



Integrated Water Resource Management in Refugee Hosting Catchments

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Water in Uganda – an introduction

- Water is life and safe and drinking water a fundamental human right
- Access to safe water- **66%** (rural) and **72%** (urban)
- Water contributes directly to socio- economic dev't
- Water essential for: **energy production, irrigation, livestock, fishing, mining, wildlife, industries, aquaculture, maintaining the environment etc.**
- Economic and social development increasingly related to water

Four water uses

- **Water for People**
 - Water supply and wastewater treatment and disposal
- **Water for Food**
 - Irrigation, livestock watering, post-harvest processing
- **Water for Nature**
 - Quality, quantity and distribution for healthy ecosystems
- **Water for Other Uses**
 - Energy, navigation, fisheries, drainage and flood management, industry



Water resources challenges

- Rapid population growth – 3.4%/a
- Increased demands for HEP, agricultural production, domestic water supply, industry etc
- Degradation of water resources due to urbanization, industrialization, poor land use practices etc
- **Problems:** water shortages, water quality deterioration, floods and drought etc

Water does not follow administrative boundaries: Establishment of Water Management Zones

Albert Water Management Zone (AWMZ) : Fort Portal

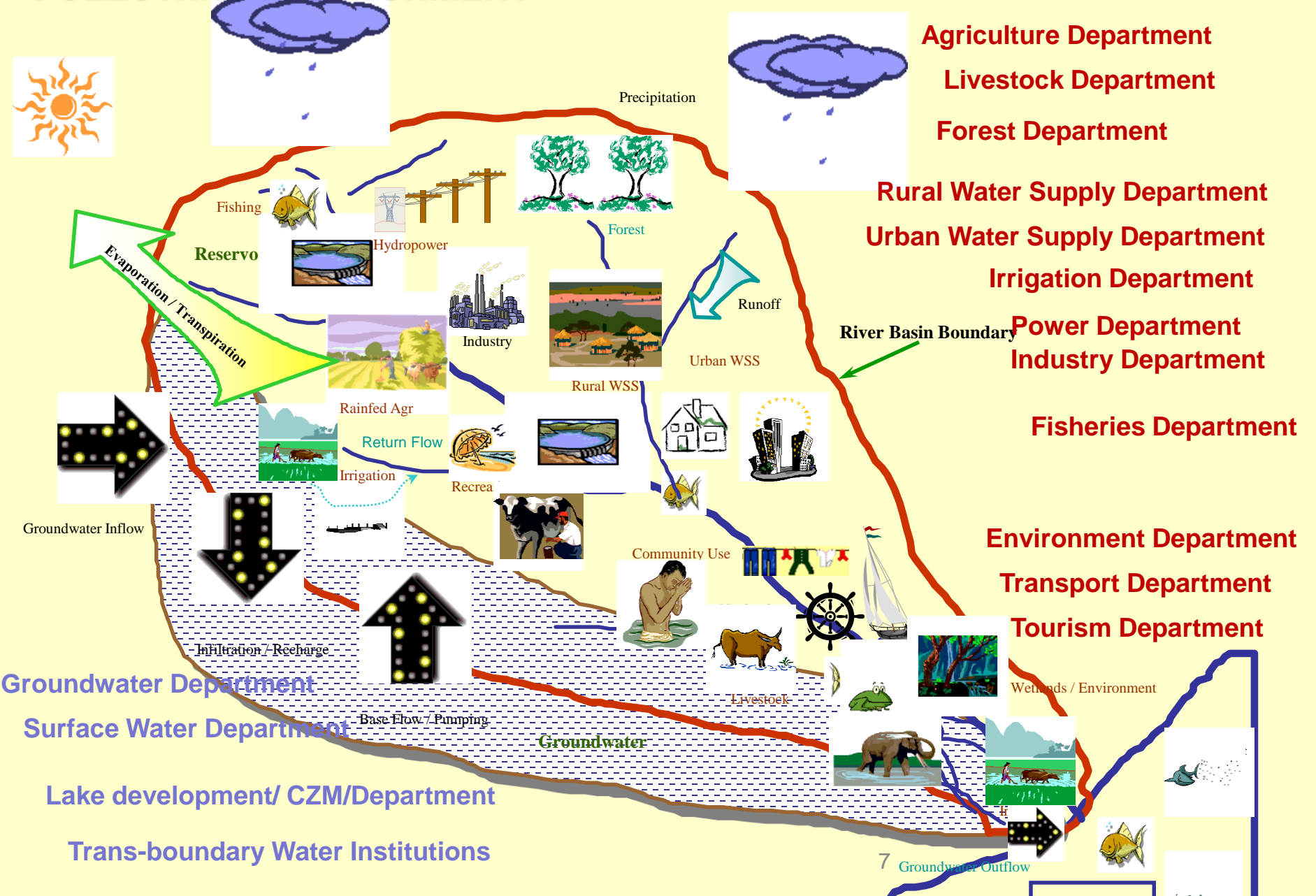
Kyoga Water Management Zone (KWMZ) : Mbale

Upper Nile Water Management Zone (UNWMZ) : Lira

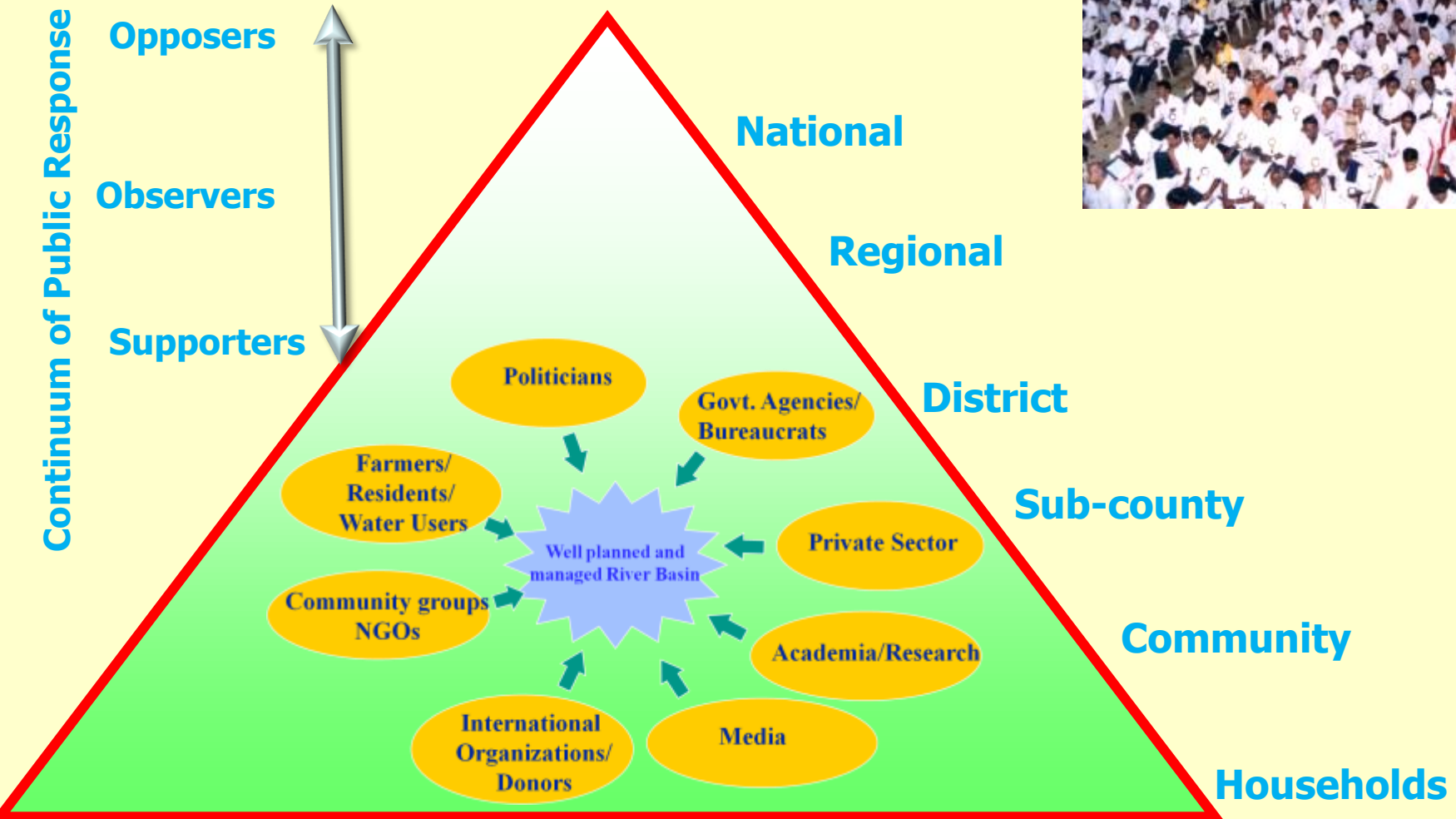
Victoria Water Management Zone (VWMZ) : Mbarara



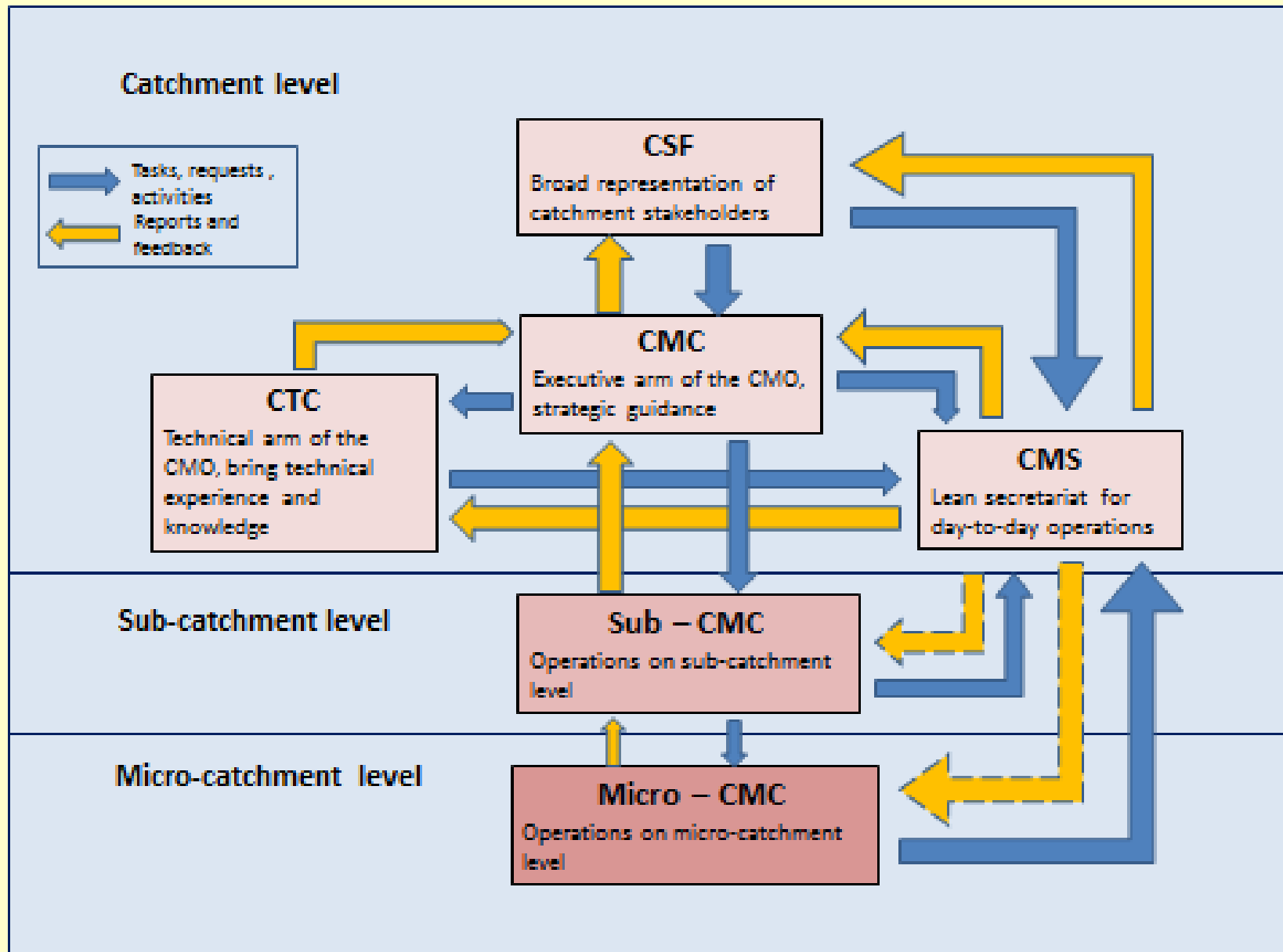
NEED TO PLAN FOR USE AND MANAGEMENT OF WATER RESOURCES FOLLOWING A CATCHMENT



WATER RESOURCES STAKEHOLDERS ARE MANY...



Catchment Management Organisations



Need for a Catchment Management Plan

Shared decision making supported by facts and sound analysis

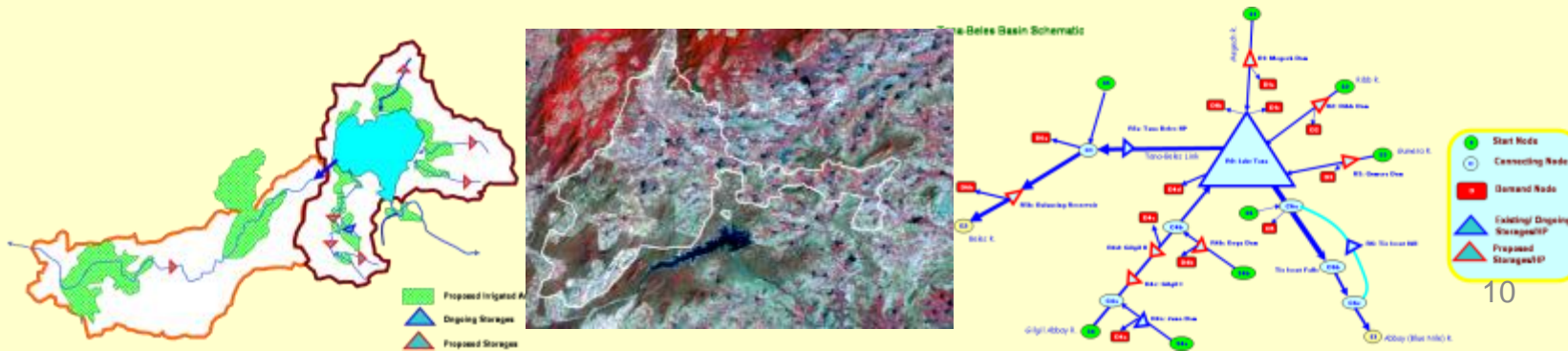
Decisions →



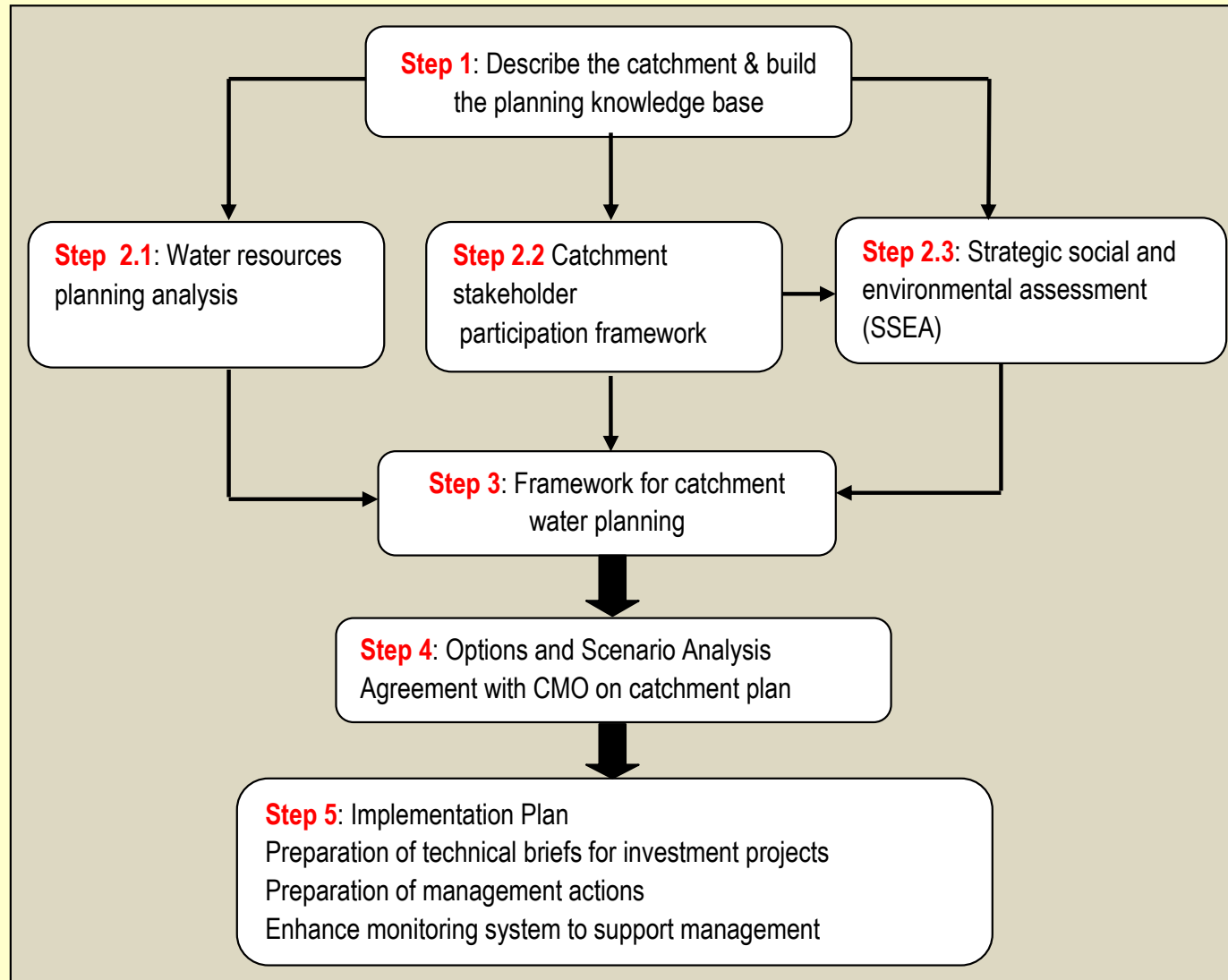
Participation
 Consultation →



Analysis →



Catchment Management Planning Guidelines



WATER SOURCE PROTECTION GUIDELINES

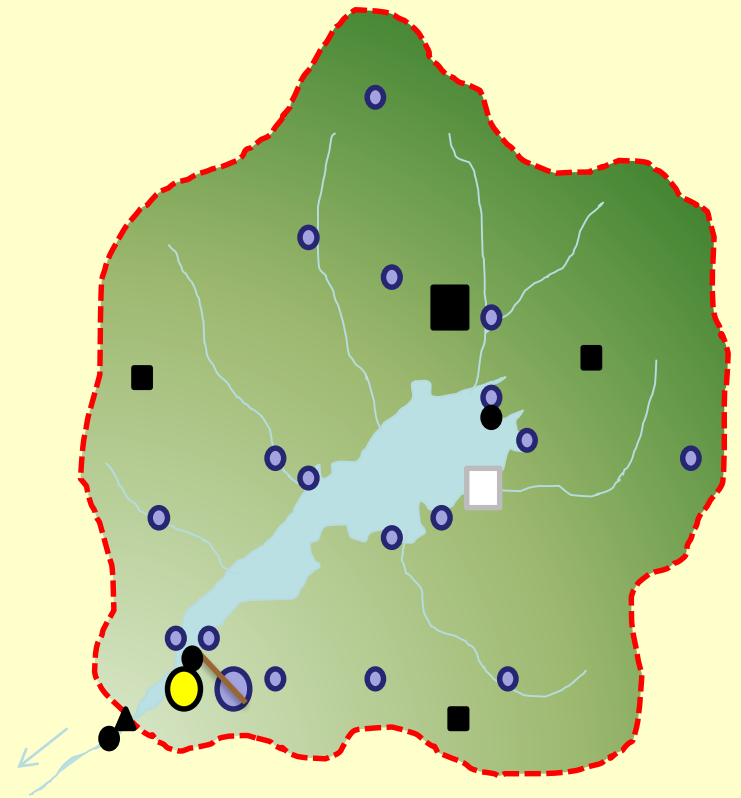
Vol.1: Framework for Water Source Protection

Vol.2: Guidelines for Protecting Piped Water Sources

Vol.3: Guidelines for Protecting Point Water Sources

Vol.4: Guidelines for Protecting Multipurpose Reservoirs

Vol.5: Guidelines for Protecting Hydro-electric Plants



Guidelines provide for 3% contribution for water source protection by water infrastructure projects 12

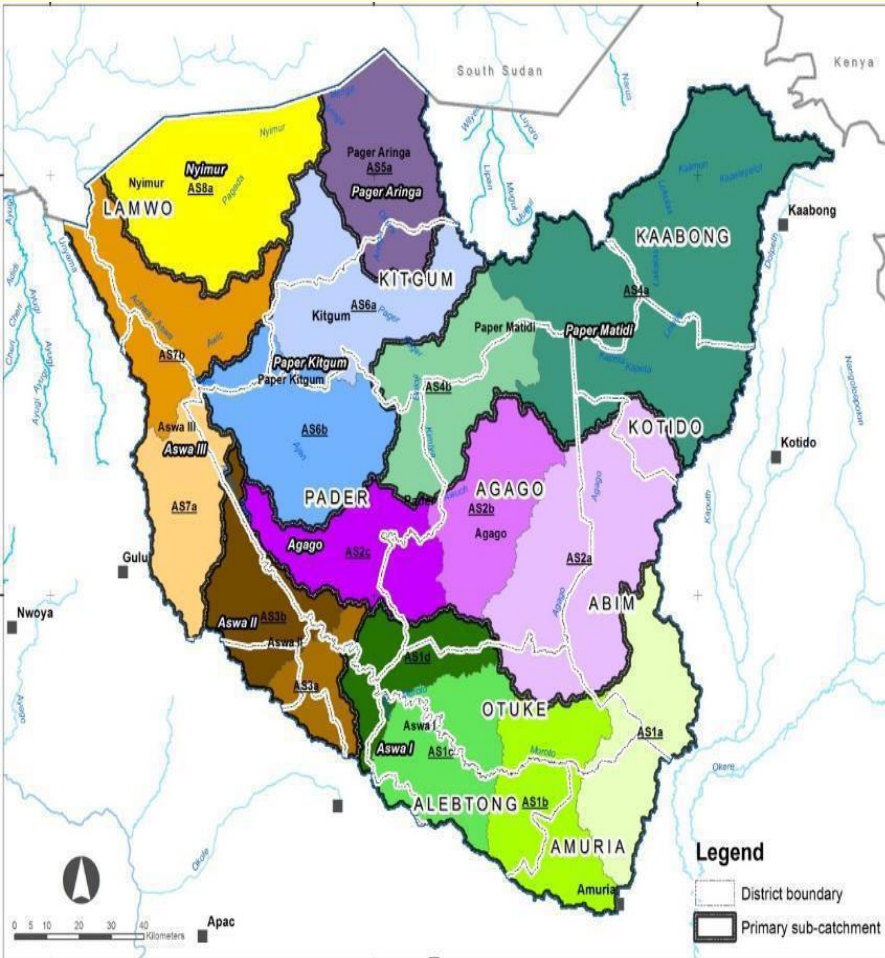
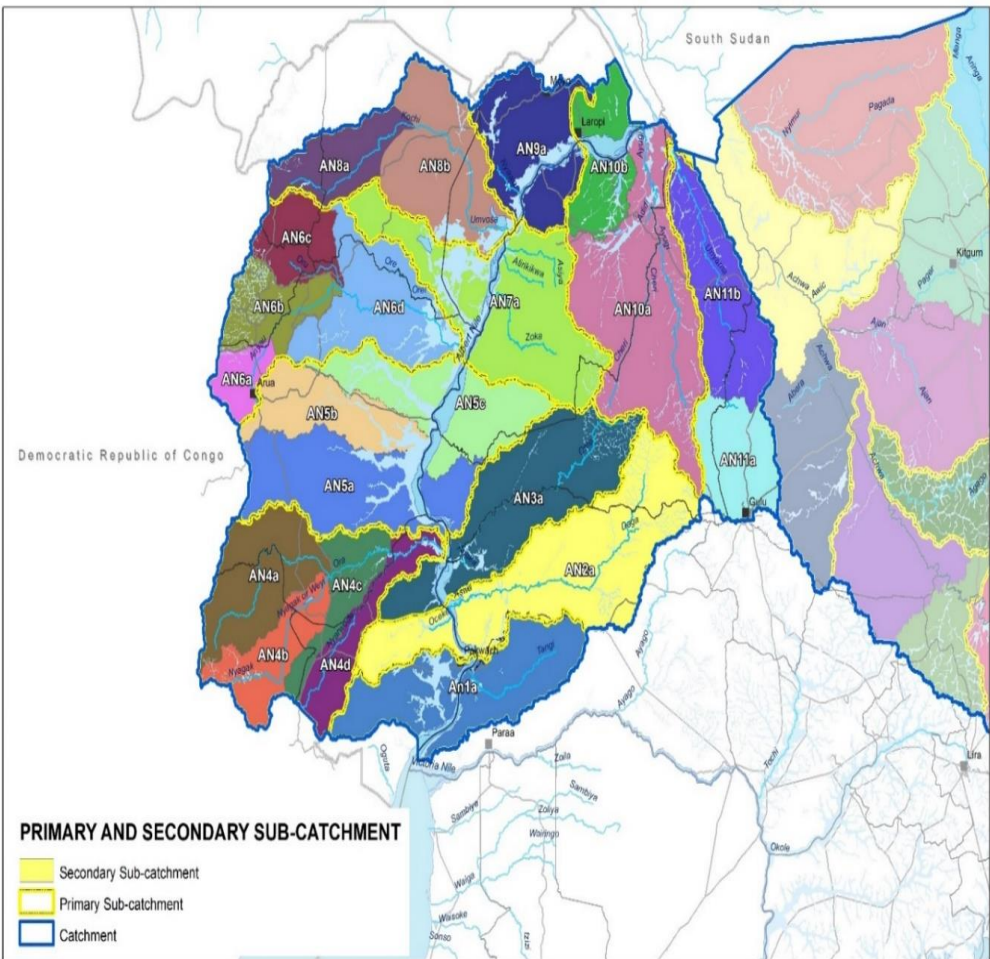
Status of preparation of CMPs

WMZ	Catchment	Status of the CMP	When it came into effect
Albert	Mpanga	Finalised	2015
	Semliki	Finalised	2016
	Ruhenzamyenda	Finalised	2015
	Albert	Under development	2017
	Kiiha	Under development	2017
Kyoga	Awoja	Finalized	2013
	Mpologoma	Finalized	2017
	Victoria Nile	Finalized	2017
	Lokere	Finalized	2017
	Lokok	Finalized	2017
Upper Nile	Aswa	Finalised	2016
	Albert Nile	Finalised	2016
Victoria	Rwizi	Finalised	2016
	Maziba	Finalised	2015
	Katonga	Under development	2017

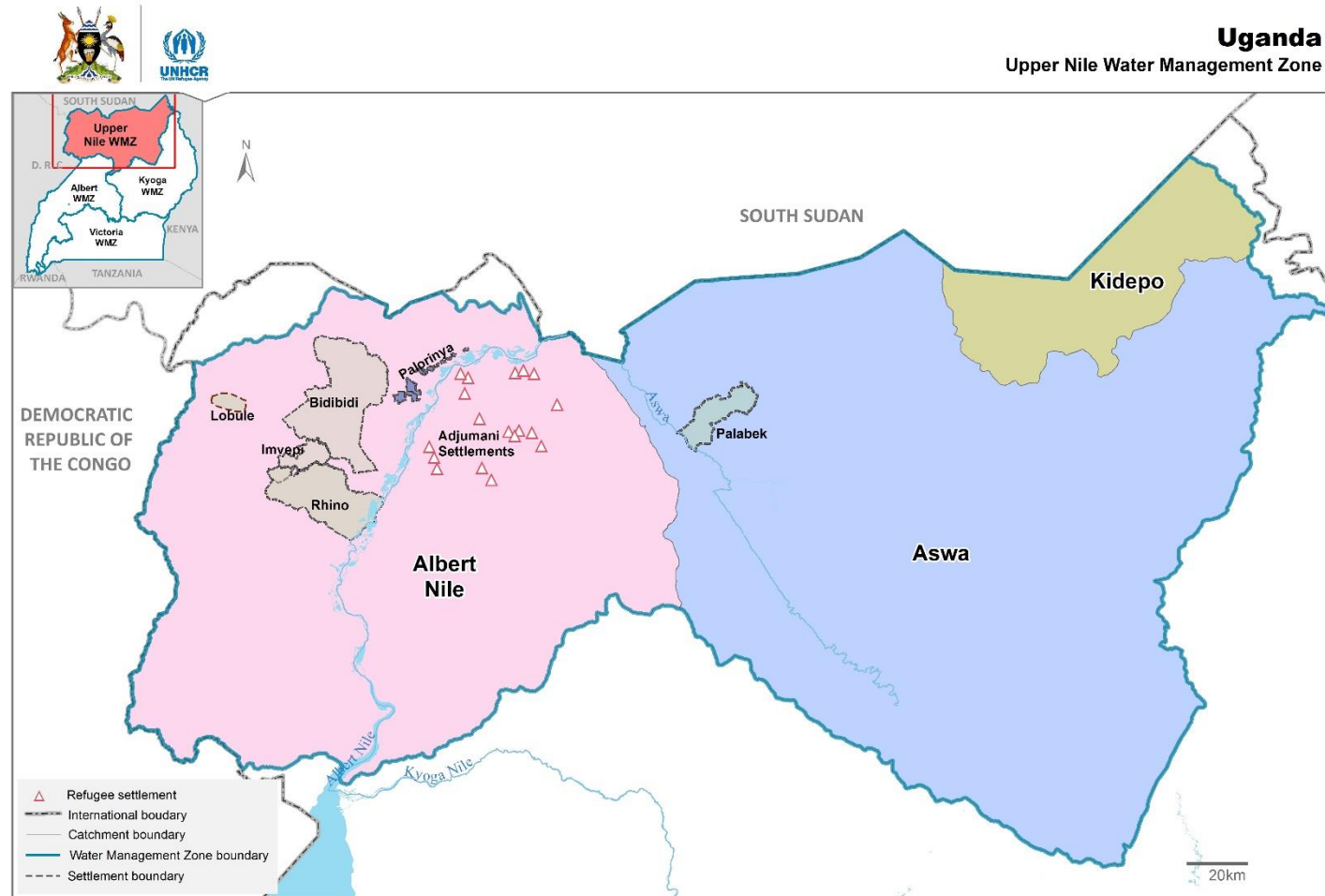
Catchments where catchment planning is ongoing



Sub-catchments in Upper Nile WMZ



Catchments and refugee settlements in Upper Nile WMZ



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

Creation: 09 May 2018 Sources: UNHCR, UNCS, UBOS, MWE Feedback: IM Team Uganda (ugakaimug@unhcr.org) | UNHCR BO KAMPALA

Indicative Investment Options in CMPs

- Dam & reservoir/Valley Tanks
- Rainwater harvesting (off-farm)
- Gravity diversion of water for bulk water supply for multiple purposes
- Pump delivery of water for bulk supply for multiple purposes
- Water saving irrigation technology
- Mini- & micro-hydropower/Solar power
- New or increased village or settlement drinking water supply (GW)
- New or improved bulk water supply for towns/cities
- Protection of village, town and urban water sources
- Flood risk management/preparedness
- Drain and waterway improvements
- River bank stabilization
- Contour bunds/Gulley control/Check dams
- Reforestation and afforestation
- Wetland restoration

Implementation of interventions identified in the CMPs



Nyakambu wetland restoration: 2013 (Left), 2014 (middle) and 2016 (Right)



Terracing of steep slopes and gully rehabilitation using sand bags in Rubaya Sub-Catchment



Embankment construction in Aketa dam, Lokok and Lokere catchment

Implementation of interventions identified in the CMPs



Water / Soil conservation in Mpanga Catchment



Nursery bed for improved species in Mpanga Catchment



Fish farming in Mutamba wetland in Mpanga Catchment



Stone and Soil bunds on steep hill slopes in Rubara Micro Catchment in Rwizi catchment



Soil bund in the Masyoro Micro catchment in Rwizi catchment

Implementation of interventions identified in the CMPs

Soil conservation & Agroforestry



Water Harvesting/Erosion control on hillside



Conclusions and future prospects

- ▶ Catchment based IWRM provides a nexus between water and natural resources management
- ▶ This framework is based on stakeholders involvement and partnership that provide opportunities for stakeholder collaboration to leverage available resources (capacities, finances etc) to create more impact.
- ▶ Priority needs to be given to employing a catchment based IWRM approach to addressing water and environment issues in refugee settlements and host communities so as to sustainably develop and protect water and related resources while improving people's livelihoods

“Everybody is called upon to join and support this framework if indeed water and environmental resources are to be secured for sustainable socio-economic development in refugee settlements and host communities in Uganda”