

# OVERVIEW OF PANGANI BASIN

During Spate Irrigation Leadership Course

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# Presentation Outline

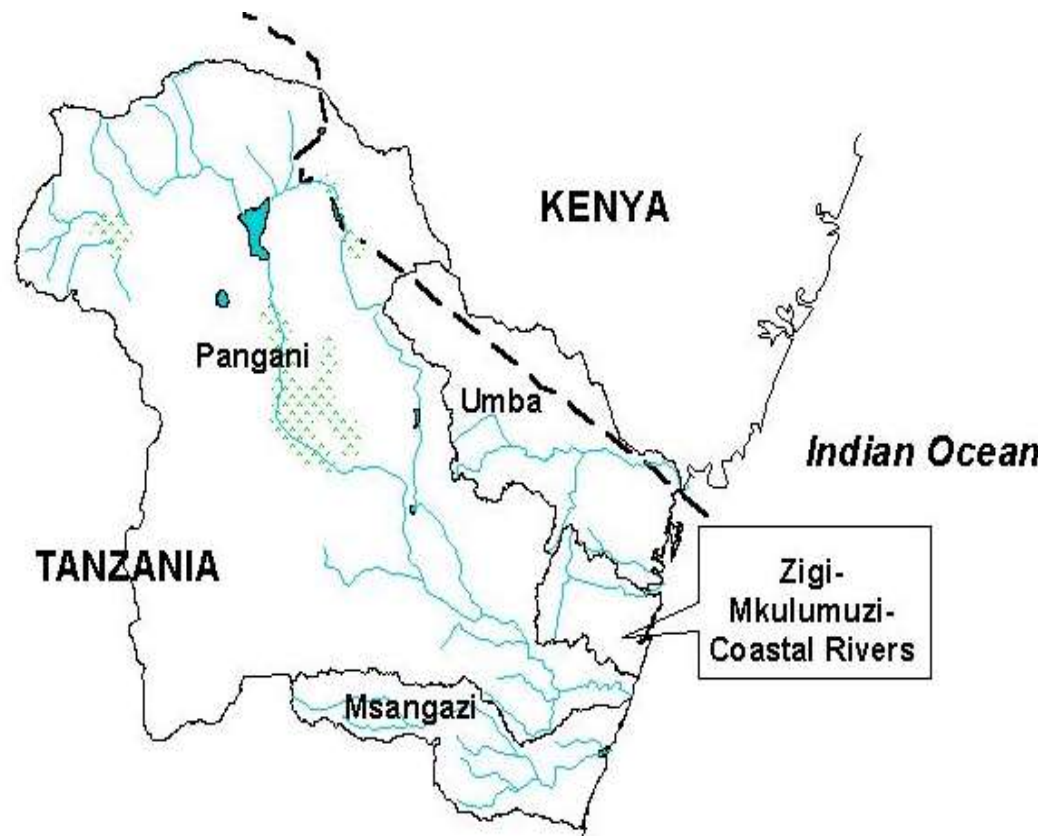
- ❖ Background
- ❖ Characteristics
- ❖ Roles and Responsibilities of Pangani Basin
- ❖ Water Resources Management Challenges
- ❖ Opportunities/ Initiatives going on
- ❖ The Way Forward

# Background



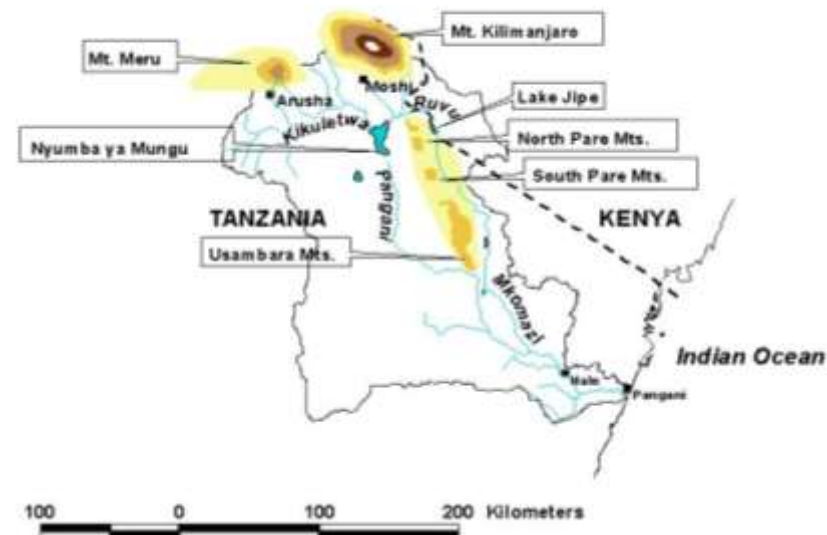
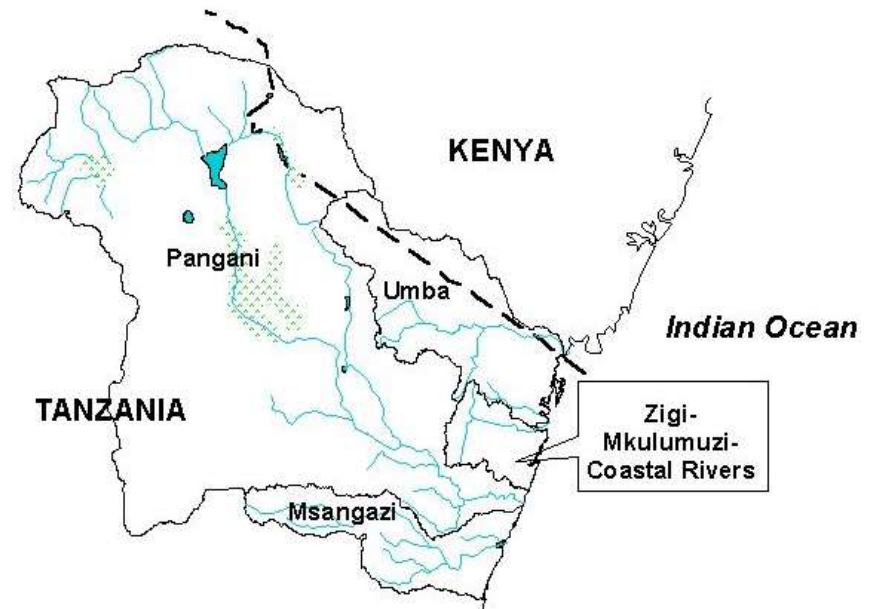
- Rivers
- River Basin Boundary
- Water Bodies

- I** Pangani Basin
- II** Wami und Ruvu Basin
- III** Rufiji Basin
- IV** Ruvuma and the Southern Coast Basin
- V** Lake Nyasa Basin
- VI** Internal Drainage
- VII** Lake Rukwa Basin
- VIII** Lake Tanganyika Basin
- IX** Lake Victoria Basin



# Characteristics/Features

- Pangani Basin established in 1991 under Water Act No. 42 of 1974 later repealed by Water Resources Management Act No. 11 of 2009
- **Area:** 56,300 Km<sup>2</sup> (5% in Kenya)
- **Administratively** found in : Arusha, Kilimanjaro, Manyara and Tanga Regions (20 DCs)
- **Transboundary Basin** (Lake Chala – Jipe & Umba River, shared with Kenya)
- **Population:** About 4 Millions (census 2012)
- **Rainfall:** Bimodal basin - long rains (March-June) & short rains (Oct –Dec)



# Roles of Pangani Basin

The Basin is led by Basin Water Board (10 members)

- Roles and Responsibilities accord. Sect 23 of Water Act No. 11 of 2009 include:
  - Water Resources monitoring and assessment
  - Water Allocation (issuing and managing of water permits)
  - Strengthen community participation in WRM
  - Coordinate water resources management and development planning
  - Water quality monitoring and pollution control
  - Water use conflict management
  - Water sources protection and conservation

# Water Resources Utilization

- Major uses:
  - ✓ Domestic (2 cities – Arusha and Tanga; Moshi municipality & rural areas)
  - ✓ Environment
  - ✓ Irrigation
  - ✓ 3 Hydropower Plants (97MW)
  - ✓ Industrial /Mining
  - ✓ Fisheries
  - ✓ Tourism
  - ✓ Pastoralism and
  - ✓ Navigation & recreation





# Water Resources Management Challenges

**A Water Stressed Basin (*water availability is  $1,200 < 1,700 \text{ m}^3/\text{c}/\text{yr}$  according to NAWAPO of 2002*)**

- Increasing pressure on the resource due to growing population hence, increased water use conflicts
- Change of types of crops (paddy for sisal, coffee for flowers, etc,
- Climate change
- Environmental/Land degradation
- Uncoordinated developments (absence of IWRMD Plan)



# Water Resources Management Challenges (cont.)

- Irrigation takes almost 80% of usable water in the Basin but efficiency is 15-20% as most of canals/furrows are not lined





# Water Resources Management Challenges (cont.)

- Human activities along and within the water sources
- Inadequate education and awareness in water sources protection
- Inadequate financial capacity of the basin in protection of water sources



Human activities at Buiko in  
Pangani River

# Groundwater Management Challenges

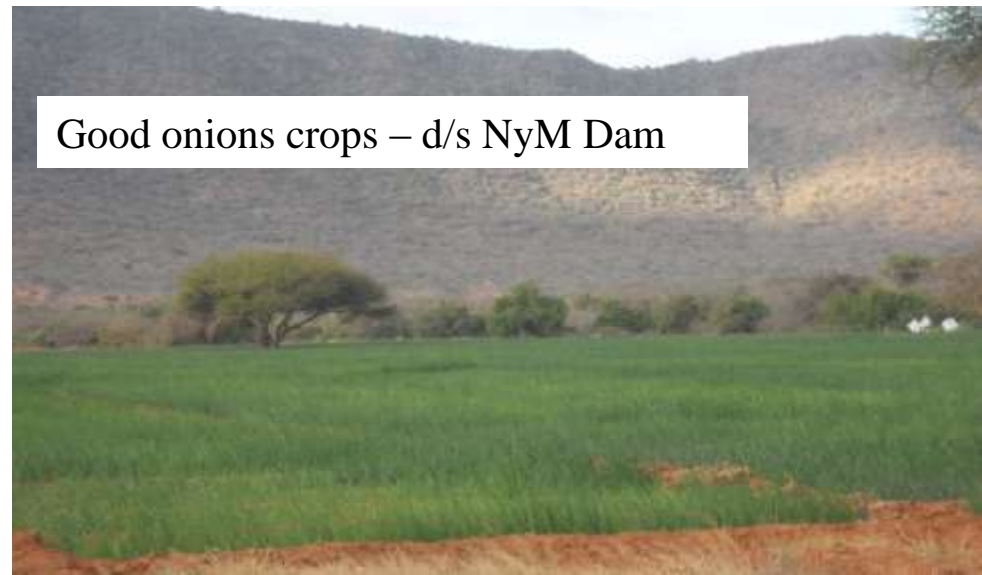
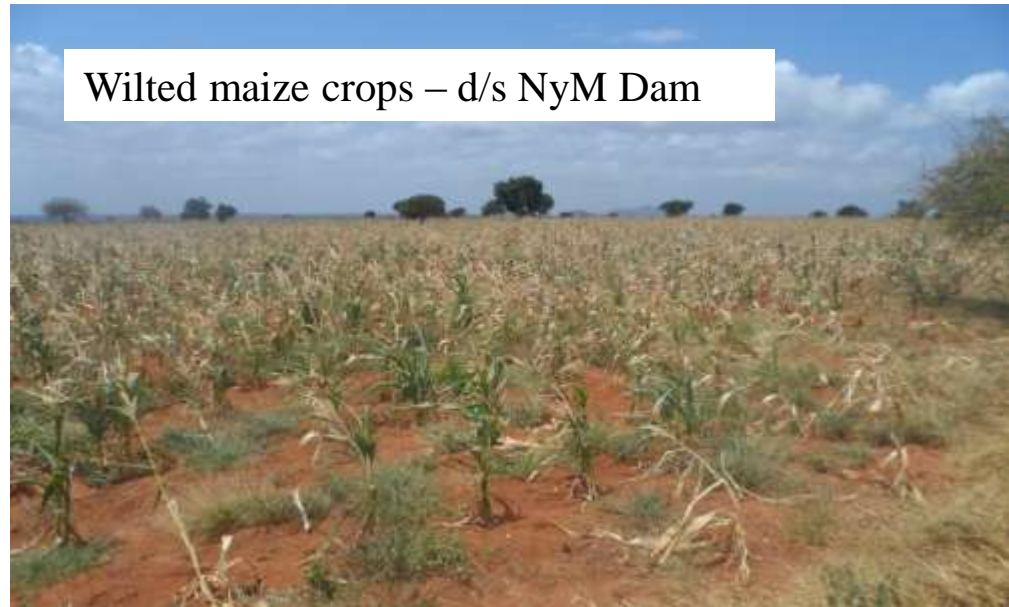


Artesian well at Kahe

- Potential not assessed
- Uncontrolled groundwater explorations and development
- Fragmented data and information
- Some aquifers are transboundary
- Inadequate enforcement
- Inadequate capacity to management

# Groundwater Management Challenges (cont.)

- Groundwater if well assessed and developed can supplement rain fed agriculture
- Also with groundwater communities can grow high value crops that can be sold and get cash for buying food stuff





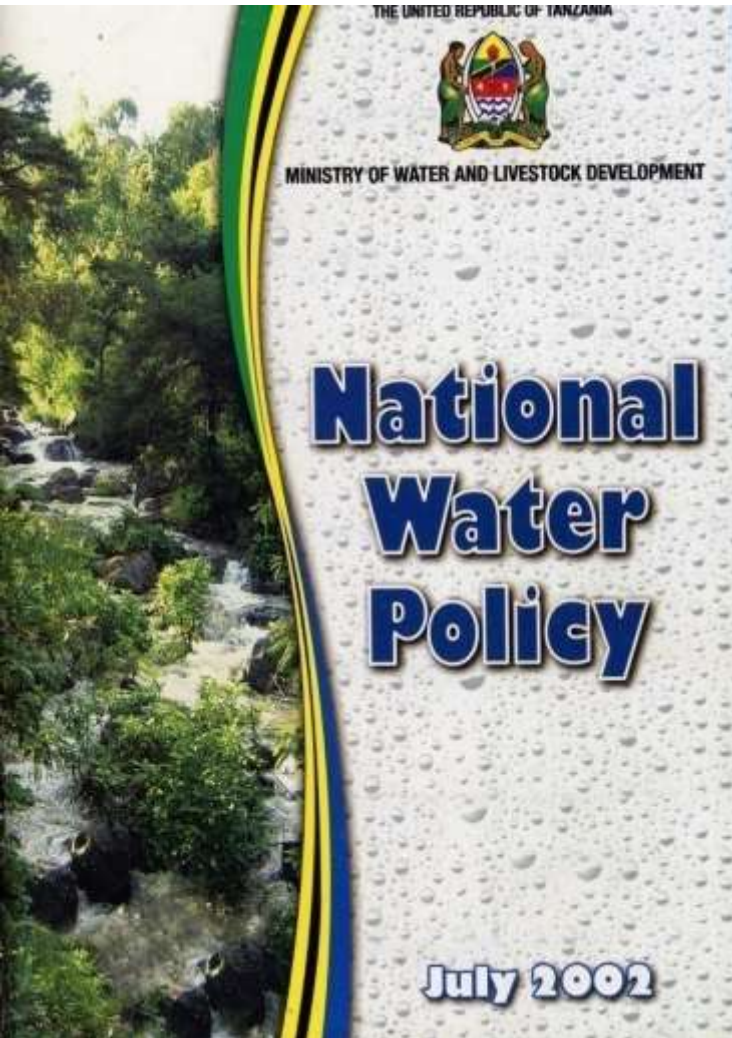
# Opportunities/ Initiatives Going On

## *Instruments/Tools:*

- National Water Policy (2002)
- Environmental Management Act (2004)
- National Water Sector Development Strategy (2006)
- Water Resources Management Act (2009)

## *Programs/ Projects:*

- Water Sector Development Program (WSDP)
- Early Warning System Project-facilitated under PMO-DMD/UNDP



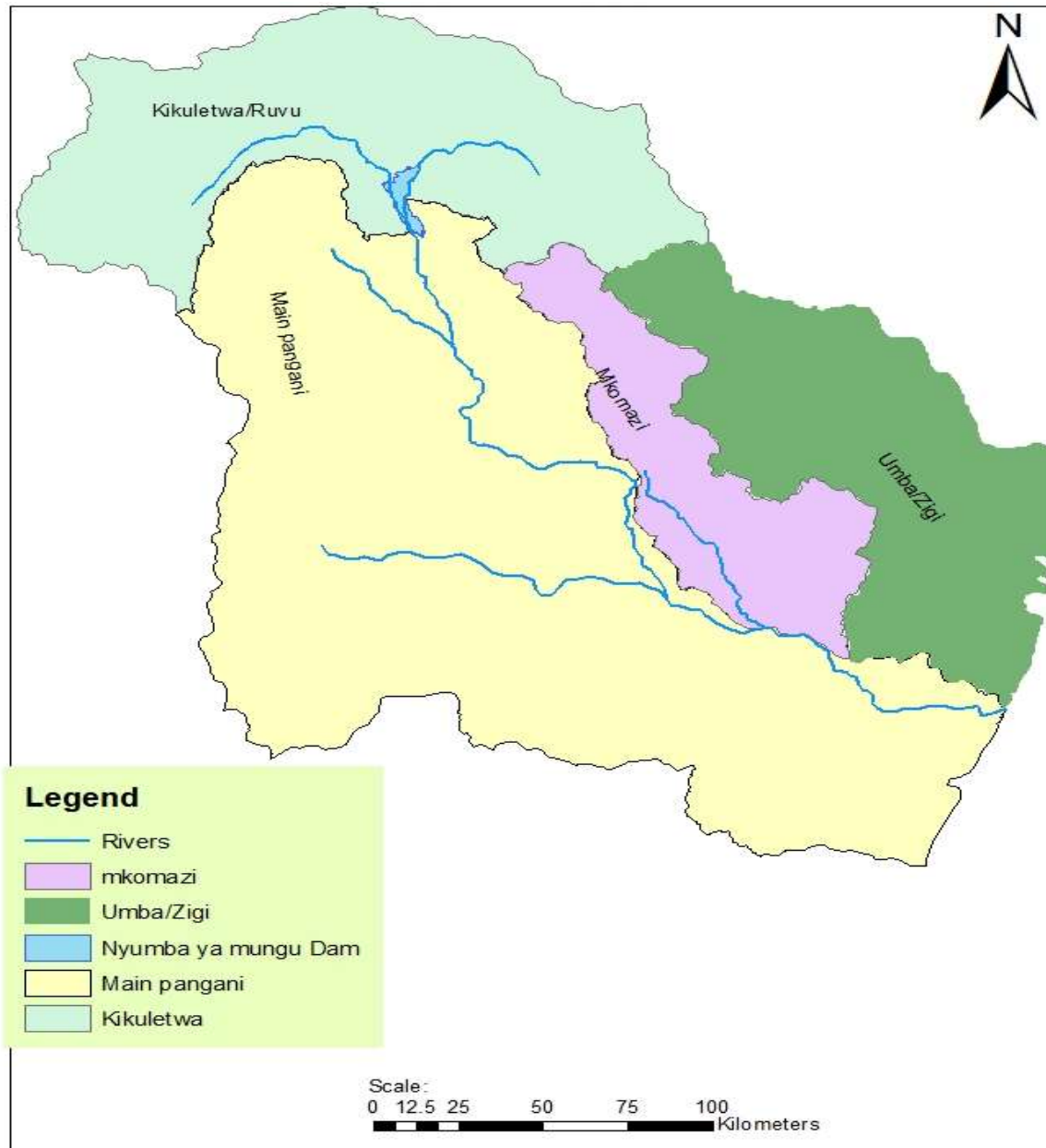


*Construction and  
installation of  
automatic weather  
station*



*Capacity  
building of basin  
staff on data  
downloading*

# Facilitation Establishment and Strengthening of Water User Associations (WUAs) & Catchment Water Committees (CWCs)



- Four (4) Catchment Water Committees (CWCs) in Pangani Basin



# Facilitation Establishment and Strengthening of WUAs & CWCs



Stakeholders participation

- 12 Water User Associations (WUAs) were established;
  1. Upper Kikuletwa
  2. Lower Kikuletwa
  3. Sanya-Kware
  4. Kikafu-Karanga-Weruwere
  5. Main Pangani Stem to Buiko
  6. Zigi-Mkulumuzi
  7. Yongoma
  8. Hingilili
  9. Umba
  10. Mbaramo
  11. Mdando and
  12. Miwaleni
- 2 Catchment Water Committees (CWCs) were established;
  1. Kikuletwa-Ruvu and
  2. Zigi-Umba

# Promoting Groundwater use

1. Improve socio-economic development of people by using water from boreholes for irrigation



2. Promote conjunctive use of groundwater and surface water





# Priority WRM Infrastructure and Investment: Example to promote groundwater use in the Basin



Submersible pumps & its accessories

Drilling, Construction  
and supply of  
submersible pumps &  
its accessories and  
power supply from  
TANESCO



Production BH and raiser tower tank

# Way Forward

- IWRMD Plan prepared and implemented.
- Strengthening and maintaining monitoring network stations (hydromet ,water quality and groundwater)
- Facilitation establishment and strengthening of WUAs
- Facilitation establishment of Catchment Water Committees
- Empowerment of communities to protect and conserve water resources
- Encouraging community to apply (new) and reviewing (existing) water use permits
- Encouraging Industries to apply effluent discharge permit
- Climate change assessment and adaptation
- Training basin staff and recruiting new staff for better water resources management

**Thank you for your attention!!!**

**Asanteni!!!**