

# Water Governance and Adaptation to Climate Change in Informal Settlements. Case of Huruma, Nairobi.

Stephen Otieno

M.A. Environmental Planning & Management  
Department of Geography & Environmental Studies

University of Nairobi.

Climate Change and Adaptation in Africa (CCAA) Project .



# OUTLINE

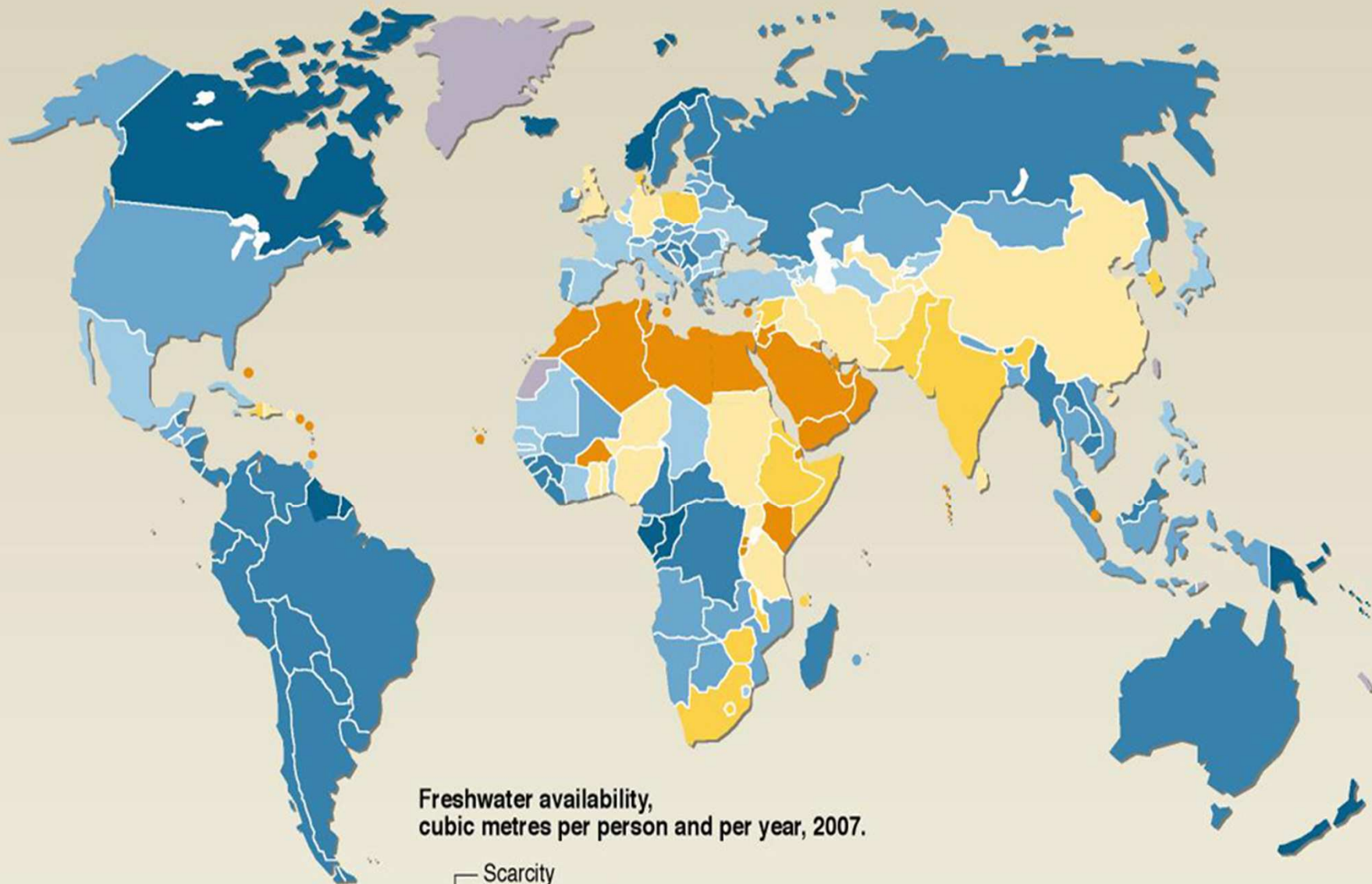
1. Study Objectives
2. Global Population and Climate Change
3. Geographical Location of Kenya
4. Huruma: Administrative Boundary
5. Spatial Location of Huruma
6. Profile of Huruma
7. Water Sector Vulnerability
8. Kenya's Institutional Water Governance Structure
9. Water Actors in Huruma
10. Water Situation in Huruma
11. Interventions in Huruma
12. Challenges in Huruma
13. Successes in Huruma
14. The Way Forward

## STUDY OBJECTIVES

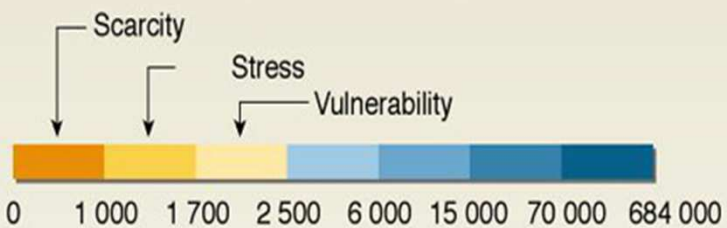
1. Access to water situation in Huruma
2. Formal and informal actors involved in the provision water in Huruma
3. Challenge of water supply in relation to Climate Change.
4. Adaptation efforts to the effects of Climate Change

## GLOBAL POPULATION AND CLIMATE CHANGE

- Global population has increased from 3.7 billion in 1960 to a projected figure of 7 billion in 2011. (UNFPA, 2011).
- Kenya's population has increased from 8.6 million in 1962 to the current population of 38.6 million in 2010 with growth rate of 2.6% p.a. (KNBS, 2010)
- Approximately 35% of Kenya's population live in the urban areas.
- Global warming has also increased with average mean temperatures rising by 2° C over the same period.
- Climate Change Prediction Models project a further 2°C in the next 50 years. (IPCC, 2007)



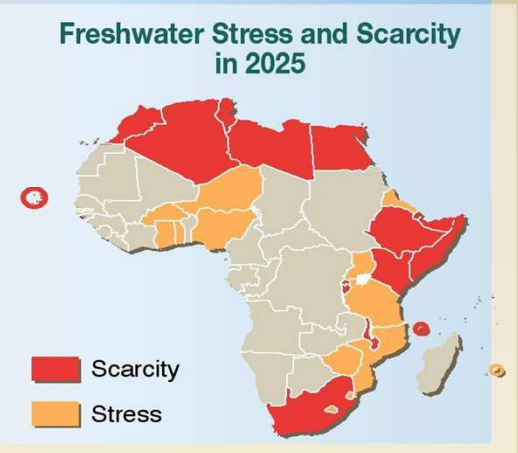
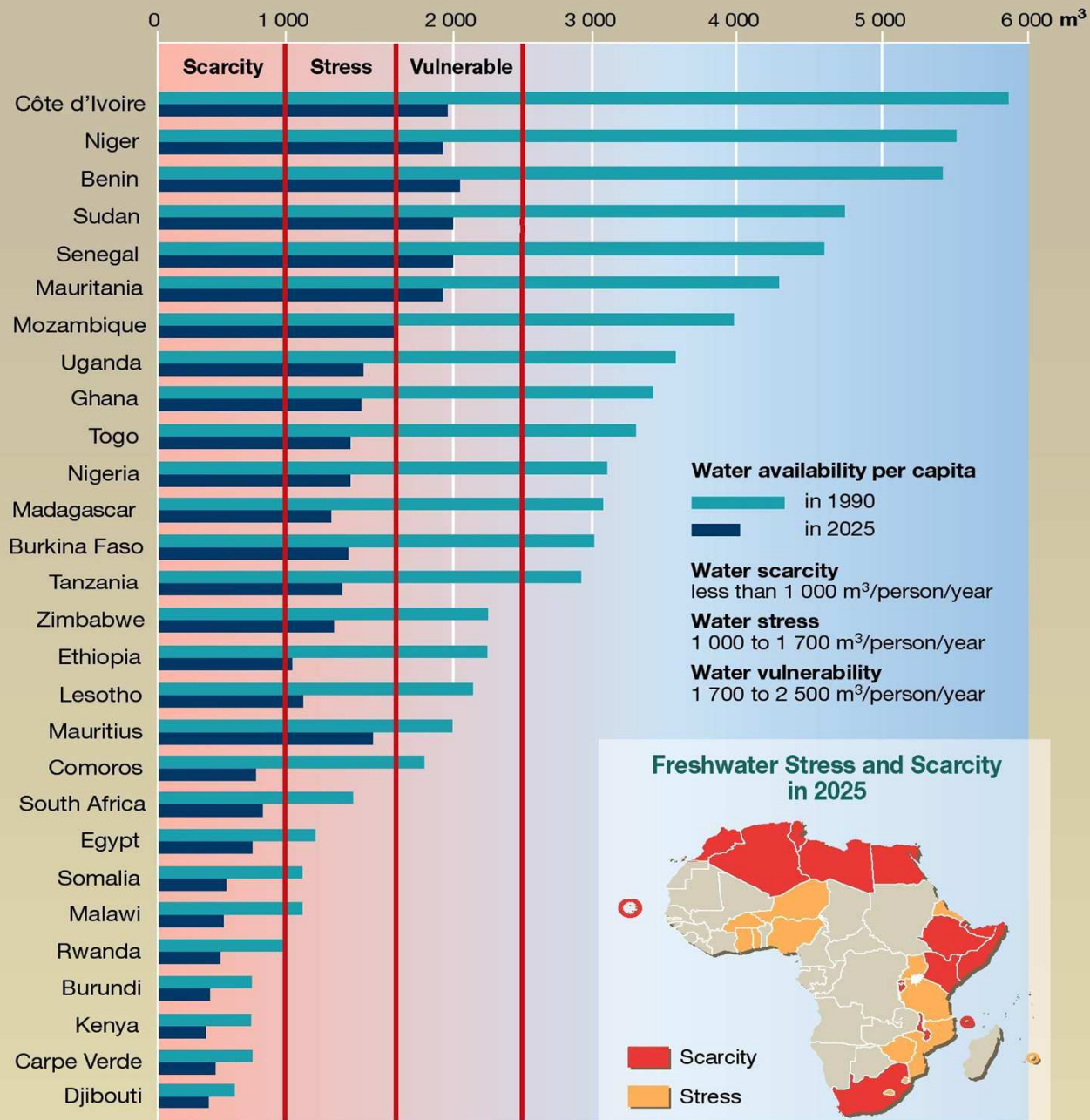
**Freshwater availability,  
cubic metres per person and per year, 2007.**



■ Data non available

Source: FAO, Nations unies,  
World Resources Institute (WRI).

PHILIPPE REKACEWICZ  
FEBRUARY 2008



Source: United Nations Economic Commission for Africa (UNECA), Addis Ababa; Global Environment Outlook 2000 (GEO), UNEP, Earthscan, London, 1999.

# GEOGRAPHICAL LOCATION OF KENYA



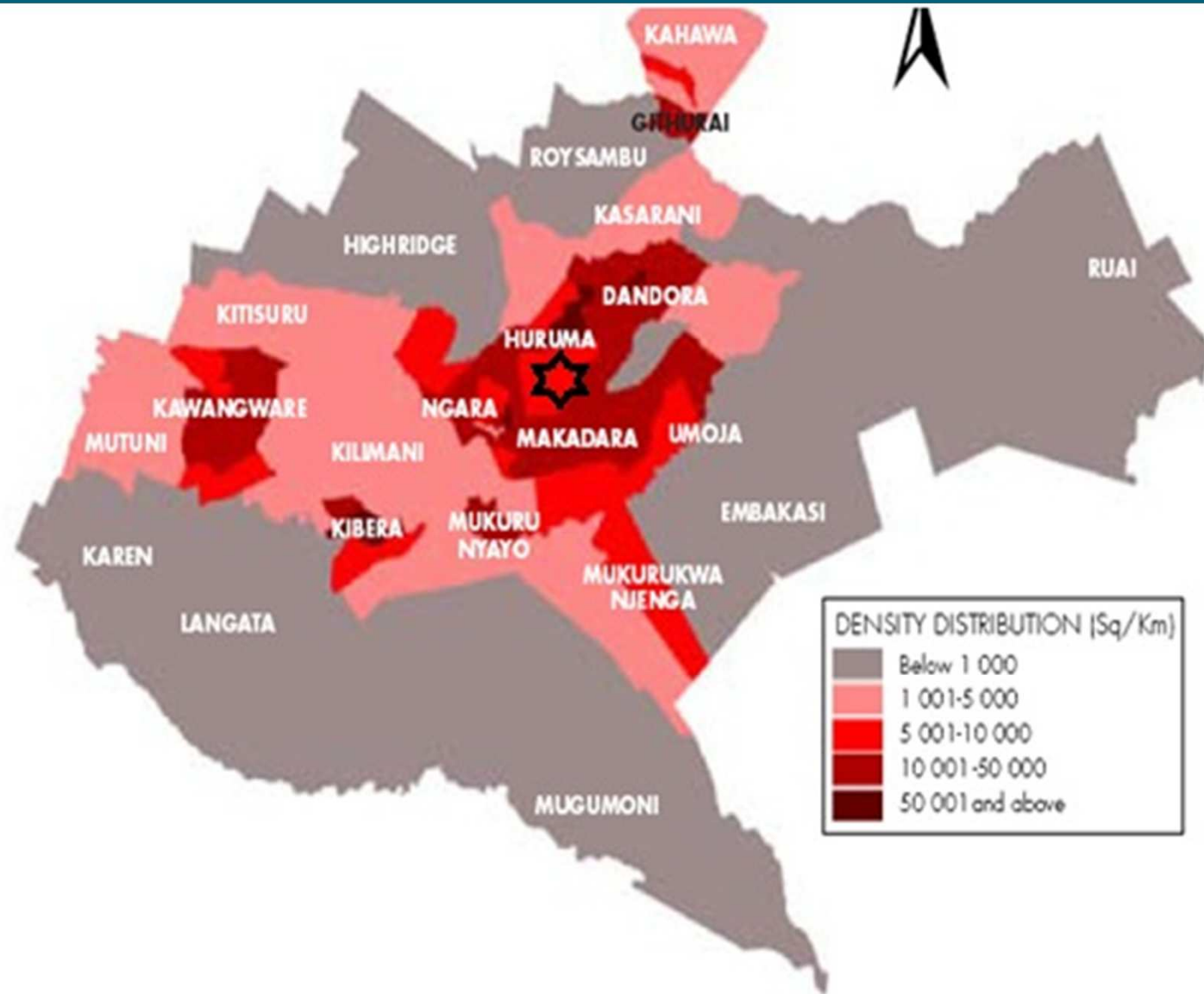
Source: Mapsofworld.com, 2005

## PROFILE OF HURUMA

- The Huruma informal settlements are situated in Starehe division of Nairobi city.
- The total population is 106,319 consisting of 54,787 males and 51,532 females.
- The settlements occupy a total land area of 1.4 km<sup>2</sup> with a population density of 77,656 persons per km<sup>2</sup> in about 34,017 households.
- This informal parts of Huruma that this study will focus on are Ngei 1 and Kiamaiiko.
- All built on land belonging to the Nairobi City Council. The settlements have been in existence for over 30 years.



# LOCATION OF HURUMA IN NAIROBI



Source: CBS 2001

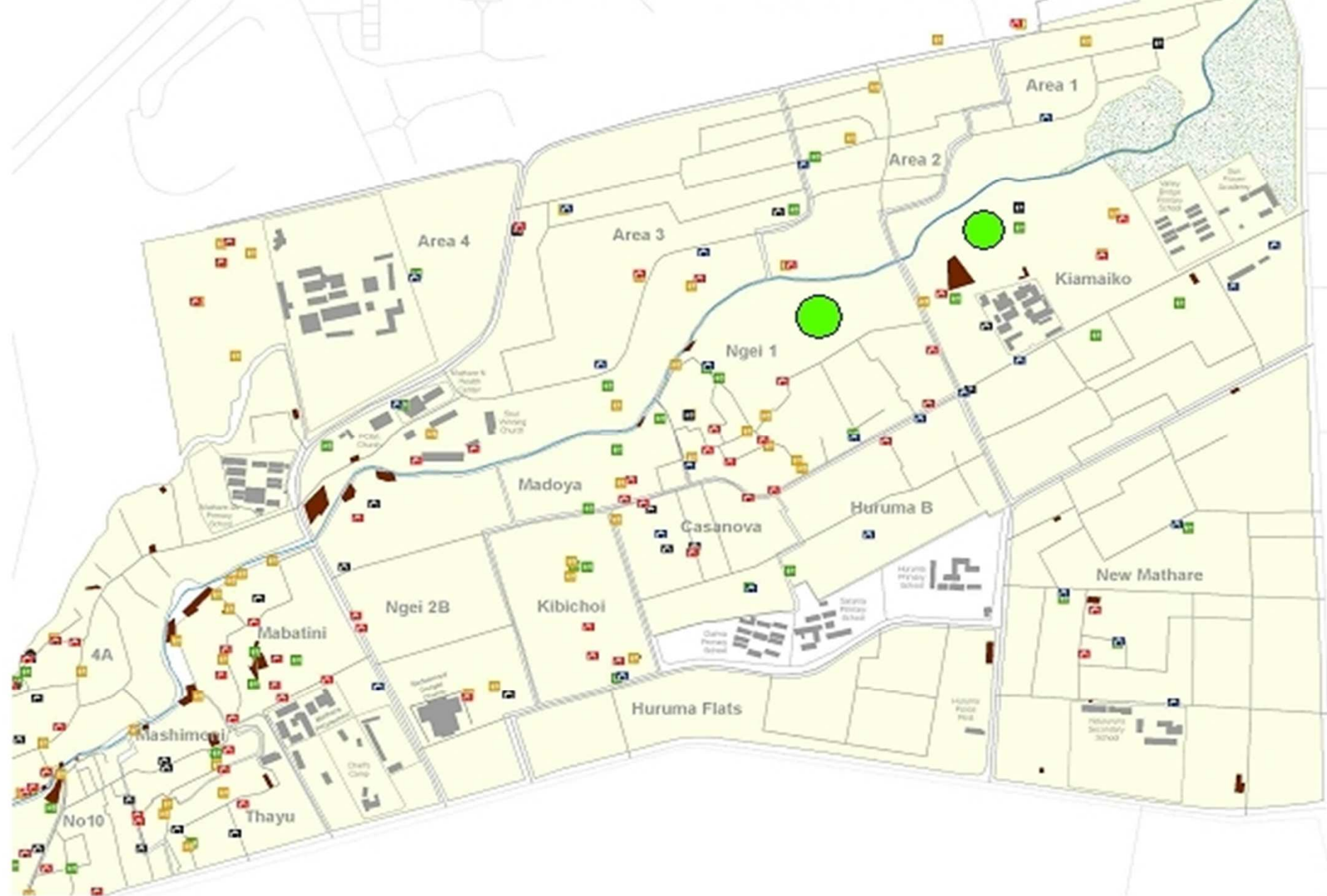
Source: CBS, 2001

# SPATIAL LOCATION OF HURUMA SLUM



Source: Google Earth, 2011

# MAPPING WATER POINTS IN HURUMA



# WATER SECTOR VULNERABILITY

- Kenya's economy mainly depends on climate sensitive sectors for Agriculture, Energy and Urban development
- Majority of the population live on the fringes, areas prone to degradation, low lying areas and marginalized areas like the sprawling slums in Huruma
- These areas have a low institutional and financial capacity to adapt to climate induced changes



*Source: Author, 2011*

Climate Change is an environmental challenge, and a major problem to availability and accessibility to water.

A major threat to the socio-economic gains made so far.

Climate Change will further put a strain on water resources and infrastructure which are already under stress especially in developing countries .



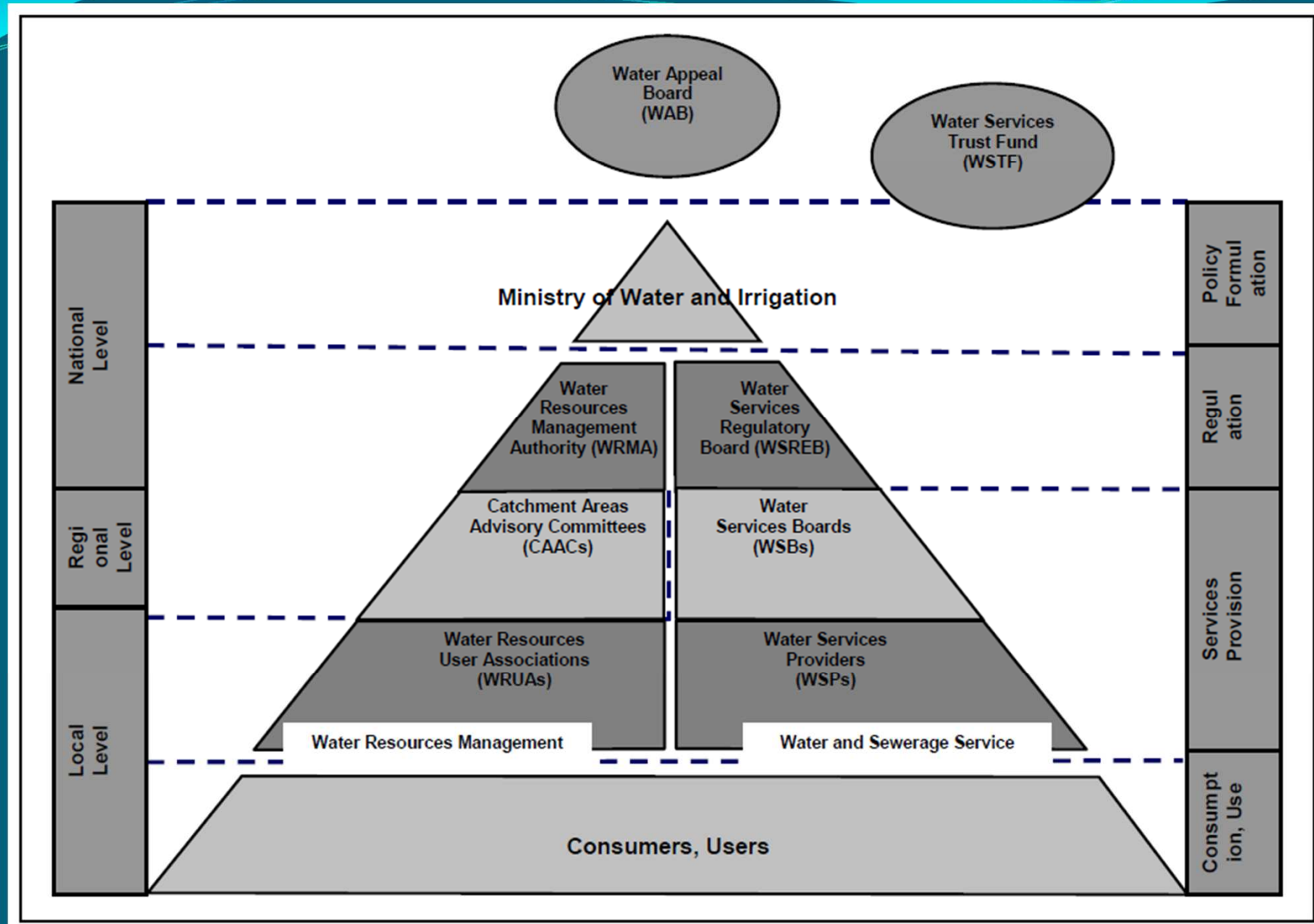
*Source: Author, 2011*

- Water scarcity is increasing in urban areas due to rapid rural to urban migration which is increasing the demand
- 72% of population in Kenya obtain water from springs and streams. (KNBS, 2009)
- Climate change will make these sources less reliable and lead to decline in terms of quantity and quality.
- It is also a recipe for conflict due to commercialization of this essential commodity.
- Waterborne diseases associated with poor water governance and inadequate access– Cholera, Dysentery , Typhoid etc



*Source: Kenya Red Cross, 2010*

# KENYA'S INSTITUTIONAL STRUCTURE UNDER THE WATER ACT 2002



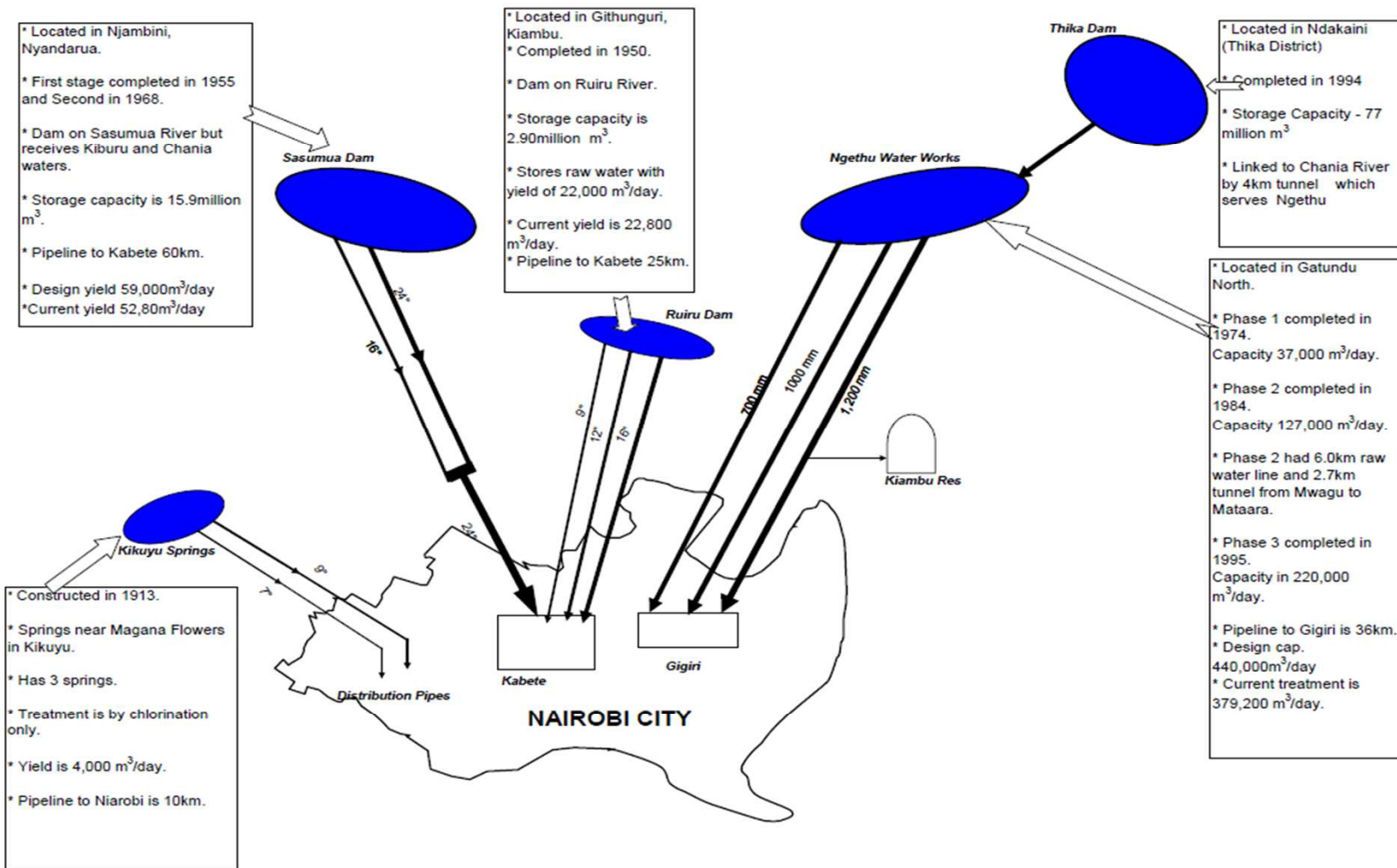
Source: MWI, 2005

# WATER ACTORS IN HURUMA

- Nairobi Water and Sewerage Company
- Community Based Organizations
- Non- Governmental Organizations
- Private Water Vendors

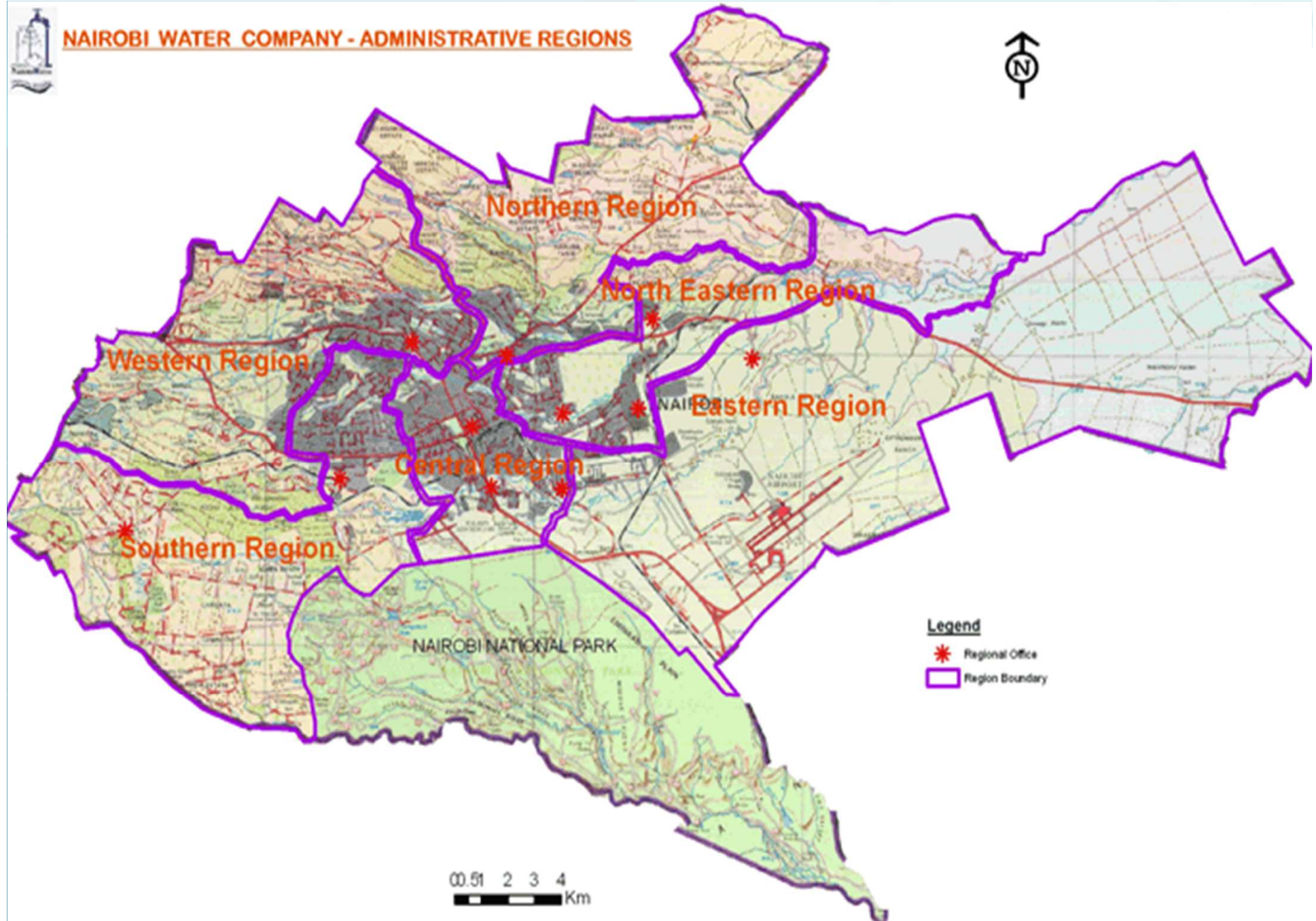


## WATER SOURCES FOR NAIROBI CITY WATER AND SEWERAGE COMPANY





# NAIROBI WATER COMPANY - ADMINISTRATIVE REGIONS



### Legend

- Regional Office
- Region Boundary

0 0.5 1 2 3 4  
Km

Source: NWSC, 2011

# WATER SITUATION IN HURUMA

- The Nairobi Water and Sewerage Company has an office in the area but has not adequately water.
- They do not provide sufficient water to the people and the few residents with access to piped water are forced to go without this commodity for as long as six months.
- Previous efforts such as water *kiosks* have been constructed yet most of them have been reduced to idle structures due to lack of water

# INTERVENTIONS IN HURUMA

- The community members mobilized themselves and made an illegal connection from the main pipe which supplies the Kenya Air force base nearby.
- The community appointed two youth groups to guard and manage the water connection.
- This has attracted other interested parties such as the local chief and administration police regularly collect protection money.
- Civil Society Organizations are also empowering communities through advocacy and setting up water points as sustainable approaches in filling this gap.

# CHALLENGES IN HURUMA

- Poor infrastructure
- Inadequate funding for community water projects
- Poor dissemination of climate change information
- Lack of collaboration among stakeholders
- Inadequate capacity building and empowerment of communities to sustain projects

- Water tank stand constructed by a youth group in Huruma.
- Lack of funds has hampered the purchase of a water tank



*Source: Author, 2011*

- Stalled water and sanitation project in Huruma due to lack of water



*Source: Author, 2011*

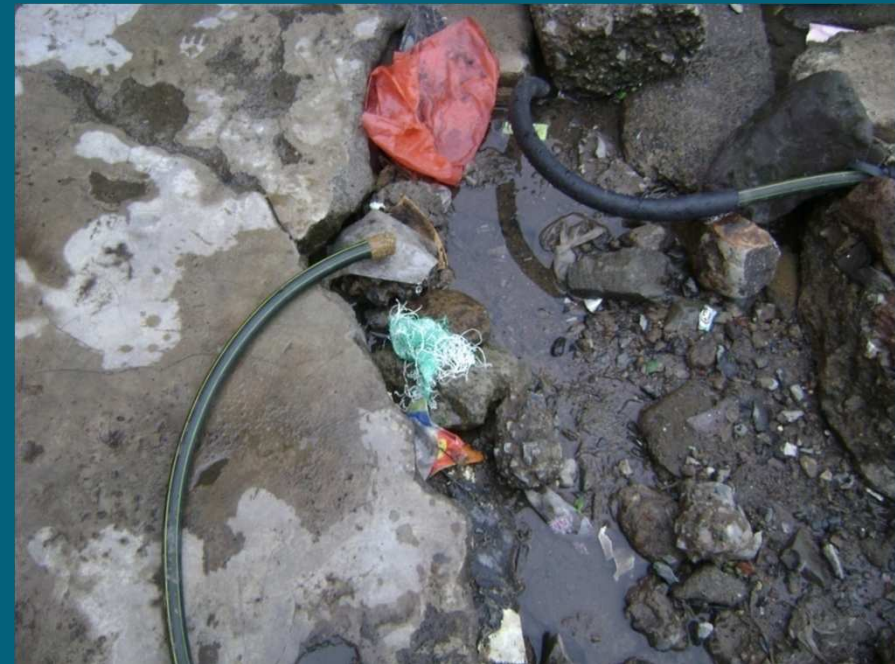
- Poor development of water infrastructure in Huruma.
- The result is that water pipes are exposed to open waste and drainage channels



*Source: Author, 2011*



- Poor drainage facilities, access paths and lack of basic water infrastructure.
- Leakages due to ‘illegal’ water connections leads to excessive loss of water .



*Source: Author, 2011*

- Poor storm water drainage in the area has resulted in stagnant water where people dispose of all waste including raw sewage .



*Source: Author, 2011*

- Inadequate capacity building has led stalled projects such as this rabbit keeping and sack gardening project.
- The youth have limited knowledge and finances to sustain these projects.



*Source: Author, 2011*

## SUCCESS STORY OF WATER PROVISION IN HURUMA

- The NWSC has constructed a few water points in the area.



*Source: NWSC, 2009*

- Communal water points run by Youth groups and Civil Society Organizations are reducing distances to safe water points and costs.



*Source: Author, 2011*

- Youth groups are diversifying their activities beyond provision of water.
- Provide sanitation services as well as leasing their space for conferences and entertainment .
- Linking adaptation strategies with livelihoods



*Source: Author, 2011*

- NGO's and donor agencies are providing the Youth groups and CBO's with necessary tools and equipment for garbage collection.
- These are creating employment opportunities while maintaining environmental cleanliness



*Source: Author, 2011*

# THE WAY FORWARD

- Wider dissemination of information of anticipated water shortages to the communities.
- Enhance the capacity of communities to cope with water uncertainties e.g. Provision of water storage facilities.
- Provide infrastructure services such as access roads and storm water drainage facilities



- Empower communities to be better water managers e.g training and financing.
- Local coping strategies and need to be used in synergy with government and civil society interventions.
- Diversifying their livelihoods to cope with current and future climate stress. E.g. Shoe shining, Bicycle hire.
- Integrate and budget for climate change adaptation with water policies at national and county government levels.
- Intensify the use of appropriate technologies in water management.

- Provision of adequate meeting space for community groups.
- Facilitates enlargement of the CSO's network and improves engagement with community members.



Source: Author, 2011



THANK YOU

