



Sediment Problems in Uganda

Case of Manafwa River Basin

by

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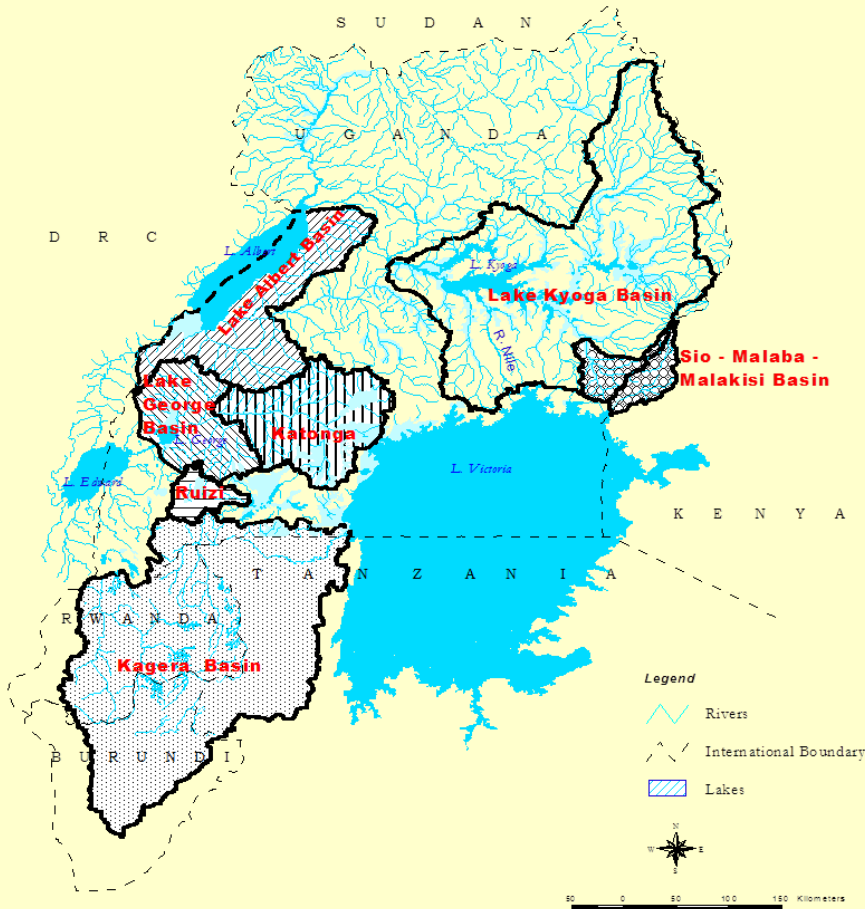
Water resources of Uganda

Renewable water resources

15% of Uganda is open water

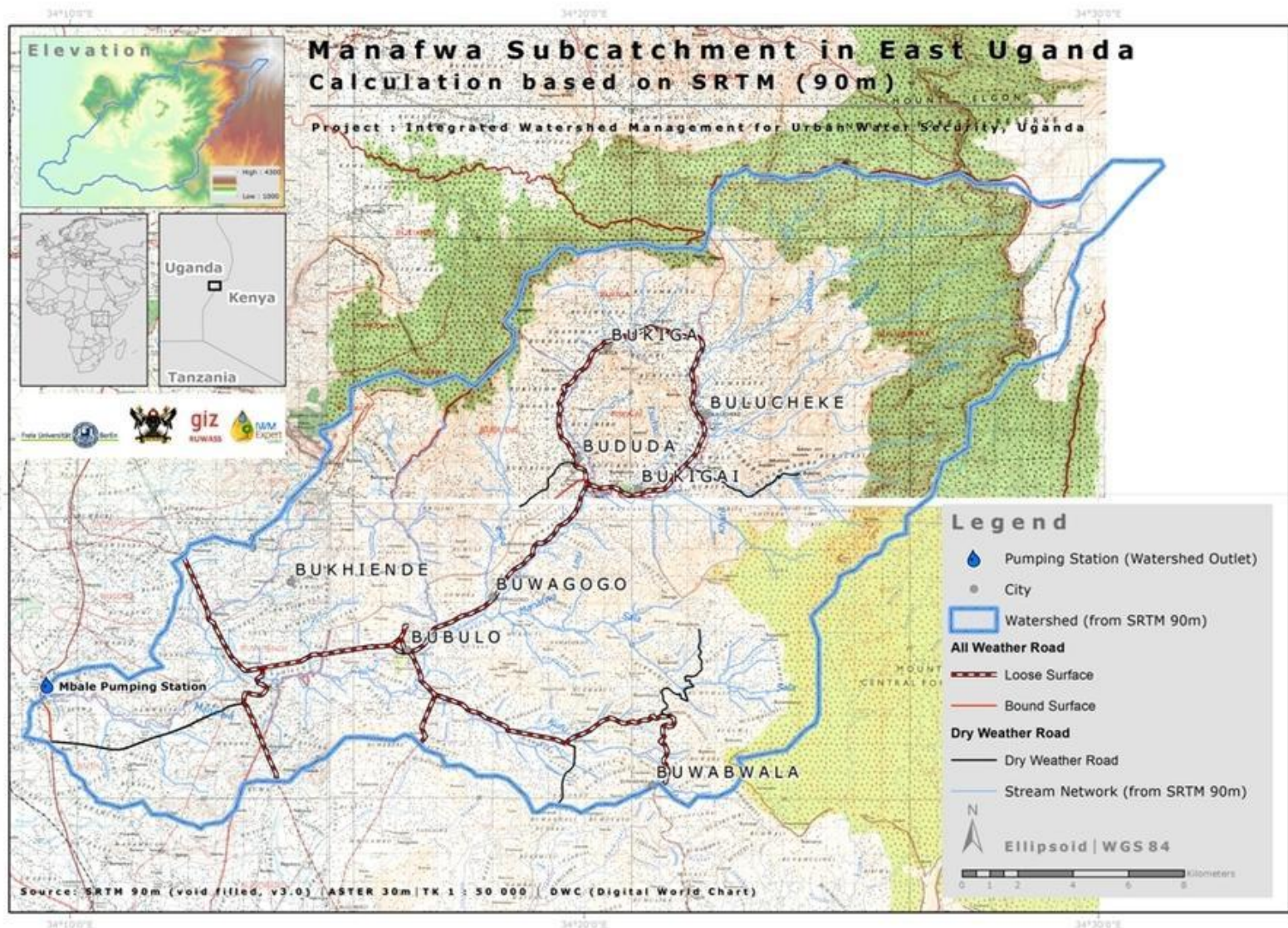
3% permanent wetlands

9.4% seasonal wetlands



- Total renewable water resources: **43Billion m³**
- **69%** dependency - Renewable Surface WR is trans-boundary (Upstream)
- **Only 31%** (13.6 billion m³/year is the internal renewable WRs)

Manafwa River Basin



Facts about Manafwa River Basin

- Total Catchment Area: 478 km² (small basin).
- Encompassing 4 Districts: Bududa, Mbale, Manafwa and Butaleja.
- Mountainous Catchment: Highest point is 3740 ma amsl; lowest point is 1152m amsl.
- Characterised by flash floods.
- Upper catchment is prone to landslides and massive soil erosion (Year 2014 – 400 people died and many home and property destroyed; Year 2018 – 45 people killed and a lot of property lost).

Causes and Sources of Sediments

- Landslides in the Upper Part of the Basin (mainly Bududa District).
- Soil erosion in other parts.
- Upper part of the watershed experiences heavy rains;
- Human activities in this erstwhile fertile areas have caused havoc (esp. land clearance for agriculture, settlements and timber production).
- Of recent, soil erosion have increased tremendously in line with increase in human populations.

Sediment Problems in the basin

- Impacts of Water works infrastructure at Mbale water Intake Works:
 - Clogging of intake pipes;
 - Poor water quality (turbidity and sediment pollution) – compromising quality of potable water and increase in treatment costs.
- Impacts on livelihoods – flooding that results as a result of sediments filling river and stream channels.
- Impacts on Agriculture infrastructure:
 - Doho Rice scheme – canal systems clogged by sediments - irrigation system cannot work properly and hence additional costs for maintenance of the systems.

Sediment Problems



Sediment Problems in the basin - Ctd

- Impacts on road infrastructure (bridges, culverts, water channels). These are affected this making their lifespans short and overburdening the economy.
 - Road and Bridges - example of River Manafwa Brige;
- Damage to the environment and natural resources
 - Manafwa wetland no longer provided natural functions.
 - Land in flat areas downstream (Butaleja) filled with coarse sediment and it cannot be used for agriculture;
 - Sediment accumulation in Lake Kyoga

Sediment Problems



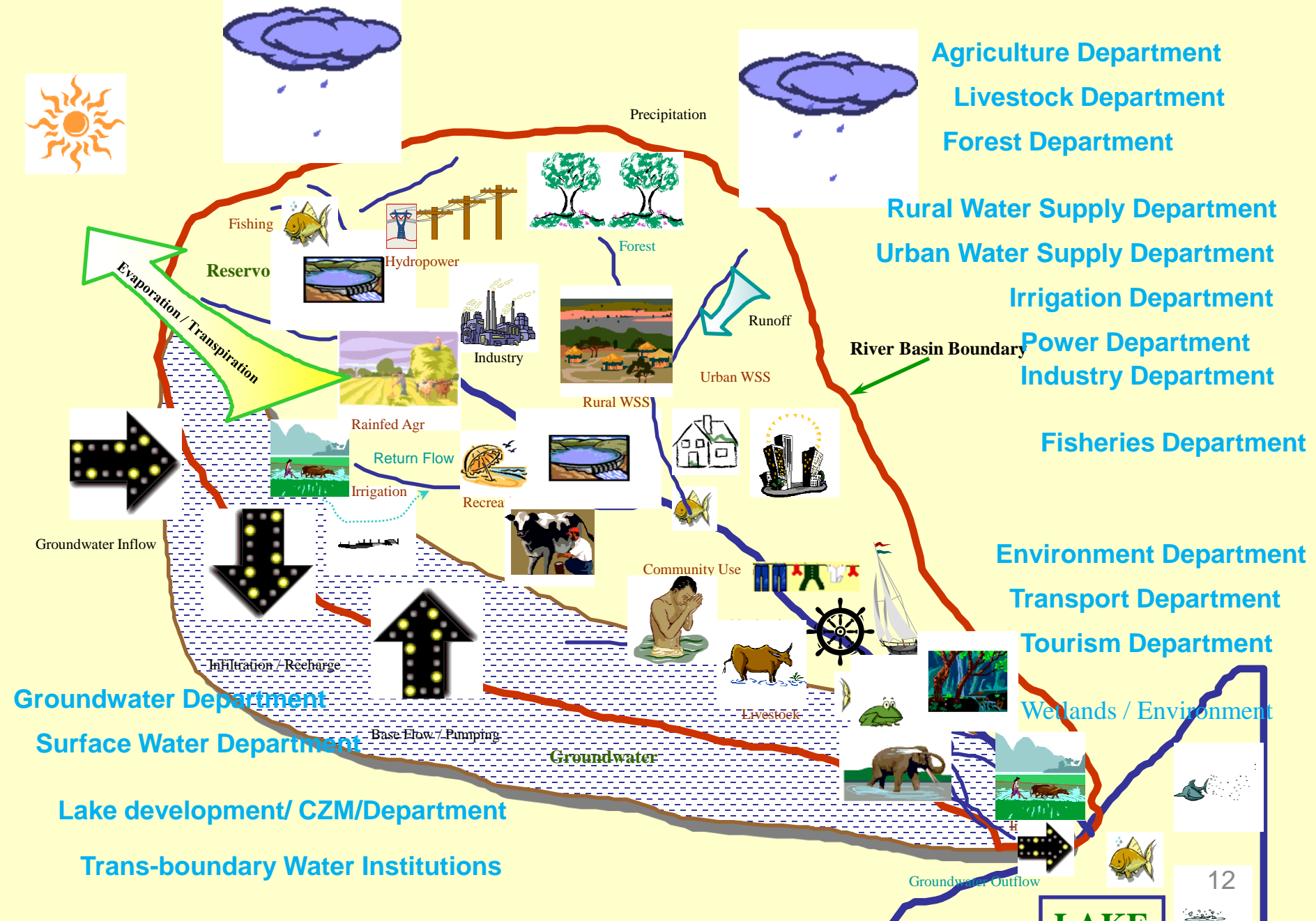
Sediment Problems



Catchment Based IWRM

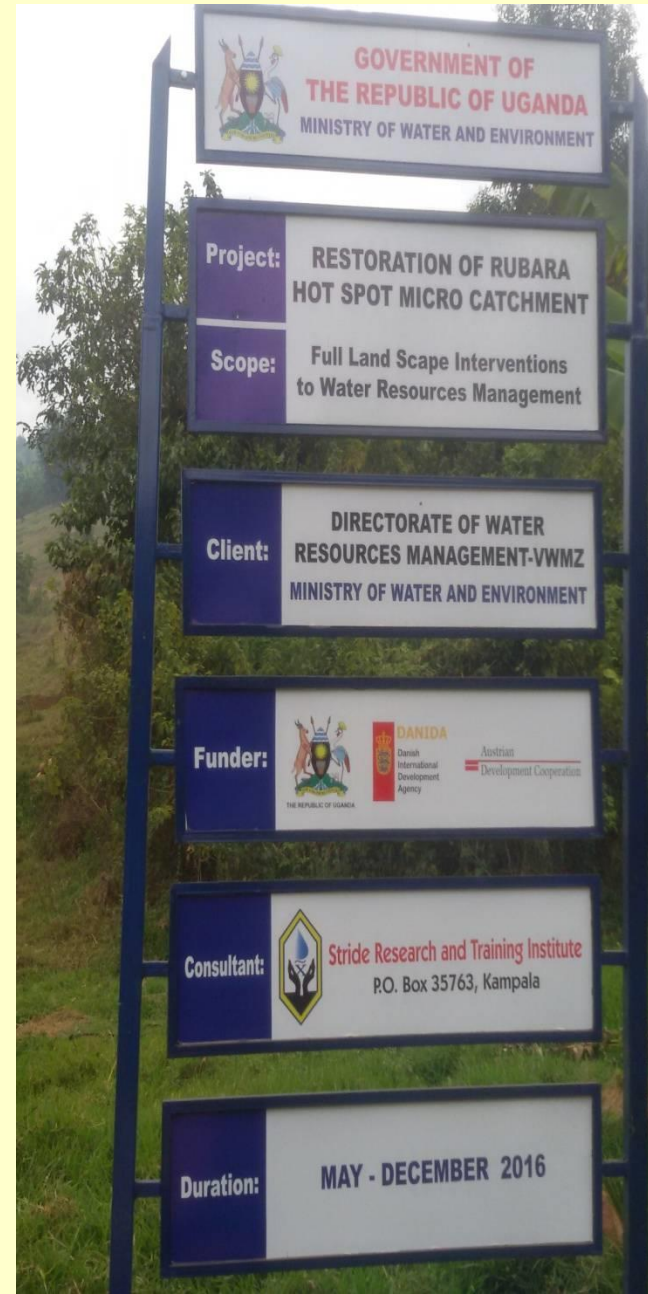
- In order to address issues in river basins, Uganda has adopted CbWRM; sediment problems will be addressed in the process;
- In CbWRM
 - All stakeholders are involved.
 - Issues and challenges are identified;
 - Solutions are devised;
 - Action plan are worked on and resources planned for.
 - Implementation is done once resources are secured.
- Catchment Management Planning.

STAKEHOLDER DRIVEN CATCHMENT BASED PLANNING

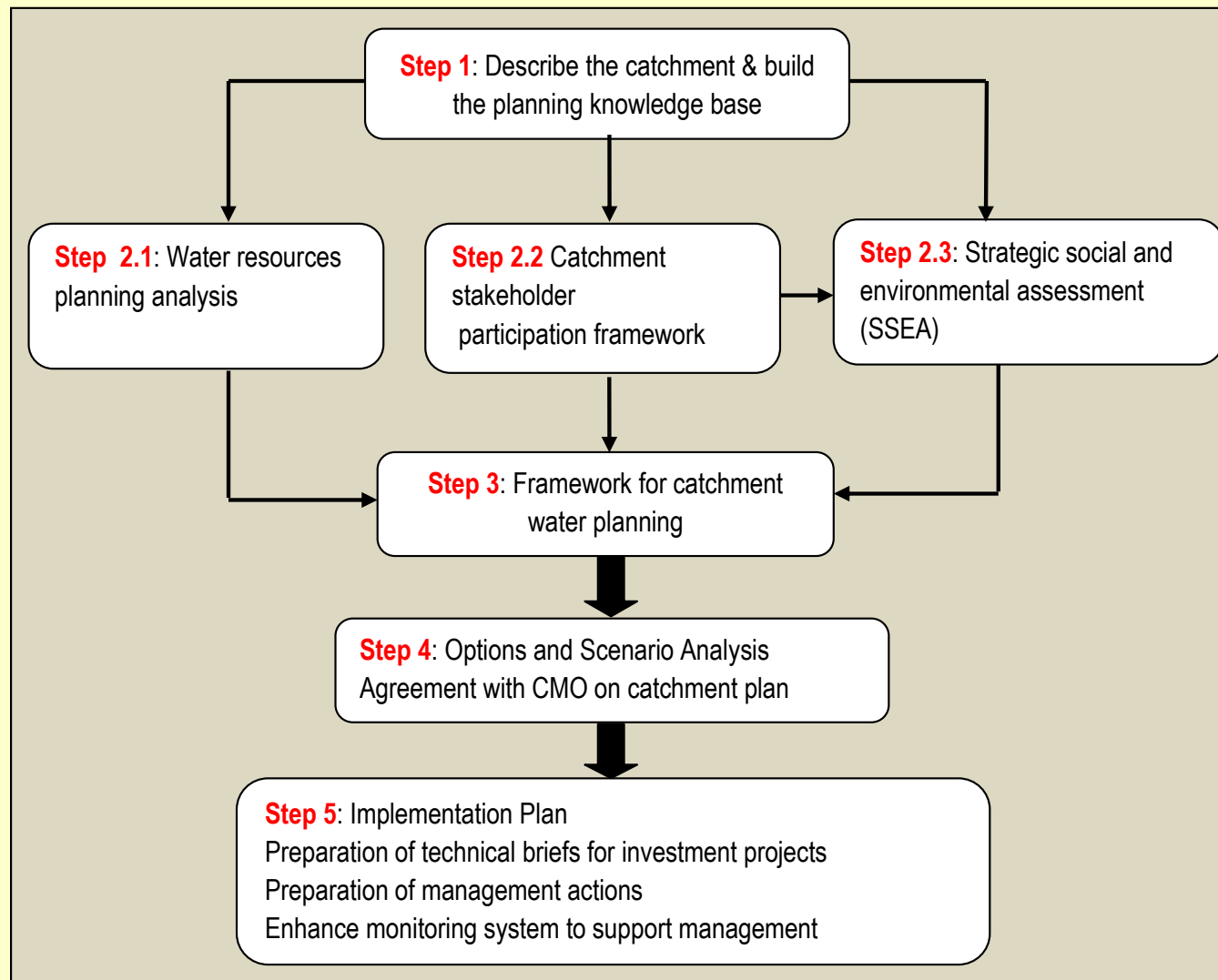


Catchment Management Plans as a Framework

- CMPs provide framework for implementing water resources related interventions in a catchment
- Provide an opportunity to stakeholders to have coordinated planning and implementation of water and related interventions in a catchment
- Various stakeholder can pick components of the CMP that are in line with their objectives and mandates and develop them into implementable action plans.
- CMPs address a lot of issues that stakeholders in catchment initially have to deal with albeit, in isolation - **roles of stakeholders, hotspot areas, scalability and sustainability of the projects are already tackled at the CMP development stage.**



Promoting catchment management planning- use of guidelines



Preparation of a Catchment Plan

Shared decision making supported by facts and sound analysis

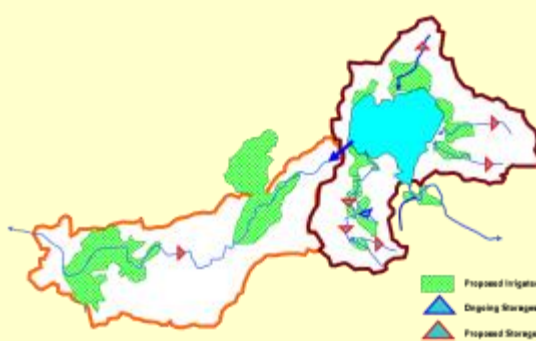
Decisions→



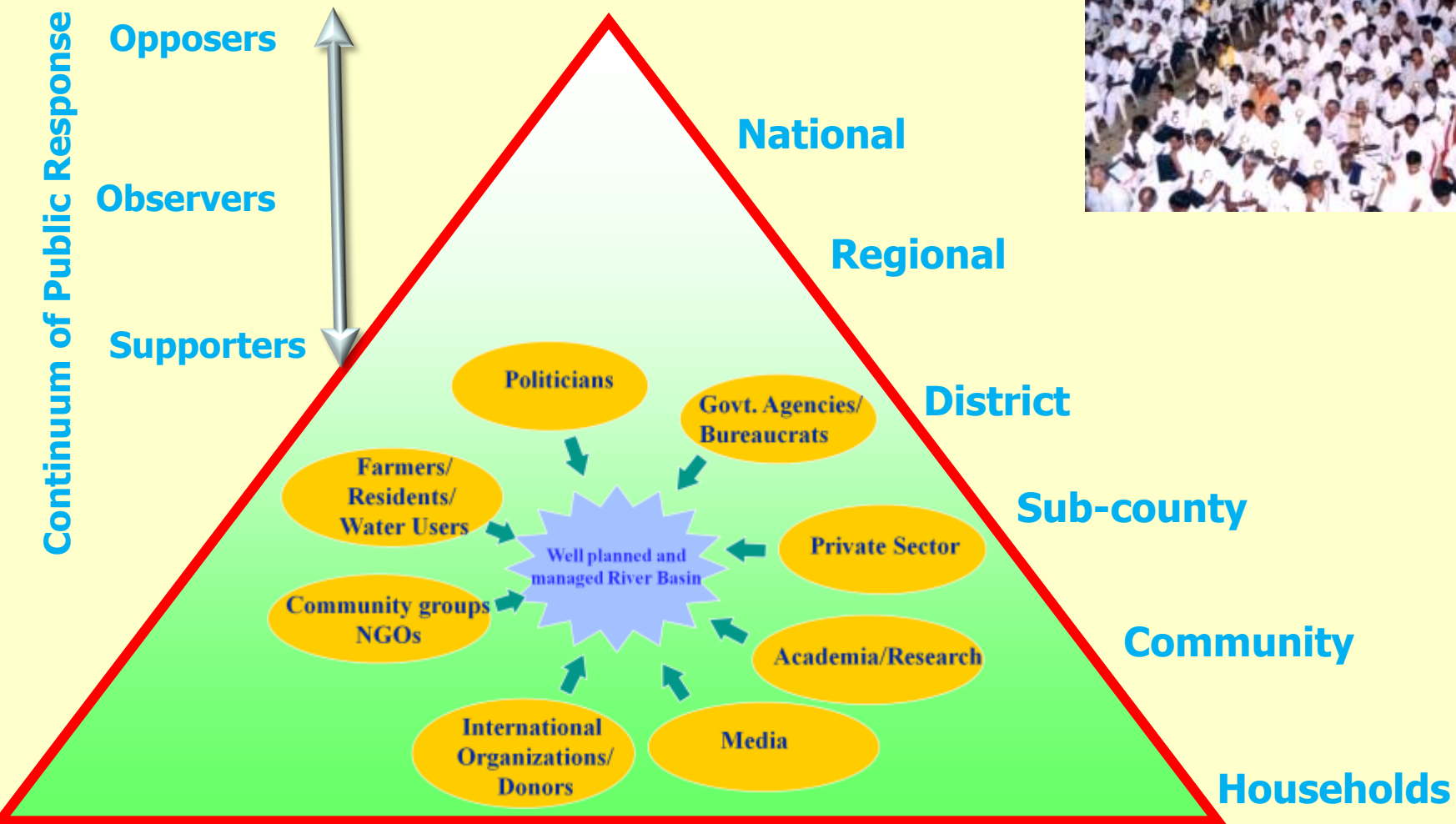
Participation
 Consultation→



Analysis→



CATCHMENT STAKEHOLDERS ARE MANY...



Catchments where catchment planning is ongoing



Status of implementation of CMPs

WMZ	Catchments with CMPs	Status of implementation of the CMP
Albert	Mpanga	DANIDA, ADC/A, AfDB- LEAF project
	Semliki	AfDB- LEAF project, World Bank-Funding being sourced under WMDP II
	Ruhenzamyenda	No funding identified yet
	Albert	AfDB- LEAF project, Total E&P Pty, GIZ (Sambye_Buliisa)
	Kiiha	Implementation ongoing under a PPP (MWE, KSL, Eco Trust, GIZ)
Kyoga	Awoja	Under implementation through (WMDP-World Bank; EURECCCA-Adaptation Fund)
	Mpologoma	World Bank- Funding being sourced under WMDP II
	Victoria Nile	No funding identified yet
	Lokere	Enhancing Resilience through Improved WFP capacities in Karamoja (GIZ; EU –DINU) Under development
	Lokok	
Upper Nile	Aswa	DANIDA, ADC/A, World Bank-WMDP, AfDB-Nyimur/Limur- NBI. World Bank-Funding being sourced under WMDP II
	Albert Nile	DANIDA- Improved Climate change Resilience through IWRM, Refugee and refugee host communities , World Bank- Funding being sourced under WMDP II
Victoria	Rwizi	DANIDA, ADC/A, Coca Cola, GIZ
	Maziba	EURECCCA-Adaptation Fund) 18
	Katonga	World Bank- Funding being sourced under LVEMP III

EXAMPLES

Examples of possible investments in catchments

Soil conservation & Agroforestry in Mpaga



Catchment/ water source protection in Rwizi Catchment



Selected Interventions In Sub-catchment Maziba



Demarcation of Rwizi river bank protection zone in Mbarara



Improved schools and households Food security

- Promoting Kitchen gardens in schools and households



Promoting incentives for conservation

Promoting

- **planting of high yielding mangoes** in the buffer zones(wetlands and river banks) esp. at landing sites
- Introducing mud fish in wetlands



Planting trees

Promoting tree planting

- In schools
- Along river banks
- Eroded areas
- Through establishment of community tree nursery beds



Challenges

- Limited awareness of importance of water resources management
- Limited prioritization of WRM by government
- Limited funding for WRM
- Inadequate capacity for WRM (espec. at local level)
- Limited coordination and collaboration among stakeholders (sectoral approaches)
- Inadequate integrated planning and development
- Rampant environmental degradation
- Change of people's mindset and attitude

Conclusions and future prospects

- ▶ CbWRM can address most of sediment problems in Uganda
- ▶ Substantial amount of funding is needed to implement catchment based IWRM.
- ▶ Involving stakeholders in catchments planning is the way to go.
- ▶ Other methods can be tried, but in Uganda's case, CbWRM seems to be succeeding.