INTERNATIONAL WORKSHOP ON WATER SCARCITY: Taking action in trans-boundary basins and reducing health impacts

*Not letting boundaries to hinder water resources systems development for effective utilization of the trans-boundary IncoMaputo system*

Presented by:

Beason Mwaka
IncoMaputo Water Commission - South Africa

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The IncoMaputo system comprise Incomati and Maputo River basins traversing South Africa, Swaziland and Mozambique.
Background

- About 60% of South Africa land surface lie in catchments shared with neighbouring countries.
- River systems do not recognize international boundaries.
- South Africa, Swaziland, and Mozambique acknowledged this to establish the IncoMaputo Commission.
- The Tripartite Permanent Technical Commission (TPTC) was created in 1983 to oversee joint developments, utilization, and management of the systems for the common interest of member states.
- In 2002, during the Johannesburg World Summit on Sustainable Development, the TPTC’s proposed “Interim IncoMaputo Agreement (IIMA) for Co-operation on the Protection and Sustainable Utilization of the IncoMaputo Watercourses” was signed by the member states.
Notable features of the IncoMaputo River system

- It originates in SA highlands, into Swaziland, back to SA before entering Mozambique to end in the Indian Ocean
- Most streamflows are seasonal – 5 month rainfall
- SA plains downstream Swaziland are fertile but not feasible for storage dams
- Coastal towns in Mozambique are prone to flooding
- Suitable dam sites found upstream of and in Swaziland
Principles (P) applied for water cooperation between Mozambique, Swaziland and SA

P1 • Peace, security and stability (regional integration)

P2 • Joint environmental management of the shared watercourse

P3 • Water for poverty eradication and economic growth

P4 • Equitable and efficient utilization of water use

P5 • Payment of water use and joint monitoring of pollution

P6 • Information sharing (stream flow, floods, drought, etc)

P7 • Decentralisation of water management to grassroots institutions - management agencies

P8 • Observe SADC Revised protocol on Shared water courses
Some highlight outcomes of the IIMA

- Concurrence by member states on:
  - Protection of the environment (Article 6 of the IIMA)
  - minimum cross-border flows (Article 9 of the IIMA)
  - drought/floods management (Article 10 of the IIMA)
  - Sustainable utilization of water resources (Annex I-Art 6 of the IIMA)
  - Water requirements of the ecosystem of the IncoMaputo (Annex I-Art 7 of the IIMA)
Specific case Example – KOBWA

• Project Objectives:
  – To optimize the utilization of water resources from the Komati system, recognizing the rights of Mozambique
  – To reduce the risk of water supply for existing commercial farmers in South Africa and Swaziland
  – Increase yield to provide additional water for new development, especially emerging (PDI) farmers
  – Ensure downstream Environmental Flow Requirements (EFR) and reserve flow to Mozambique

The project costs are shared between South Africa (60%) and Swaziland (40%)
1. Increased utilizable water supply by 312 million m$^3$/annum at higher assurance

- Increased irrigated land (Hectare)
  
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<tr>
<th></th>
<th>SA</th>
<th>SD</th>
<th>TOTAL (Ha)</th>
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<tbody>
<tr>
<td>Existing</td>
<td>20 000</td>
<td>13 500</td>
<td>33 500</td>
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<tr>
<td>New</td>
<td>10 000</td>
<td>6 000</td>
<td>16 000</td>
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- Value of production on new land
  US 45.0 million p.a.

- Mitigated flood damages to property and life in downstream Mozambique

- Livelihood and environment sustained by ensuring river does not dry
Flow duration curves showing characteristics of Incomati River flows at Mozambique border - before and after KOBWA developments

Before, about 15% of time flows above 1000m³/s (floods) and about 10% of time no flow entering Mozambique

Flow Duration Curve 1982-1997

Flow Duration Curve 1998-2017
Case Example 2. – Pongola Dam

Main purposes:
For water supply to South Africa and Swaziland
Avoid flooding in months of Feb – April, which would result uncontrollable malaria outbreak on downstream floodplains in South Africa and Mozambique
The King of Swaziland and President of SA jointly Commissioning a KOBWA project