GROUNDWATER GOVERNANCE AND POLICIES IN KENYA

INSTITUTIONAL STRUCTURE AND LEGAL SETTINGS

PRESENTED BY

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OBJECTIVES

- To account the Kenyan case of groundwater governance, policy, legislation and institutional framework.
- To outline set of challenges in groundwater governance in Kenya.

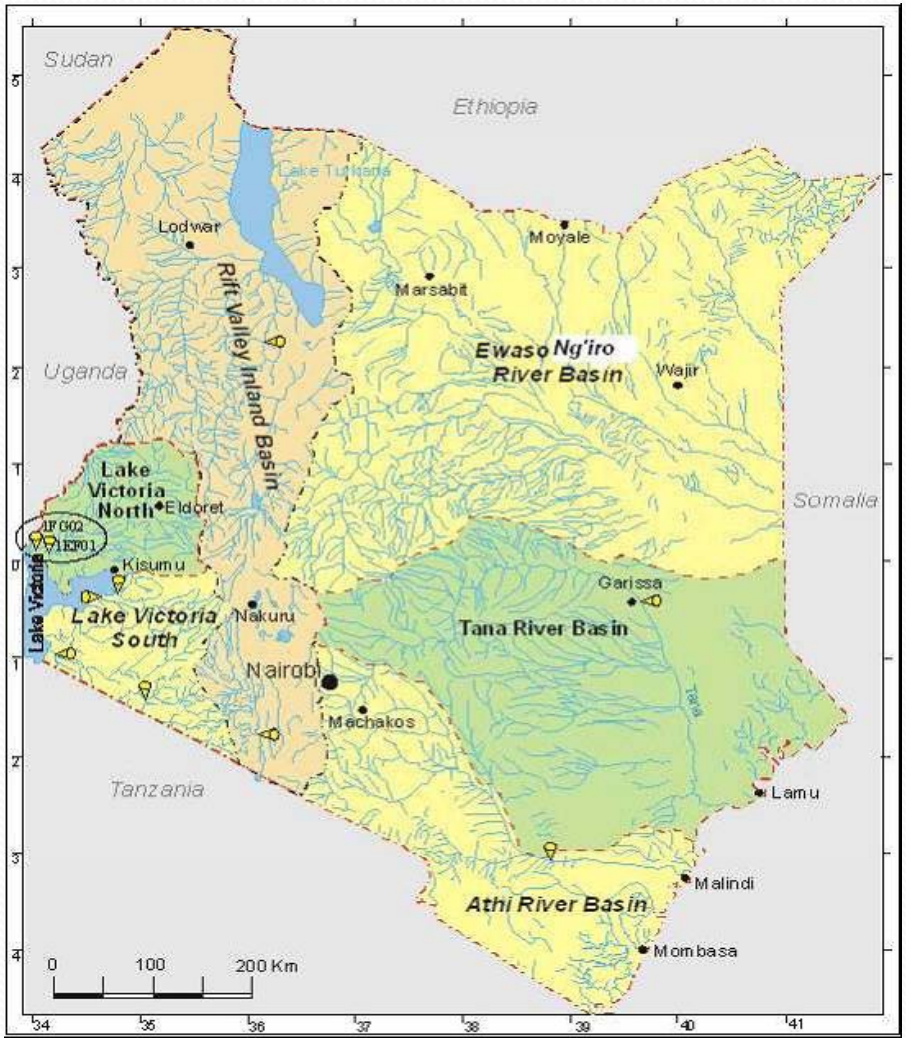
OUTLINE PRESENTATION

- Groundwater share of fresh water resources.
- Water sector reform process.
- Governance framework.
- Institutional framework.
- Groundwater information and data.
- Challenges facing groundwater governance in Kenya.

GROUNDWATER SHARE OF FRESH WATER RESOURCES.

- In Kenya estimate of 1.04 BCM/yr considered “safe” groundwater yield, and 0.18 BCM/yr (17.3 percent) used.
- Kenyan water resources are unevenly distributed in space and time. Groundwater is major source of water supply for, Nairobi, Mambasa, Kisumu, Nakuru, ASAL areas and rural w/s.
- 80% of Kenyan land is arid and semi arid, hosting 34% of human population and 50% of livestock.

Map of Kenya showing river basins/catchment



Kenya water resources availability by catchment

Basin	Area (Km^2)	Rain (mm/yr)	Runoff (mm/yr)	Surface water (10^6 m^3/yr)	Ground water (10^6 m^3/yr)
Victoria	46,229	1,245	149	11,672	116
Rift Valley	130,452	535	6	2,784	126
Athi	66,837	585	19	1,152	87
Tana	126,026	535	36	3,744	147
Ewaso Ngiro	210,226	255	4	339	142
Total				**19,691**	**618**

Source: IWRMS&WE Plan MoWI 2009c

WATER SECTOR REFORM PROCESS

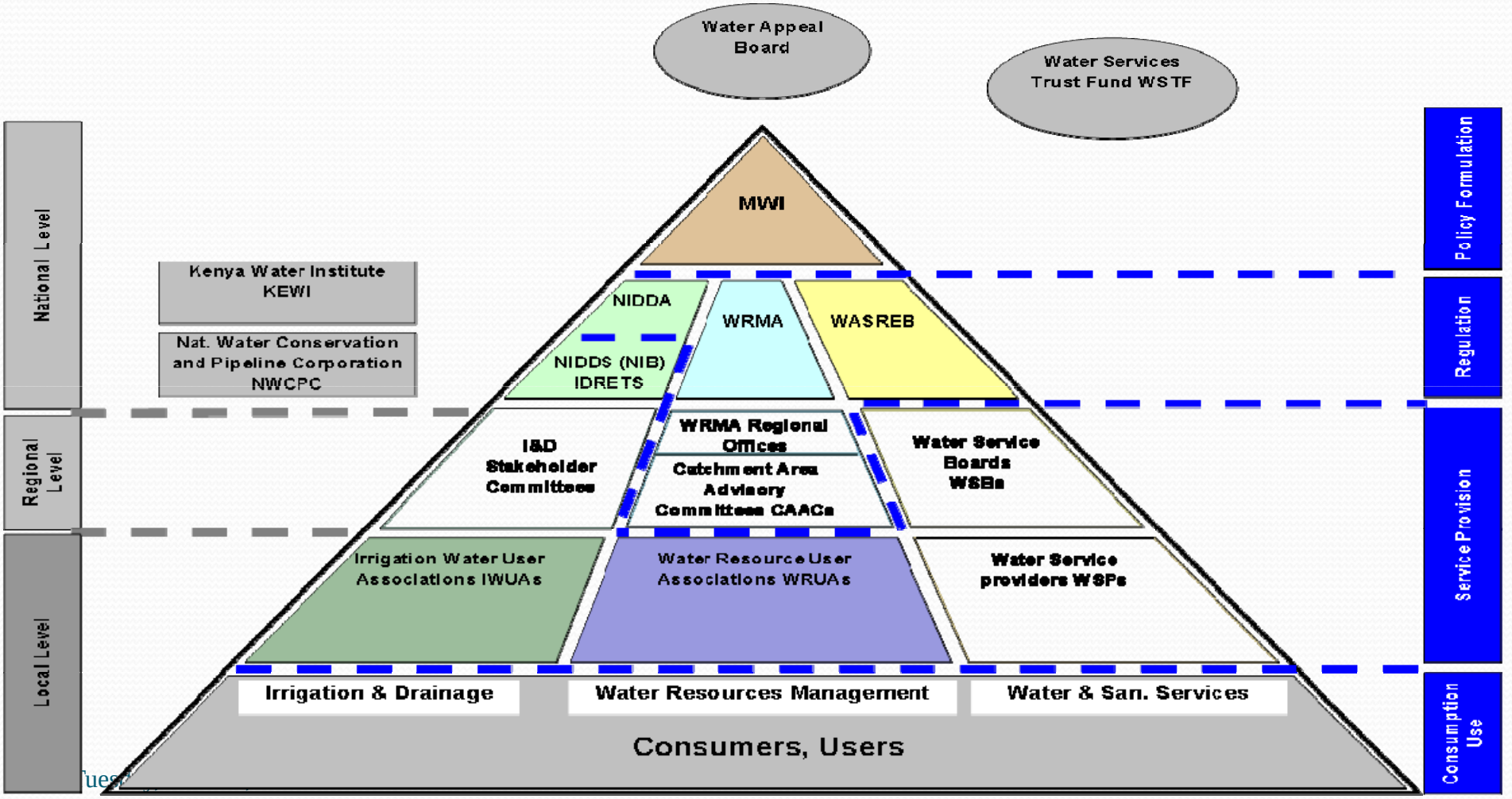
Steps of water sector reform

- National Water Policy (1999) Session Paper No.1.
- Water Act (2002) (Replacing Water Act (Cap 372)).
- The Water Resources Management Authority (WRMA) was established as a body corporate vide gazette notice No. 8140 of 14th November 2003 pursuant to the Water Act 2002.
- National Water Resources Management Strategy (2005-2009).
- WRMA operationalised in July 2005.

Roles and Responsibilities of New Institutions

No	Institution	Role(s)
1	Ministry of Water and Irrigation	Policy formulation and sector coordination
2	Water Appeal Board	To hear and determine disputes
3	Water Services Trust Fund	To finances water services
4	Water Services Regulatory Board	To regulate matters related to water services
5	Water Services Boards	Regional body responsible for planning , regulation and development water services
6	Water Services Provider	To provide water and sanitation services under license from WSB
7	Water Resources Management Authority	To plan, regulate and manage water resources and contribute to policy
8	Catchment Area Advisory Committee	Regional body set to advise WRMA on the management of water resources at the catchment
9	Water Resource Users Associations	Local body set up by water users to enable community and water users to participate in water resources management
10	National Water Conservation and Pipeline Corporation	Development and management of state assets for bulk water supply, borehole and dam construction and also state contractor
11	National Irrigation and Drainage Development Authority	Planning, irrigation and drainage development

New Institutions Defined by the Water Act 2002



GOVERNANCE FRAMEWORK
Policies and legislations

National policy on water resources management and development sessional paper No 1 of 1999 objectives.

i. To preserve, conserve and protect available water resources and allocate it in a sustainable, rational, and economic way.

ii. To supply good quality water in sufficient quantities to meet the various water needs, including poverty alleviation, while ensuring safe wastewater disposal and environmental protection.

Policy objectives cont…….

iv. To establish an efficient and effective institutional framework to achieve a systematic development and management of the water sector; and

v. To develop a sound and sustainable system for effective water resources management, water supply, and sanitation development.

Issues addressed by policy

- The availability and vulnerability of groundwater resources.
- The institutional arrangement of groundwater management.
- Integrated water resources management.
- Groundwater quality management.

Groundwater-related topics in the Water Act 2002.

- Every water resource is vested in the State, but subject to any rights of user granted by or under this Act or any other written law (sect. 3).
- The WRMA is established as a body corporate to manage water resources in Kenya; develop principles, guidelines, and procedures for its allocation; monitor the national water strategy adopted under section 11. The Authority shall establish regional offices (sect. 10).

Groundwater-related topics in the Water Act 2002. cont……..

- The Minister shall prescribe a system for the classification of waters (sect. 12) and determine the water reserve for each classified water resource.
- The Authority may designate catchment areas and shall formulate a strategy for each area. Each area shall have an advisory committee. Protected catchment areas may be declared by the Authority.

National Water Resources Management Strategy (NWMS)

- The NWRMS under WRMA includes the following activities with respect groundwater:

- Define and describe groundwater bodies in Kenya.
- Identify groundwater bodies which are at risk of over abstraction or water quality deterioration.
- Develop a classification scheme for Kenya's groundwater resources.
- Define and quantify the Reserve for each groundwater body.
- Produce a hydro geological map of Kenya.

NWRMS Cont….

- Identify groundwater bodies that have been subject to significant pollution.
- Develop a monitoring network for groundwater quantity and quality.
- Develop an overview of the status of groundwater quantity and quality in Kenya.
- Produce a groundwater vulnerability map of Kenya, in detail as and where required.

Other policies on groundwater governance

Irrigation Master Plan.

It proposes enhancing groundwater recharge and increasing the potential for groundwater irrigation. The Plan estimates groundwater resources at 0.65 BCM/yr, of which 0.2 BCM/yr is to be utilized for irrigation.

Proposal for a policy for protection of GW.

- Conserve groundwater resources by balancing sustainable use and national development.

Other policies on groundwater governance cont..

- Protect groundwater quality by minimizing the risk posed by pollution.

National Land Policy.

- The policy recognizes that groundwater use and protection is affected by land use and land use change. It further proposes for a mechanism for effective coordination framework for cross sectoral issues such as groundwater.

Other policies on groundwater governance cont..

Policy on Environment and development.

- The policy objective include conserving and managing Kenya's natural resources. It puts emphasis on protection of water catchments and wetland as part of its objective. Groundwater is dealt with in the broader sense of natural resources, water catchment and wetlands.

Policy on climate change.

- Groundwater is dealt with in the response strategy in respect of water resources.

Legislation and regulations

Water Rights and Water Permit.

- The law vests ownership of all water resources, including groundwater in the state (Republic of Kenya).
- Water rights may only be acquired through the Act through water permit (groundwater included).
- A permit will be required in specific instances as follows:-

a) Where the works are situated within 100 meters of surface water (other than an enclosed spring).

b) Where the works are situated within a GCA.

c) A permit is also not required for the abstraction of groundwater in an enclosed spring..

Regulating the construction of wells and boreholes.

- The fourth schedule of the Water Act 2002 requires that a person constructing borehole/well shall:

a) Give notice of his intension to WRMA and shall comply with such requirements as may be imposed by WRMA.

b) Keep records of borehole geological logs, water struck level, test pumping data and borehole yield, and upon completion of drilling be submitted to WRMA.

c) Allow WRMA's officer access to the well for inspection, take samples and documents.

Regulating the construction of wells and boreholes cont….

d) If necessary to WRMA a well constructed within 800 meters of existing well(s) to apply water level test to the existing well(s) and submit result to WRMA.

e) Groundwater abstraction must be sustainable and as per the permit conditions.

f) Deal appropriately with defective well.

g) Prevent, minimize and control contamination and pollution of groundwater.

Regulating the construction of wells and boreholes cont….

h) Case artesian wells to prevent waste.

i) Take water sample from a well/borehole to be analyzed for physical, chemical and bacteriological characteristics and results submitted to WRMA.

j) Install water master meter and piezometer on boreholes upon completion.

Waste water licensing.

- WRM rules 2007 requires that for any AGR to any aquifer in a GCA and construction of works for the same must be authorized by WRMA.
- Part V of WRM rules 2007 empowers WRMA to control pollution of water, impose requirement for effluent discharge permit and prescribes standards to be attained before discharge to any water body.
- WRMA impose maintenance of effluent discharge record and EDCP to be developed to support application for effluent discharge permit.

Control on development in recharge/discharge zone and pollution.

- Water Services Boards have been empowered by section 73 of the Water Act 2002 to make regulations for protection of recharge and discharge zones of groundwater from pollution in areas under their operation license.
- WRMA is to identify and delineate groundwater recharge and discharge areas and qualify them when necessary to be gazetted as GCA.

Participation of public in WRM.

The Water Act identifies and highlights the need for

- Catchment Area Advisory Committees (CAAC)
- Water Resources Users Associations (WRUAs) People based representation in sub catchments for improved management of water resources including groundwater.

Public Private Partnership

- Private sector participation in groundwater governance has been in the areas of borehole drilling and hydro geological consultancy services by hydro geologist.

- They are regulated under Part XIII of the Water Act's guidelines that require these qualified water professionals and contractors be licensed and gazetted by the ministry. The ministry is required to introduce codes of practice (COP) for compliance by the professionals and the contractors.

INSTITUTIONAL FRAMEWOK

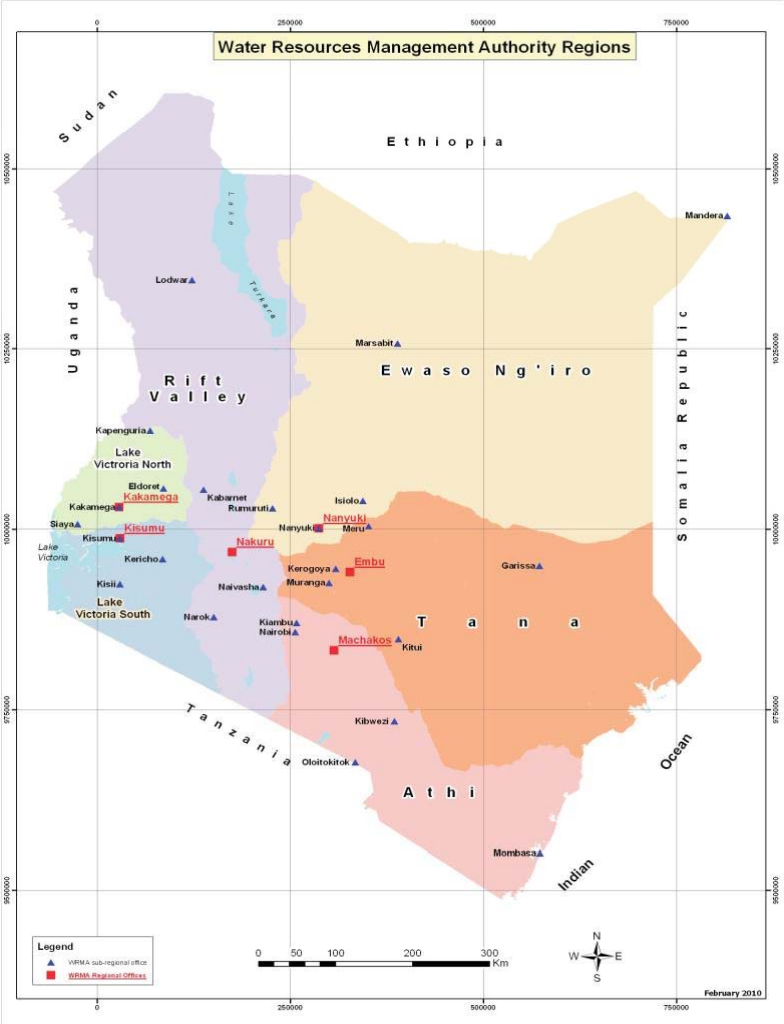
- Groundwater governance is subsumed within the broader institutional framework of Water Resources Management Authority.
- Management of water resources is by basin wide approach.
- The country is divided into six catchment areas designated as Regions namely:-

1. Lake Victoria North Catchment Area (LVNCA).
2. Lake Victoria South Catchment Area (LVSCA).
3. Rift Valley Catchment Area (RVCA).

Institutional framework cont……

4. Athi Catchment Area (ACA).
5. Tana Catchment Area (TCA).
6. Ewaso Ngiro North Catchment Area (ENNCA).

Map of Kenya showing drainage basins (Water Catchment Areas), Regional and Sub regional offices



GROUNDWATER INFORMATION AND DATA

- WRMA is the custodian of groundwater data and information which include.

i. List of gazetted licensed borehole drilling contractor.

ii. List of gazetted licensed groundwater professionals.

iii. List/register of boreholes/wells drilled in Kenya, borehole(s) completion records and use.

iv. Groundwater assessment and monitoring data.

v. Hydro geological maps.

vi. COP for groundwater professional and contractors.

Number of boreholes drilled, monitoring boreholes & dedicated boreholes.

Regions	Total No of boreholes	Monitoring boreholes			Total No of dedicate boreholes per region	
		Target	Operational	% operational	Target	Operational
LVNCA	1,650	14	14	100	1	0
LVSCA	1,500	30	11	37	8	0
RVCA	22,027	41	26	51	3	2
ACA	15,475	71	33	46.5	5	0
TCA	2,107	41	18	43	2	1
ENNCA	1,995	34	13	38.3	2	0
TOTAL	**44,754**	**231**	**115**	**57**	**21**	**3**

CHALLENGES IN GROUNDWATER GOVERNANCE

- Lack of comprehensive hydro geological map for Kenya.
- Low funding for groundwater management, research, development and monitoring.
- Low level of GW monitoring, only three dedicated boreholes are operational for groundwater level monitoring in the country.
- Little technical capacity in groundwater modeling using modern techniques.
- Lack of clear strategy for GW management and development.

Challenges cont……

- Lack of aquifer(s) management plans. Aquifers are managed in the broader sense of water resources management which is catchments based as opposed to aquifer based.
- Lack of independent forum for aquifer users within WRMA.
- Little data on groundwater in the WRMA data base.
- No gazetted GCA since commencement of WRMA apart from NAS.
- Little knowledge about the trans boundary aquifers of Kenya.
- Low awareness on GW resources by decision makers, users and stakeholders.


THANK YOU