b>	<b>4,623</b>	<b>4,905</b>	<b>5,040</b>
Acquisition of Non -Financial Assets	1,549	1,789	1,805	1,890
Capital Transfers to Govt Agencies	-	2,000	2,200	2,200
Other Development	770	834	900	950
<b>Total Expenditure of Vote.....</b>	<b>3,999</b>	<b>6,524</b>	<b>6,880</b>	<b>7,115</b>

### 3.2.7 Resource Allocation Criteria

#### Analysis of Resource Requirement versus Allocation

The Sector requires a total of Kshs. 93,241.5 Million in the FY 2012/13 against available allocation of Kshs 52,414.7 Million (Kshs. 27,491.7 Million from GoK and Kshs 24,924.0 Million from Donors). Details are given in the following tables.

Table 3-11: Summary of resource allocations by sub-sector  
Environment and Mineral Resources sub-sector

Expenditure Classification	Resource Allocation		
	2012/13	2013/14	2014/15
<b>1. Recurrent Expenditure</b>			
Gross	2,679	3,215	3,858
A-in-A	204	245	294
Net	2,475	2,970	3,564
<b>2. Development Expenditure</b>			
Gross	4,001	4,801	5,761
GoK	3,091	3,709	4,451
Loans	484	581	697
Grants	272	326	392
Local A-in-A	154	185	222
<b>Total Expenditure</b>	<b>6,680</b>	<b>8,016</b>	<b>9,619</b>

#### Water Sub-sector

Expenditure Classification	Resource Allocation		
	2012/13	2013/14	2014/15
<b>1. Recurrent Expenditure</b>			
<b>Gross</b>	<b>6,662.15</b>	<b>7,641.03</b>	<b>8,798.01</b>
A-in-A	2,357.00	2,474.85	2,598.59
<b>Net</b>	<b>4,305.15</b>	<b>5,166.18</b>	<b>6,199.42</b>
<b>2. Development Expenditure</b>			

Expenditure Classification	Resource Allocation		
	2012/13	2013/14	2014/15
<b>Gross</b>	<b>35,540.65</b>	<b>42,648.78</b>	<b>51,178.54</b>
GoK	11,527.65	13,833.18	16,599.82
Loans	19,835.00	23,802.00	28,562.40
Grants	4,178.00	5,013.60	6,016.32
Local A-in-A	-	-	-
<b>Total Expenditure</b>	<b>42,202.80</b>	<b>50,289.81</b>	<b>59,976.54</b>

### Housing sub-sector

Expenditure Classification	Resource Allocation		
	2012/13	2013/14	2014/15
<b>1. Recurrent Expenditure</b>			
Gross	1,750.88	1,925.97	2,118.56
A-in-A	485	485.00	485
Net	1,265.88	1,440.97	1,633.56
<b>2. Development Expenditure</b>			
Gross	2,266.00	2,492.60	2,741.86
GoK	2,266.00	2,492.60	2,741.86
Loans	0	0	0
Grants	0	0	0
Local A-in-A	0	0	0
<b>Total Expenditure</b>	<b>4,016.88</b>	<b>4,418.57</b>	<b>4,860.42</b>

Table 3-12: Analysis of resource requirement versus allocation by sub-sector

Sub Sector	Requirement 2012/13	Allocation		Total	Variance
		GoK	Donor		
Environment and Mineral Resources	15,024.0	5,570.0	910.0	6,480.0	(8,544.0)
Water and Irrigation	71,693.0	17,756.8	24,014.0	41,770.8	(29,922.2)
Housing	6,524.0	3,531.9	-	3,531.9	(2,992.1)
<b>TOTAL</b>	<b>93,241.0</b>	<b>26,858.7</b>	<b>24,924.0</b>	<b>51,782.7</b>	<b>(41,458.3)</b>

Table 3-13: Analysis of resource requirement versus allocation – Recurrent Expenditure

Sub Sector	Requirement 2012/13	Allocation		Total	Variance
		GoK	Donor		
Environment and Mineral Resources	6,584.0	2,679.0	-	2,679.0	(3,905.0)
Water and Irrigation	7,967.2	6,662.2	-	6,662.2	(1,305.1)
Housing	1,901.0	1,265.9	-	1,265.9	635.1
<b>TOTAL</b>	<b>16,452.2</b>	<b>10,607.0</b>	<b>-</b>	<b>10,607.0</b>	<b>(4,574.9)</b>

Table 3-14: Analysis of resource Requirement versus Allocation – Development Expenditure

Sub Sector	Requirement	Allocation		Total	Variance
	2012/13	GoK	Donor		
Environment and Mineral Resources	8,440.0	3,091.0	910.0	4,001.0	(4,439.0)
Water and Irrigation	63,725.8	11,527.7	24,013.0	35,540.7	(28,185.2)
Housing	4,623.0	2,266.0	-	2,266.0	2,357.0
<b>TOTAL</b>	<b>76,788.8</b>	<b>16,884.7</b>	<b>24,923.0</b>	<b>41,807.7</b>	<b>(30,267.2)</b>

#### DEVOLVED LEVELS-COUNTIES/DISTRICTS

The sector requires Kshs 9,060.5 Million to undertake projects geared toward addressing concerns raised by the county residence. This is against allocation of Kshs. 5,805.2 Million allocated in the FY 2012/13. The table below shows the sub sector requirements at county level.

Table 3-15: Analysis of resource requirement versus Allocation by Devolved levels-Counties/Districts

Sub Sector	Allocation 2011/12	Requirement 2012/13	Allocation	Variance
Water and Irrigation	6,484.0	7,546.0	4,343.0	(3,203.0)
Environment and Mineral Resources	89.3	172.0	154.0	(18.0)
Housing	1,311.0	1,342.5	1,308.2	34.3
<b>TOTAL</b>	<b>7,884.4</b>	<b>9,060.5</b>	<b>5,805.2</b>	<b>(3,186.7)</b>

## ANALYSIS OF RESOURCE REQUIREMENT VERSUS ALLOCATION BY PROGRAMMES AND SUB-PROGRAMMES

Table 3-16: Analysis of resource requirement versus allocation by programmes and sub-programmes

Sub-Programmes	Requirements	Allocation	Variance
	2012/13	2012/13	
<b>Environment and Mineral Resources Sub-Sector</b>	<b>15,024.0</b>	<b>6,680.0</b>	<b>(8,344.0)</b>
SP: 1.1 Administration and Coordination	550.0	402.0	(148.0)
<b>Total expenditure programme 1</b>	<b>550.0</b>	<b>402.0</b>	<b>(148.0)</b>
<b>Programme 2: Environment Management and Protection</b>			
SP 2.1 Resource survey and Remote sensing.	594.0	472.0	(122.0)
SP 2.2: Environmental Management	8,530.0	3,056.0	(5,474.0)
SP 2.3: Lake Victoria Environmental Management	600.0	441.0	<b>(159.0)</b>
SP 2.4: Nairobi Rivers Rehabilitation and Exploration	450.0	307.0	(143.0)
<b>Total expenditure programme 2</b>	<b>10,174.0</b>	<b>4,276.0</b>	<b>(5,898.0)</b>
<b>Programme 3: Mineral Resources Management</b>			
SP 3.1 Mines and Geology Development	250.0	182.0	(68.0)
SP 3.2 Mineral surveys and Exploration.	400.0	299.0	(101.0)
<b>Total expenditure programme 3</b>	<b>650.0</b>	<b>481.0</b>	<b>(169.0)</b>
<b>Programme 4: Meteorological Services and Climate Change</b>			
SP 4.1: Meteorological Services	2,900.0	1,511.0	<b>1,389.0</b>
SP 4.2: Weather Modification	750.0	10.0	(740.0)
<b>Total Expenditure Programme 4</b>	<b>3,650.0</b>	<b>1,521.0</b>	<b>(2,129.0)</b>
<b>Water and Irrigation Sub-Sector</b>	<b>71,692.7</b>	<b>41,769.8</b>	<b>(29,489.9)</b>
<b>Programme 1: Water Policy and Management</b>			
SP 1.1: Water Policy Direction and Management	912.7	823.2	(89.5)
<b>Sub-Total</b>	<b>912.7</b>	<b>823.2</b>	<b>(89.5)</b>
<b>Programme 2: Water Supply and Sewerage Services</b>			
SP 2.1: Urban water and sewerage	27,000.0	22,651.9	(4,348.1)
SP 2.2: Rural water supply	8,464.0	7,754.3	(709.7)
SP 2.3: Water for informal settlements	379.0	335.8	(43.2)
<b>Sub-Total</b>	<b>35,843.0</b>	<b>30,309.0</b>	<b>(5,101.0)</b>
<b>Programme 3: Water Resources Management and Water Storage</b>			
SP 3.1: Water Resources Management	3,891.0	1,962.8	(1,928.2)

Sub-Programmes	Requirements	Allocation	Variance
SP 3.2: Water Storage and Flood Control	16,500.0	5,420.0	(11,080.0)
<b>Sub-Total</b>	<b>20,391.0</b>	<b>7,382.8</b>	<b>(13,008.2)</b>
<b>Programme 4: Provision of Irrigation and Drainage Infrastructure</b>			
SP 4.1: Development of Irrigation and Drainage infrastructure	14,294.0	3,062.4	(11,231.6)
SP 4.2: Land Reclamation	252.0	192.4	(59.6)
<b>Sub-Total</b>	<b>14,546.0</b>	<b>3,254.8</b>	<b>(11,291.2)</b>
<b>Housing Sub-Sector</b>	<b>6,799.0</b>	<b>4,254.9</b>	<b>2,306.1</b>
<b>Programme 1: Administration and support services</b>			
SP 2.1: Administration and support services	235.0	200.0	35.0
SP 2.2: Policy Research and Development	40.0	38.0	2.0
<b>Sub-Total</b>	<b>275.0</b>	<b>238.0</b>	<b>37.0</b>
<b>Programme 2: Housing Development and Human Settlement</b>			
SP1.1 Housing Development	2,727.0	2,345.9	181.1
SP1.2 Estates Management	1,522.0	1,352.9	131.1
SP 1.3 National Housing Corporation (Grants)	2,000.0	80.0	1,920.0
<b>Sub-Total</b>	<b>6,524.0</b>	<b>4,016.9</b>	<b>2,269.1</b>
<b>Grand Total</b>	<b>93,515.7</b>	<b>52,704.7</b>	<b>(35,527.8)</b>

## ANALYSIS OF RESOURCE REQUIREMENT VERSUS ALLOCATION BY ECONOMIC CLASSIFICATION

Table below shows the resource requirement according to economic classification.

Table 3.17: Resource requirement by economic classification-sub-Sector  
Environment sub-sector

Expenditure Classification	Resource Requirements	Allocation	Variance
	2012/13	2012/13	
<b>RECURRENT EXPENDITURE</b>			
<b>Current Expenditure</b>	<b>6,584</b>	<b>2,679</b>	<b>-3,905</b>
Compensation of employees	1,140	1,004	-136
Use of goods and services	1,010	670	-340
Transfers to Gov't Agencies.	4,140	915	-3,225
Other Recurrent	294	90	-204
<b>Capital Expenditure</b>	<b>8,440</b>	<b>4,001</b>	<b>-4,439</b>
Acquisition of non-financial assets	4,590	2,284	-2,316
Capital Transfers to Gov't Agencies	1,950	100	-1,850
Other development	1,900	1,617	-283
Total Expenditure .....	<b>15,024</b>	<b>6,680</b>	<b>-8,344</b>

## Water Sub-sector

Expenditure Classification	Resource Requirements	Allocation	Variance
	2012/13	2012/13	
<b>RECURRENT EXPENDITURE</b>			
<b>Current Expenditure</b>	<b>7,967.2</b>	<b>6,592.3</b>	<b>(1,374.95)</b>
Compensation of employees	1,971.9	1,805.25	(166.65)
Use of goods and services	2,417.1	2,150.60	(266.50)
Transfers to Gov't Agencies.	3,511.9	2,569.20	(942.70)
Other Recurrent	66.3	67.2	0.90
<b>Capital Expenditure</b>	<b>63,725.80</b>	<b>35,610.55</b>	<b>(28,115.25)</b>
Acquisition of non-financial assets	36,502.2	22,450.80	(14,051.40)
Capital Transfers to Gov't Agencies	20,531.30	12,070.55	(8,460.75)
Other development	6,692.3	1,089.20	(5,603.10)
Total Expenditure .....	<b>71,693</b>	<b>42,202.8</b>	<b>(29,490.2)</b>

## Housing Sub-sector

Expenditure Classification	Resource Requirements	Allocation	Variance
	2012/13	2012/13	
<b>RECURRENT EXPENDITURE</b>			
<b>Current Expenditure</b>	<b>1901</b>	<b>1750.88</b>	<b>150.12</b>
Compensation of employees	358	372.25	14.25
Use of goods and services	800	658.63	141.37
Transfers to Gov't Agencies.	720	700	20
Other Recurrent	23	20	3
<b>Capital Expenditure</b>	<b>4,623</b>	<b>2,266</b>	<b>2,357</b>
Acquisition of non-financial assets	1,789	1491	298
Capital Transfers to Gov't Agencies	2,000	80	1,920
Other development	834	695	139
Total Expenditure .....	<b>6,524</b>	<b>4,016.88</b>	<b>2,507.12</b>

## CHAPTER FOUR

### CROSS SECTOR LINKAGES, EMERGING ISSUES AND CHALLENGES

#### 4.1 Analysis of Other Sector Linkages to the Sector

Environmental protection, water and housing Sector forms a foundation for rapid and sustainable economic growth and development. There are strong linkages both (forward and backward) with virtually all the other sectors. Effective implementation of the sector programmes impacts positively on energy production, tourism, agricultural and industrial development, health and sanitation, security, employment creation and poverty reduction. Similarly, the sector depends on other sectors to support implementation of its programmes and projects in order to meet its development goals and objectives. It is therefore important that all the others sectors recognize the importance of protecting and conserving the environment and mainstream environmental impact assessments in their projects their programmes and projects. Conflicts due to inadequate access to water and lack of land tenure security, call for effective and efficient justice and land administration systems. For effective delivery of aspirations of the sector, research and development, innovations and use of appropriate technologies are critical.

The table below illustrates the linkages between the Environmental Protection, Water and Housing Sector and the other MTEF sectors.

**Table 4-1: Analysis of Other Sector Linkages to the Sector**

Sector	Linkages
Energy, Infrastructure and ICT	<ul style="list-style-type: none"> <li>• Contributing to ensuring the protection and conservation of water catchment areas so that there may be sufficient water for generation of hydro electricity Emphasis on Clean energy production to minimize pollution the environment</li> <li>• Providing Modern equipment, management information systems and appropriate communication infrastructure to the sector.</li> <li>• Providing adequate water and sewerage services to Malili ICT park in Makueni</li> <li>• Providing guidelines for good environmental practices to ensure sustainability of the projects</li> </ul>
Agriculture and Rural Development	<ul style="list-style-type: none"> <li>• The sector policies/programmes for, protection, and conservation of water resources and environment will inform land use policies</li> <li>• Agriculture and Rural Development land reforms are essential in ensuring availability of land for housing development</li> <li>• Water harvesting and storage technologies will expand potential for increased agricultural production and livestock development</li> <li>• Irrigation and land reclamation will increase agricultural production, particularly in ASALs</li> <li>• Increase environmental awareness to the sector to ensure sustainable utilization and productivity of the resources and at the same time safeguarding the environment from degradation</li> <li>• The other sector is an Implementer of some environmental conservation activities</li> </ul>
Governance Justice, Law and Order(GJLOs)	<ul style="list-style-type: none"> <li>• Reduce water related conflicts and enhance security mainly in ASAL areas by availing Water for longer periods, water harvesting, storage and fair distribution.</li> <li>• Housing sub-sector leases office accommodation for public institutions and residential accommodation for constitutional office holders. The sub-sector also maintains government houses. –rework</li> <li>• Governance Justice, Law and Order (GJLOs) ensure improved governance and</li> </ul>

	provision of services in the sector
General Economic, Commercial and labour affairs	<ul style="list-style-type: none"> <li>• Clean environment with minimal or no Pollution from industries</li> <li>• The sector ensures a healthy environment as a source of goods and services for sustainable production and growth and a clean working and living environment for the labour force</li> </ul>
Education	<ul style="list-style-type: none"> <li>• Provision of adequate water and sanitation services is necessary to keep educational institutions running and promote hygiene in learning institution.-ESD</li> <li>• Promotion of government policy on Education for Sustainable Development by integrating environmental issues in education system and creating awareness and putting up demonstration centres for good environmental practices</li> </ul>
Health	<ul style="list-style-type: none"> <li>• Availability of water is crucial to reduction of diseases in the health</li> <li>• Slum upgrading impacts positively on the health of the people</li> <li>• A clean environment reduces incidences of diseases related to poor environmental conditions and this reduces pressure on the health sector budget</li> <li>• Implementation of interventions on waste management and sanitation as required by the environment and water Acts</li> </ul>
Social Protection, Culture and Recreation	<ul style="list-style-type: none"> <li>• Increased availability and access to water in rural areas will make easier for girl child to attend schools and focus on learning, women to engage in other economic activities, and water accessibility to vulnerable groups.</li> <li>• A clean environment provides quality natural recreation areas which are at times protected under the sector Acts</li> <li>• Increased collaboration between the sectors enhances conservation and preservation of cultural sites</li> </ul>
Private Sector organizations and professional bodies	<ul style="list-style-type: none"> <li>• The sector collaborates with the private sector in identifying needs as well as providing recommendations on the policy direction to enhance private public partnerships (PPPs).</li> <li>• Promotion of good environmental practices and innovations</li> <li>• Investment in sector programmes and projects</li> </ul>
Development Partners and International Organizations	The Sector also collaborates with development partners in the implementation of its programmes to supplement Government initiatives.
Non-State Agencies	They are involved in community mobilization, planning, implementation; and monitoring and evaluation of the sub-sector programmes and activities.

## 4.2: Emerging issues

The key emerging issues in the sector are;

### **Constitution of Kenya 2010;**

It has become necessary to review all the sector policies and legislative frameworks to conform to the constitutional provisions.

### **Climate change**

Effect of climate change and associated extreme weather events threaten sustainable development and impacts negatively on the sector.

### **Global economic crisis**

The global economic and financial crisis including increased fuel prices has a major negative impact on the general economic performance of the country.

### **Increased environmental degradation**



Population increase in the country over the past have put pressure on the natural resource base which has necessitated the encroachment of forest land, ASALs areas and other fragile eco-systems for food production and human settlement.

### **4.3: Challenges**

#### **Perennial droughts and flooding**

The country is experiencing flooding and droughts more than was experienced in the earlier years. This has a negative effect in food production, water supply, housing access, livestock production and general livelihoods of the people

#### **Inadequate policy and legislative framework**

The sector lacks adequate and comprehensive policies and legislative frameworks for effective conservation, management, protection and development of the natural resources as well as for housing development.

#### **Environmental and natural resources benefit sharing**

Utilisation of environmental and natural resources most of the times benefit communities that are not responsible for their conservation and protection. This has created negative sentiments and strategies to address resource benefit sharing need to be developed and implemented.

#### **Staffing:**

The sector is experiencing shortage of technical staff in the key Departments. These include; meteorologists, engineers and natural resource scientists among others.

#### **Old and dilapidated infrastructure**

Most of the water, irrigation and sewerage infrastructure and government housing units as well as meteorological equipment are old and dilapidated due to low funding for maintenance. Some of these facilities have already outlived their lifespan.

#### **Inadequate data**

The sector faces a serious lack of data to guide planning and management. The cost of data collection, management and dissemination requires large amounts of resources which have not been available

#### **Unplanned settlements and rapid urbanisation**

This strains demand on the existing infrastructure especially housing, water and sewerage supplies and waste management as well as leading to mash-rooming of informal settlements without basic infrastructure compounded by inadequate physical planning.

## CHAPTER FIVE

### CONCLUSION

#### **Policy and legislative Framework**

The sector plays a critical role towards achievement of the country's economic growth, employment creation and poverty reduction. However, progress in service delivery and realization of key objectives continue to be undermined by lack of appropriate policies and legislation and unclear institutional structures and mandates. With the promulgation of the constitution of Kenya 2010, it has become necessary to review and align sector policies and legislative frameworks with the new dispensation. Specifically, Articles 42 and 43 of the Constitution provide that clean environment, adequate and safe water, and housing are social rights to the citizenry under the Bill of Rights.

Specifically the following pieces of legislations should be fast tracked; Building Laws and Housing Bill; Tenant and Landlord Bill; Irrigation policy; Land reclamation policy and the National Land Policy.

#### **Institutional Reforms**

While appreciating continued reforms across government, the pace and momentum should be accelerated in light of emerging structural challenges that are likely to confront the implementation of the new constitutional order especially in the devolved county governments. Specifically, some key government departments such as the Meteorological Department should be de-linked from the mainstream civil service to a Semi-Autonomous Government Agency (SAGA) to enable it source for funds and enter into joint ventures with other institutions. This move will strengthen its resource base and also conform to current practice within the East African community countries.

In the water sub sector, the reforms initiatives undertaken since the enactment of the Water Act 2002 have seen a number development partners joining the water sector and pledging support in the management and development of the water sector. This has in the past five years enabled more Kenyans to gain access to safe drinking water apart from increasing the area under irrigation countrywide.

#### **Sector Budgets and Processes**

Expenditure analysis reveals an increase in funding across the sector in the three years under review. For example gross absolute expenditure rose by 52% mostly attributed to reforms and infrastructure expansion in the water sub-sector. However this report notes that certain challenges have emerged that will require concerted focus and additional resources in order to be tackled effectively in the short to medium-terms. These challenges include increased environmental degradation, rapid population growth and urbanization, aging water and housing infrastructure and proliferations of slums and informal settlements. More specifically, special attention must be directed towards determination and delivery of key social services like housing and water as required under the bill of rights in the constitution.

The sector takes cognizance of the crucial role the private sector, NGOs and other stakeholders play in supporting government efforts. However resources emanating from these sources have not been well captured and quantified. It is important therefore that the budgetary process attempts to quantify the resources in a manner that provides a holistic analysis of total resources that are directed towards service delivery.

The sector appreciates financial reforms that have been initiated so far as a way of improving service delivery and minimize wastage and corruption. However, it is now generally agreed that the IFMIS in its current structure is not fully serving that purpose and could be serving as a tool to deter public spending and accountability. It is therefore important that the system is re-engineered in a manner that adds value and promotes better financial management and practices in the public sector.

### **Data, Monitoring and Evaluation**

In order to provide efficient monitoring and evaluation and ensure optimal utilization of resources, the M&E framework will require urgent re-engineering in order to inform policy responses in a timely and effective manner. In this regard, this report notes this dilemma which cuts across the sector and therefore advocates for urgent reforms and resources in each sub-sector to support policy research, data collection and dissemination.

### **Staffing Levels**

The sector is facing shortage of staff particularly in the technical departments. Part of this problem is attributed to a freeze on recruitment while the other part is due to brain drain of technical staff due to poor remuneration. For example the KMD, mines and geology and irrigation departments are facing an acute shortage of technical staff.

### **Cross sector linkages**

The sector plays a key role for rapid and sustainable economic growth and development. There are strong linkages both (forward and backward) with virtually all the other sectors. Effective implementation of the sector programmes impacts positively on all other sectors to ensure sustainable economic growth, employment creation and poverty reduction.

More specifically the sector has strong linkages with the education, health-sanitation and land sub-sectors whose complimentary roles guarantee an informed and healthy populace and ensures delivery and facilitation of affordable and decent housing. Access to water and land remain potential areas of insecurity and social conflicts in Kenya. It is therefore imperative that challenges facing these two sub-sectors are urgently addressed through appropriate policies and legislations supported by a fair and efficient justice and land administration systems that also ensures sustainable land-use and a clean environment.

## CHAPTER SIX

### RECOMMENDATIONS

Environmental protection, water and housing Sector forms a foundation for rapid and sustainable economic growth and development, poverty reduction and employment creation. However, challenges and emerging issues affecting the performance of the sector need to be addressed. In view of this, the following recommendations are proposed to improve access to good and services produced by the sector as well as ensure that delivery of services is efficient and effective.

- 1) All existing sector policies and legislative frameworks need to be aligned to conform to the Constitution of Kenya 2010.
- 2) The sector also lacks key policies and that are necessary for the actualization of the Bills of Rights and for effective administration of the sector. There is therefore need to put in place adequate and comprehensive policies and legislative frameworks for effective conservation, management, protection and development of the natural resources as well as for housing development. These are irrigation and drainage policy and law, land reclamation, environment policy, implementation policy of MEAs, Climate change Policy, Leasing and estates management policies and Trans Boundaries Resources Management policies to guide in sharing of cross border resources and benefits since it is an area of potential conflict.
- 3) There is need for increased funding for maintenance, rehabilitation, replacement and expansion of sector infrastructure which is being overwhelmed by rapid population growth, urbanization and rising cost of materials.
- 4) There is need for enactment and enforcement of laws regarding protection of public property including land for public works development to avoid fraudulent acquisition and encroachment.
- 5) The sector lacks adequate capacity to ensure compliance and enforce the set policies, laws and regulations needed for the effective and efficient management of the sector. There is need to enhance human, financial and institutional capacities through recruitment of more technical staff and additional funding for operations.
- 6) There is need for all stakeholders to mainstream climate change responsive activities in their programmes and projects to effectively deal with the threats posed by climate change and global warming whose effects are likely to be more severe in the future. This could slow down Kenya's projected economic growth due to dependence on climate-sensitive sectors in terms of food security and water supply among others.

- 7) Sensitization, collaboration and consultation efforts on the conservation, management, protection and development of the environment and natural resources together with housing need to be scaled-up to ensure sustainability.
- 8) Efforts should be made to support, mainstream and adopt the use of new and appropriate technologies that are emerging to solve challenges in water and sewerage supply, building of affordable houses and environmental conservation.
- 9) There is need to strengthen the research and development capabilities within and without the sector to inform and improve service delivery and enhance access to water and housing. This calls for institutional capacity building programs to support and strengthen the country's research and academic institutions to enable them undertake research.
- 10) There is urgent need for the Government to improve the remuneration and working environment to ensure retention and recruitment of qualified technical staff in areas experiencing shortages.
- 11) There is need for other sector's policies and legislative frameworks to be reviewed and harmonised with this sector's policies. These include the Public Procurement and Disposal Act 2005, Lands Acts, Local Government Act and Agriculture Act.
- 12) Government should put in place mechanism and strategies to deal with external threats like the financial and economic crisis that have caused sharp price increases that affect the provision of affordable goods and services produced by this sector. The ever rising input costs (electricity, fuel, steel, etc) used by the sector to produce the goods and services cannot be passed on to the consumers due to the existing regulations.
- 13) From analysis the sub sectors report underutilization of their allocated budgetary resources. This can partly be explained by non-reporting of district expenditures and development partners expenditure returns budgeted under appropriations-in-aid. There is therefore need for all spending units to timely prepare and submit expenditure returns.