Sustainable Water Resources Management in Kenya

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MAINSTREAMING SANITATION INTO PLANNING AND IMPLEMENTATION OF INTEGRATED WATERSHED MANAGEMENT MEASURES IN KENYA

Water Resources Management in Kenya

- With a per capita of water of 650 m^3/year, Kenya is classified as a water-scarce country.
- Kenya initiated the Water Sector Reforms Programme (WSRP) following the enactment of the Water Act 2002, thus, *"….to provide management, conservation, use & control of water resources; acquisition & regulation of rights; regulation & management of water supply and sewerage services*".
- Emphasis is placed on participation of stakeholders at community level in decision-making processes.
- WSRP aims at communities being owners & custodians of water management & supply

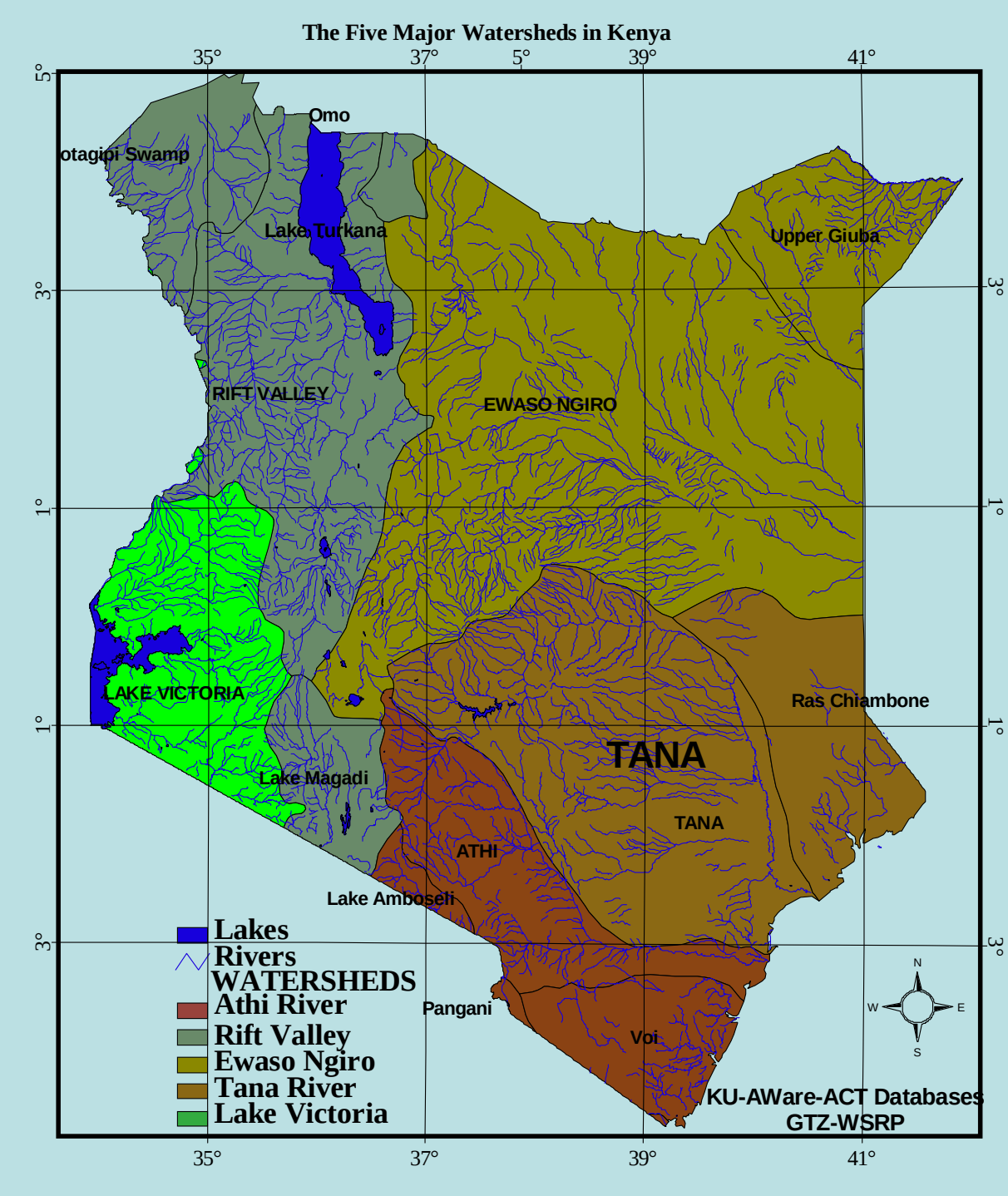
Current challenges IWRM include:

- Water scarcity
- Underdevelopment of available water
- Climate variability
- Catchment degradation
- Poorly managed water resources assessment and monitoring
- Pollution and degradation of water resources
- Trans-boundary water resources conflicts
- HIV/AIDS and underdevelopment of water resources
- Attitudes of community towards water resources in terms of ownership and management

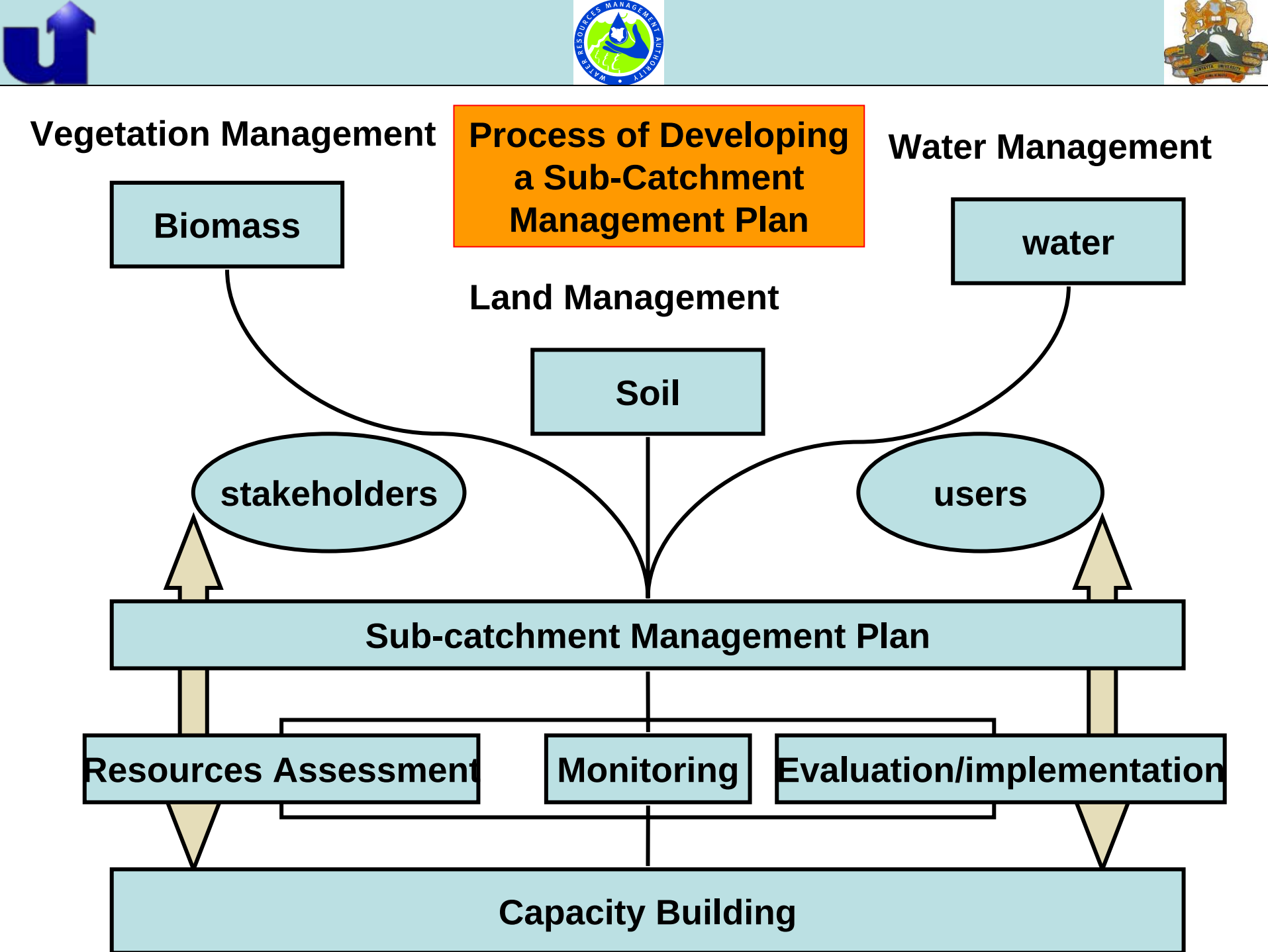
Improving water resources management in a sub-catchment

Section 15 (1) of the Water Act 2002 states thus:
"Following public consultation, the Authority shall formulate a catchment management strategy for the management, use, development, conservation, protection and control of water resources within each catchment area".

- **The magnitude of current water challenges in Kenya impact across most sectors of the economy, making WRM a high priority**
- **Catchment Management Strategy (CMS) provides an opportunity for WRM institutions and stakeholders to formulate a coherent approach & focus for WRM**
- **CMS is both a process & a framework for management, binding the Water Authority, the Water Users, other stakeholders & their representative structures in a social and/or legal union for sustainable & IWRM**
- **The Water Resource Users Associations (WRUAs) are part & parcel of the process of formulating & implementing Sub-Catchment Management Plan (SCMP) under guidance of WRMA**



The Five major management Basins in Kenya


Vegetation Management
Process of Developing a Sub-Catchment Management Plan
Water Management
Biomass
water
Land Management
Soil
stakeholders
users
Sub-catchment Management Plan
Resources Assessment
Monitoring
Evaluation/implementation
Capacity Building

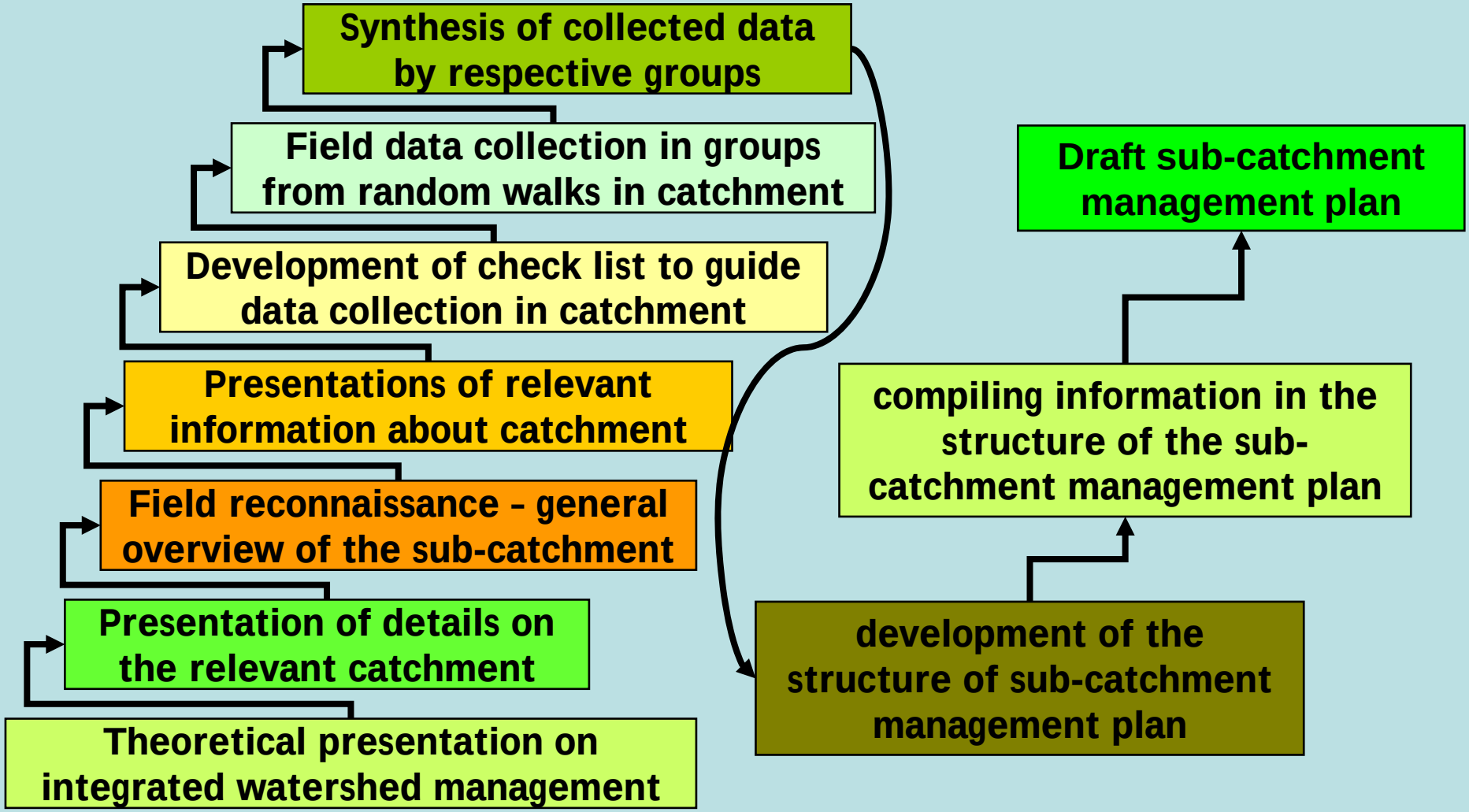
Establishment of a Water Resources User Association

Identification of water related conflict by WRMA & stakeholders (Hotspots)	- Conflict in water use -Conflict in water abstraction -Conflict in resources management -Conflict between upstream and downstream communities
Introductory Workshop	- Consensus building -Identification of all stakeholders -Modalities for operations -Information on water management -Facilitate formation of WRUA
Stakeholder Workshop	-Information on water resources management, reforms, rules and regulations -Setting up management structure -Elections
Capacity Building of WRUA Officials by WRMA	-Group dynamics – roles of officials Corporate governance Operation of WRMA,details of reforms Challenges of sub-catchment
Catchment Transect Walk	-Knowing the catchment detail -Preliminary abstraction survey -Prioritize problems in catchment -Plan how to address problems
Developing a SCMP by stakeholders	-Detailed sub-catchment managment plan -Implementation of SCMP

Section 15 (5) of the Water Act 2002

"…….*the catchment management strategy shall encourage and facilitate the establishment and operation of water resources users associations (WRUAs) as fora for conflict resolution and co-operative management of water resources in catchment areas*'

Developing of a participatory catchment management plan



"When stakeholders are involved and their capacity is built, they can manage the water resources better."

Problem Identified

The following are some of the water management related problems:

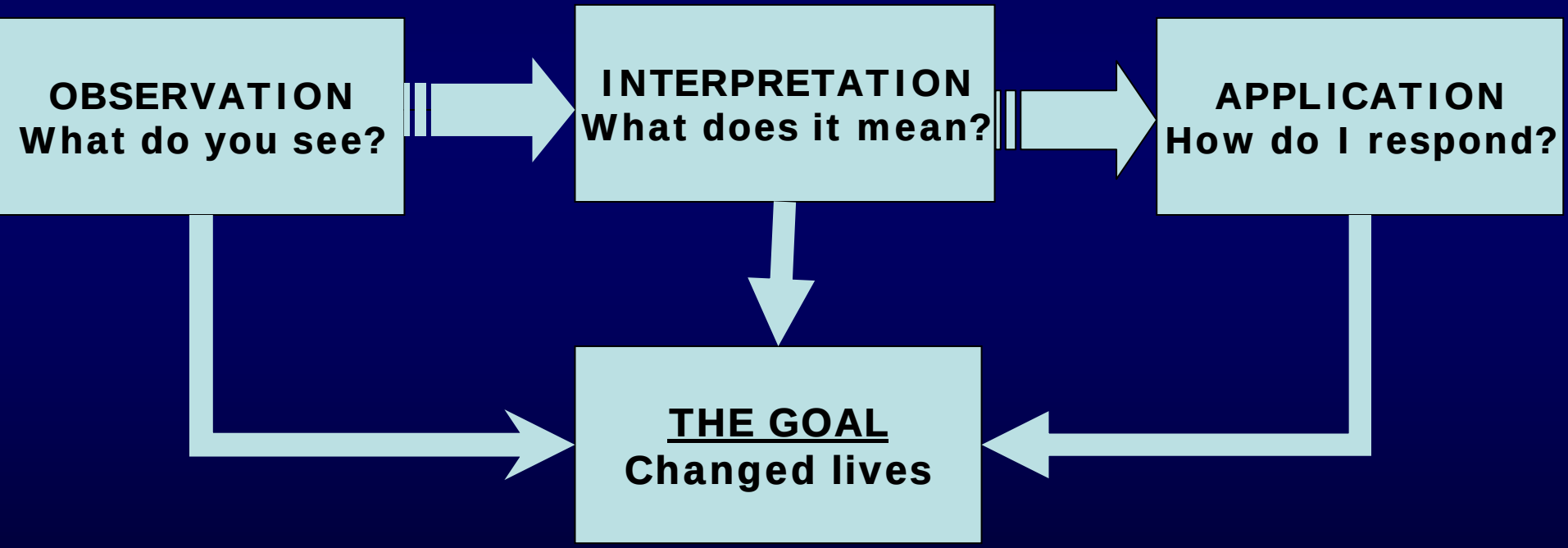
1. Water pollution from washing, bathing and watering of animals directly in the river
2. Pollution of water from point sources (abattoirs, toilets, market centres etc.)
3. Inappropriate solid waste disposal in market centres
4. Illegal water abstraction and over-abstraction of water
5. Inefficient irrigation practices
6. Encroachment on and drainage of wetlands/Inappropriate use of agro-chemicals in wetlands
7. Introduction of eucalyptus species
8. Soil erosion on the farms, footpaths and roadsides
9. Lack of water resource information (water quantity, quality, rainfall, water use, sediment yield)
10. Human and wildlife conflicts
11. Flood water impacts

Knowing your watershed

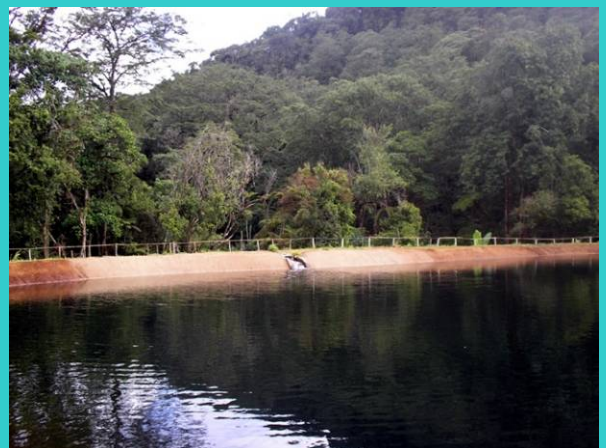
- **Understanding** watershed structure and natural processes **is crucial in grasping how human activities can degrade or improve the condition of a watershed**
- **The condition will include its water quality, its fish and wildlife, its forests and other vegetation, and the** quality of community life of people **who live there.**
- **Knowing watershed structural and functional characteristics and how people can affect them sets the stage for effective** watershed management**.**

Developing a participatory catchment management plan

Components of Inductive WRM



OBSERVATION
What do you see?

Resource		Use of resources
	Agriculture Land =	 Crop production
	Wetlands =	 Water supply
	Forest =	 Catchment for rivers, wood supply

Challenges in the Nzoia catchment

OBSERVATION
What do you see?

Slope failure due to clearing of slopes for cultivation

Discharge into Nzoia River from Pan-paper mills

encroachment into wetlands and challenge from floods

Challenge from Water hyacinth

Internal displacement From flooding

Furrow Abstraction

Piped abstraction

inappropriate utilisation of springs

Water scarcity & conflict over water

Steep Slope cultivation

Chemical application

INTERPRETATION
What does it mean?

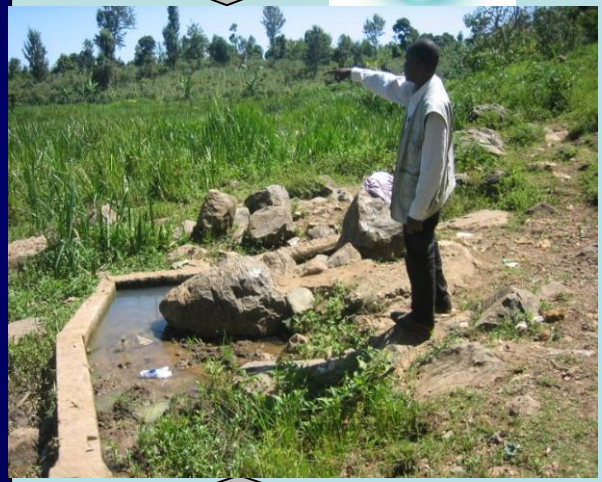
Resource Use Conflicts in Bwathonaro catchment

Road side erosion

Adverse Social Impacts

APPLICATION
How to Respond?

DIAGNOSIS ⟷ PRESCRIPTION ⟷ TREATMENT



REHABILITATE

MAINTAIN

PROBLEM IDENTIFICATION ⟷ THE PLAN ⟷ MANAGEMENT

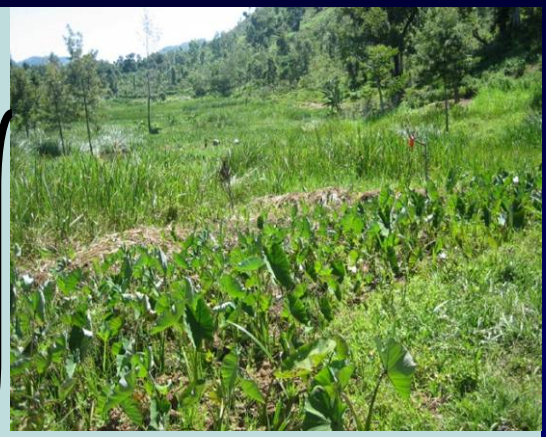
Untangling WRM Problem: Examples from Bwathonaro sub-catchment

Reclaiming Athindi wetland

Conflict over water in Athindi wetland The situation before intervention

Managing Athindi wetland The situation after intervention

"We as a community have decided to manage our own water resources through BWARUA. No outsider will do this for us. For the very first time the Government is now consulting with us on how best to manage our water resources!"



Protecting & rehabilitating wetlands & spring water sources

BWARUA is making concerted efforts to acquire title deeds and fence off all spring water sources in the sub-catchment.

Some spring water sources are in farms belonging to individual farmers with title-deed holding. The owners of the farms are oblivious to Agricultural Act & Water Act requirements of 12 m & 30 m buffer

BWARUA is sensitive to policy & the political power within the local authority and is creating awareness

"In my lifetime, I had never known that water could lead to death! It is time we protected and shared the little water we have without slaughtering each other!"

CONTROLLING AND MANAGING SOURCES OF POLLUTION

BWARUA has minimized pollution. Direct bathing and washing of cloths in River has been banned.

Owners of pit latrines and abattoirs, have been convinced to relocate the toilets and they have moved them at least 12m away from River bank.

BWARUA has purchased two water tanks and constructed a shed where farmers wash kales (*Sukuma wiki)* vegetables

Legalizing and enforcing rules & regulations of water abstraction

Members of BWARUA are increasingly applying for water abstraction permits within the sub-catchment

BWARUA still needs technical backstopping & continued awareness creation on efficient irrigation techniques.

There are efforts to sensitize farmers, particularly khat (*miraa)* growers on the need to use more efficient systems of irrigation.

"Basically the diversion lead to loss of water underground and no water is left for down stream users. At least since the formation of BWARUA the river flows during the dry season "

SOIL/WATER CONSERVATION AND PLANTING TREES

Slow pace of adoption of terracing is attributed to lack of necessary skills.

Soil erosion is a serious problem in the sub-catchment because of the nature of steep topography and poor farming methods.

"Choma hiyo mti ili ikufe pole pole, halafu tupate shamba ya kulima" (Burn the trees so that they die slowly, then we get land to cultivate).

Most farmers in Bwathonaro sub-catchment are now planting water friendly indigenous trees such as *mwenjera, mutuati, muuru and muangua*.

Strengths, Weaknesses, Opportunities and Threats of BWARUA

INTERNAL FACTORS / EXTERNAL FACTORS	STRENGTHS (S)	WEAKNESSES (W)
	S1. Integrated/wide range of interventions S2. Focus on equitable access by the community to clean water, protection of water intake points, environmental conservation and repossession of wetlands S3. Focus on institutional development S4: Strong gender integration S5: Goodwill from the local community S6: Support from WRMA S7: Support from the Local Administration S8: Support from the Ministry of Water and Irrigation	W1. Weak capacity W2. Lack of commitment among some of the BWARUA members W3. Lack of adequate baseline data W4. Lack of know-how in proposal writing W5. Fewer active field staff in the face of expanding activities
OPPORTUNITIES (O) O1. Strong partnerships and networks O2. Growing interest by donors, sponsors and researchers in Integrated Watershed Management O3. On-going government water sector reforms O4. Increasing water scarcity	POSSIBLE STRATEGIES OF INTERVENTION Maximise strengths and opportunities. For example, utilise the strong partnerships and networks to secure funding to take further a field one or more activities of integrated watershed management	POSSIBLE STRATEGIES OF INTERVENTION Minimise weaknesses and maximise opportunities. For example, enhance the gender voice in project formulation and implementation to attract gender oriented donors
THREATS (T) T1. Lack of technical know-how in water management T2. Some degree of resistance from the community T3. Worrying community poverty T4. Weak financial base T5. High community illiteracy rates T6. Long standing conservation traditions on land ownership, water and poor farming practices	POSSIBLE STRATEGIES OF INTERVENTION - Maximise strength and minimise threats. For example, enhance and improve the income generating interventions to reduce the inadequacy in implementing set activities - Upscale capacity building - Awareness raising on - Create stable revenue base for the BWARUA - Promote conservation of wetlands, riparian reserves and hillslopesS6. Promote sustainable water demand management	POSSIBLE STRATEGIES OF INTERVENTION Minimise weaknesses and threats. There is need for BWARUA to strategically and effectively handle all the weaknesses and threats highlighted in this table. This would contribute to building of donor confidence and exploiting further the opportunities and strength that exist

ROLE OF INFORMATION IN WRM

- **Environmental resource management should use information to reconcile competing interests**
  - ✓**Requires environmental policy co-ordination**
  - ✓**Requires support for development decision-making (i.e. policy implementation)**
  - ✓**Requires Assessment and Monitoring**

Water Resource Users Associations + *Capacity Building & Sound Information* = *Improved Policy Coordination & **Implementation*** + *Better Water Resources management*

Way Forward

- Capacity building of in all issues relating to integrated watershed management.
- Awareness creation among communities to change attitudes towards ownership and management of water resources.
- Sustainability of WRUAs as entities
- Establishment of demonstration sites for best practices.
- Harmony and synchronization of activities among WRMA, WRUAs and other stakeholders.
- Monitoring of sub-catchment dynamics
- Involving the schools and children
- Data collection and management within the catchments

Conclusion

1. Partnership approach in management of water resources with local communities and the government sector will go a log way in enhancing the resources
2. Concerted efforts by WRUAs in implementing sub-catchment plans will ensure sustainability of resources, and provide best practices for other Water Resource Users Association
3. Replication of efforts in other catchments in the country and elsewhere