

WEF Nexus Masterclass 2025: Day 3

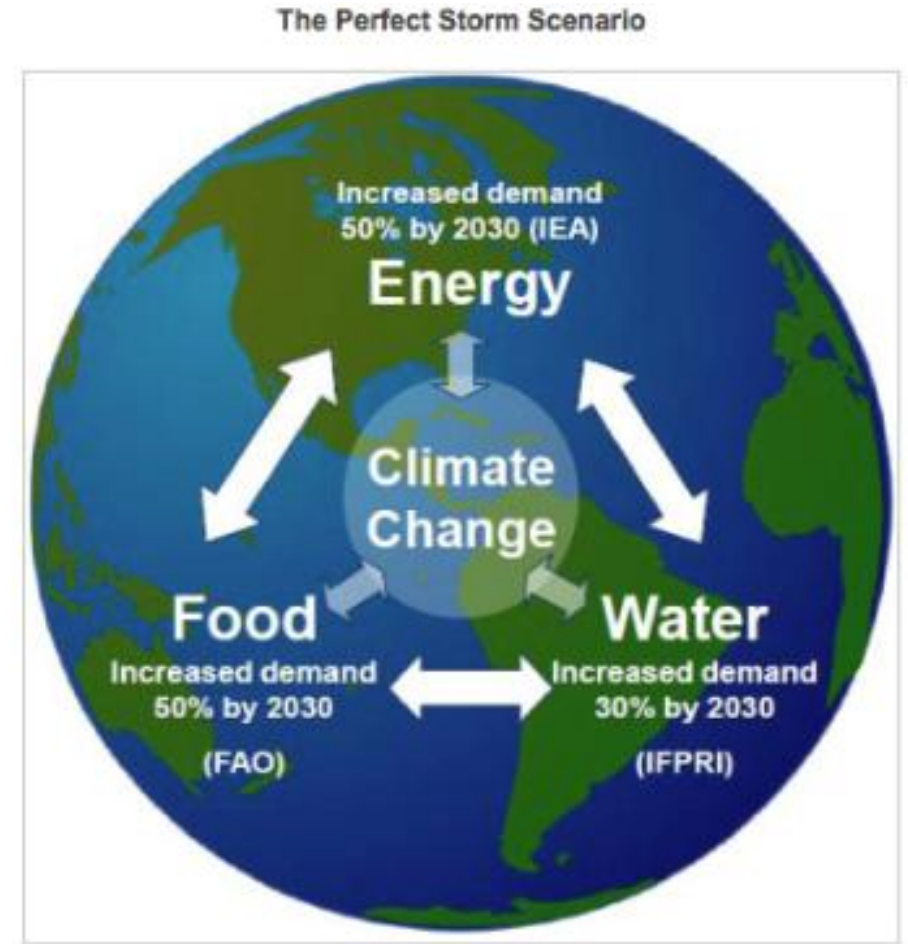
Limpopo River Basin Case Study

Global Water Partnership

Dr J Maryna Storie (*PrGISc, GISP, PrDM*)

Recap of WEF Nexus Investment Rationale

- Investment gap in water, energy, and food systems
- Fragmentation of resource governance and planning
- Missed opportunities due to siloed approaches

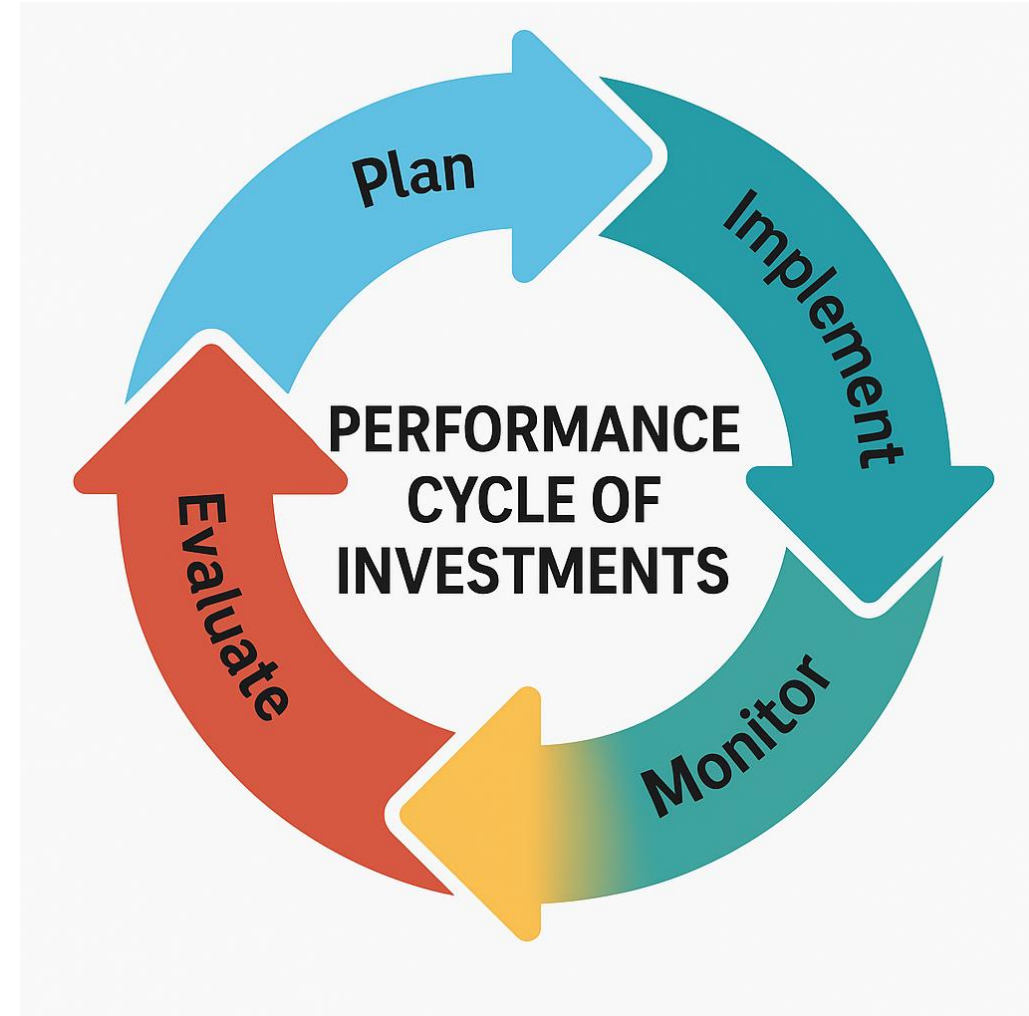


Source: [Nexus Thinking](http://NexusThinking.com) – Water, Food & Energy – aigues.net

Recap of WEF Nexus Investment Rationale

Advantages:

- Cost-effectiveness/cost-efficiency
- Resource-use efficiency, and cross-sectoral co-benefits
- Leverage of public and blended finance
- Co-financing: and showing commitment
- Humanitarian sector involvement (co-financing)
- Reduce trade-offs and enhance GEDSI & climate resilience: mitigation and adaptation

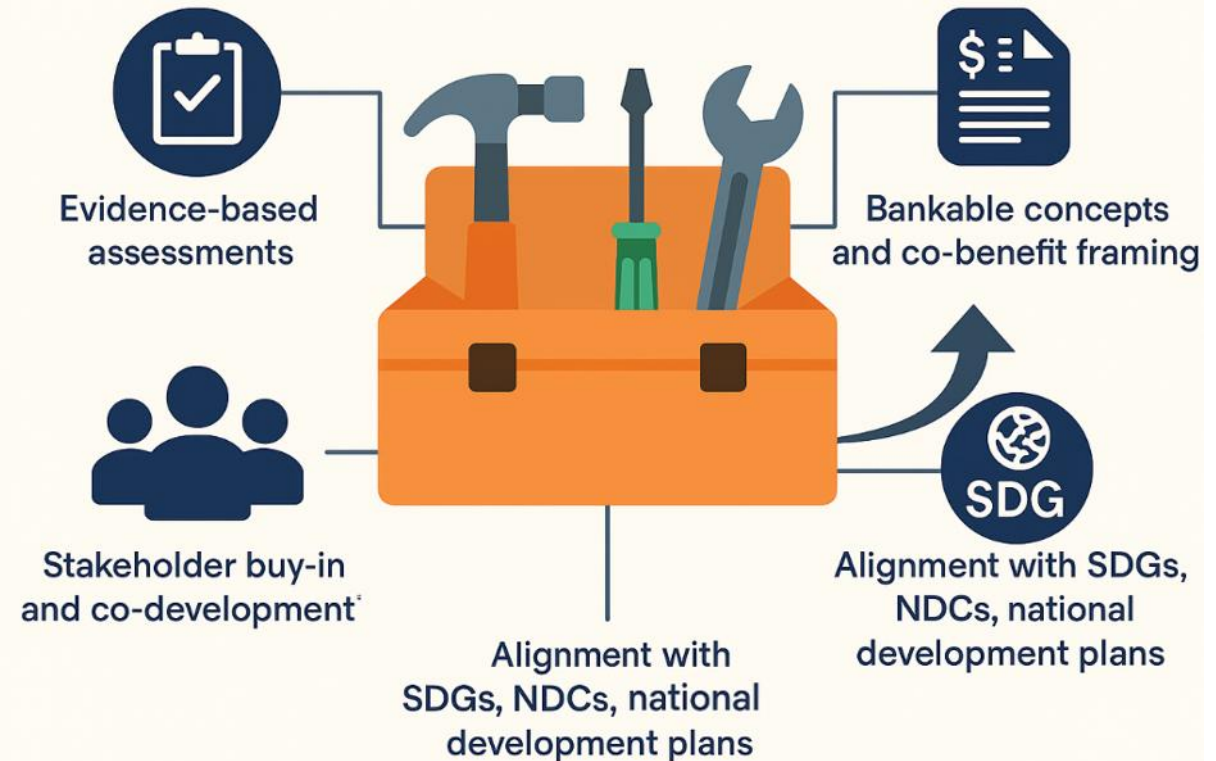


Recap of WEF Nexus Investment Rationale

Building a Strong Investment Case:

- Evidence-based assessments
- Stakeholder buy-in and co-development
- Bankable concepts and co-benefit framing
- Alignment with SDGs, NDCs, national development plans etc.

Building Blocks of a Strong Investment Case



Investing in Transformation – Mobilising Finance for Inclusive WEF Security

- Use funds to mobilise more funds
- Build on national investment / budget allocations – existing O&M and investment to be applied and act as co-finance
- NbS / EbA and new link with Climate Impacts & Loss and Damage assessments: require data showcasing evidence base
- Inclusion of HEALTH in Nexus frameworks – link to Water/Sanitation & Food > Disease burden & Nutrition (SDF 3 Health & Wellness) > investment and expenditure on Health being a drain if not dealing with the Nexus effectively

Focus of the sessions during the day



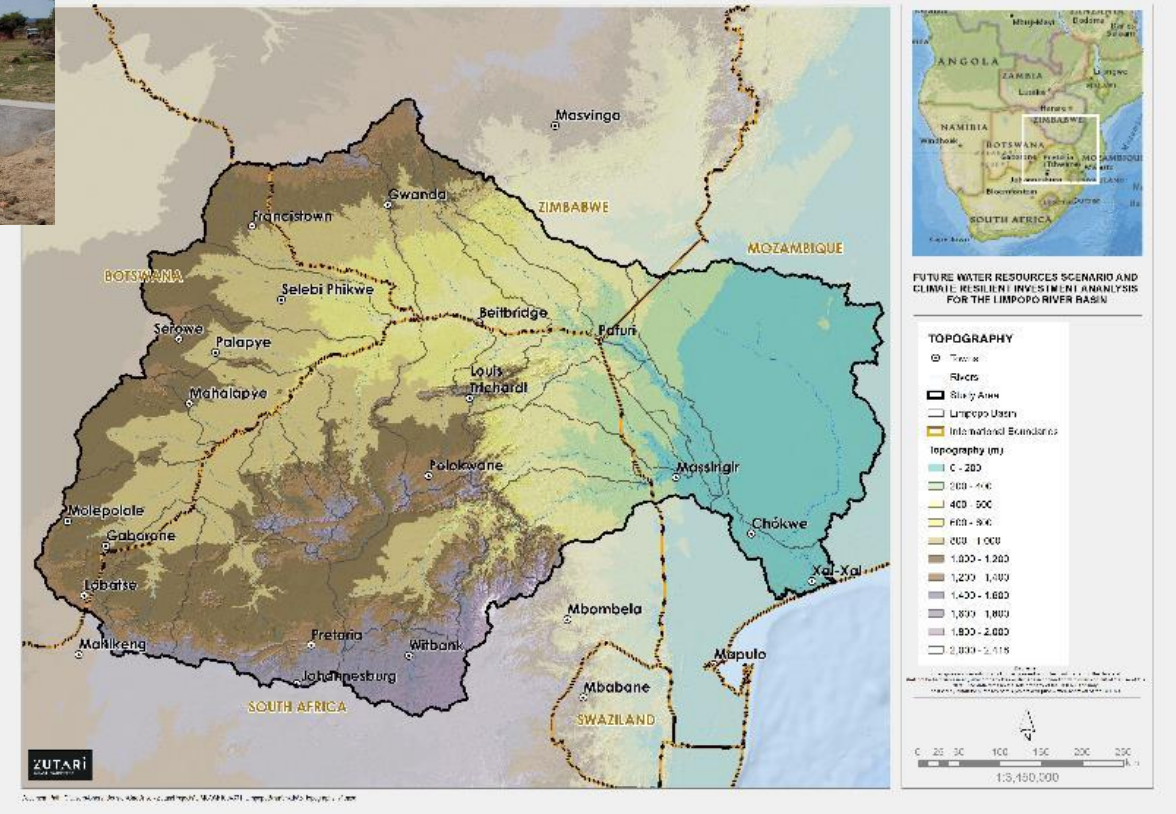
Left: example of a typical sand dam and access approaches in the Sashe river catchment



www.gwb.org Pump-fitted sand dam



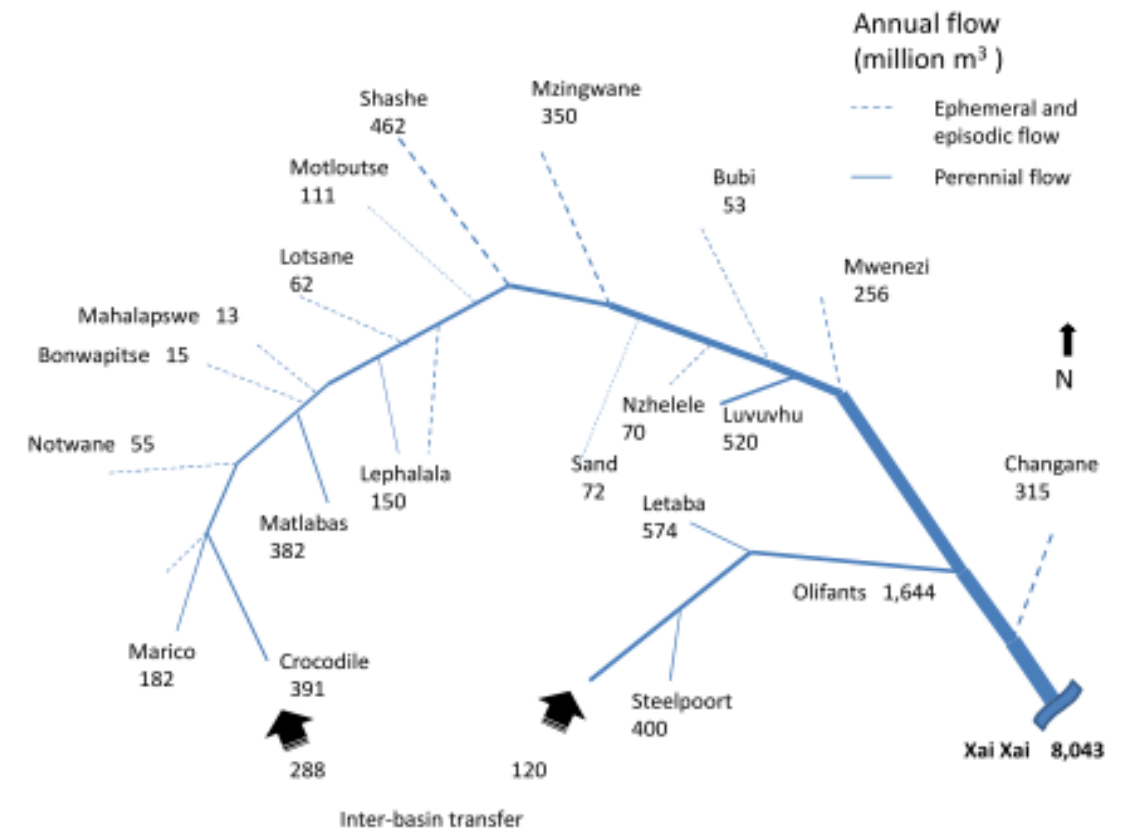
Water access through scoop holes



➤ Limpopo river basin Case Study

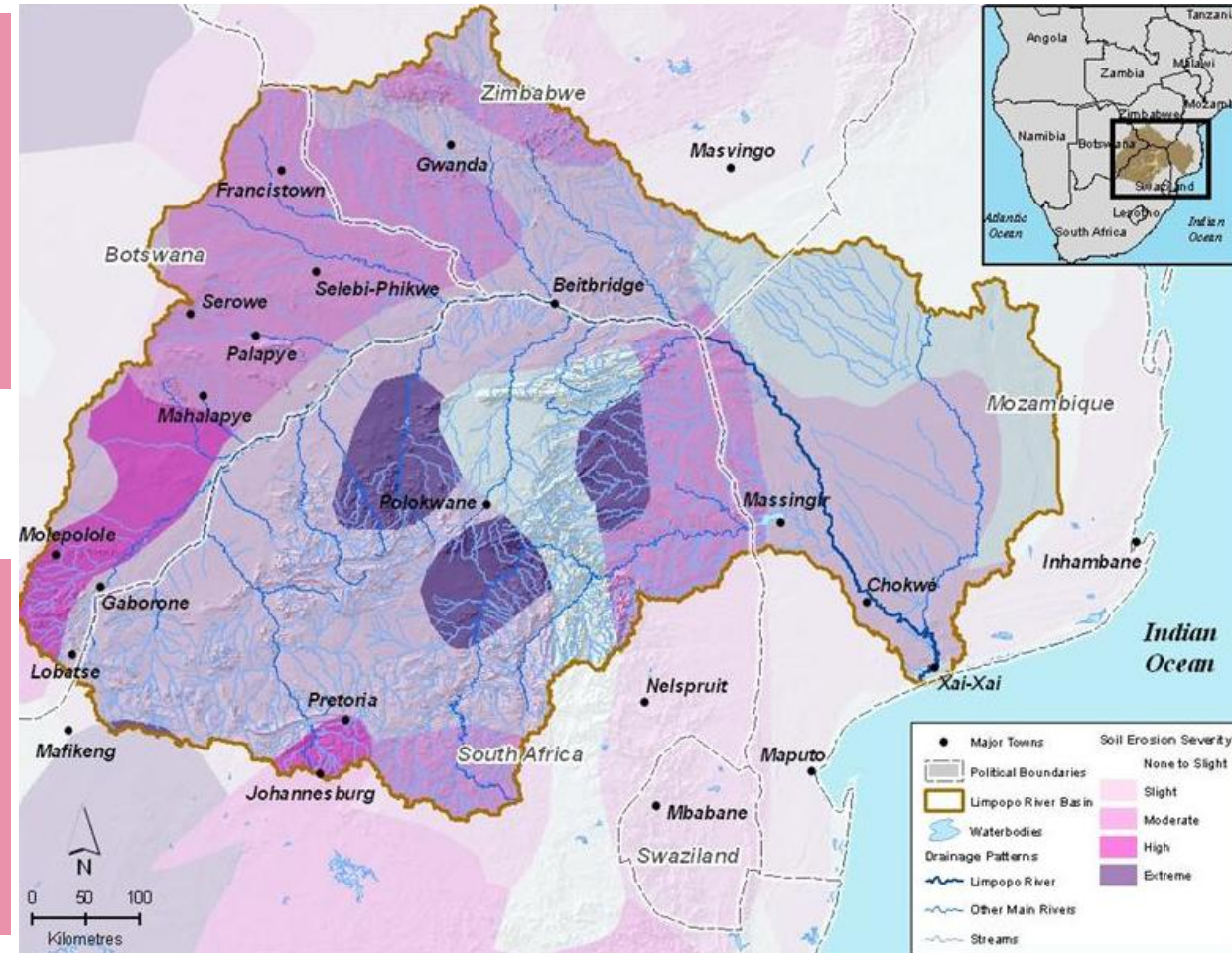
Baseline: Water Stress and Transfers in the Limpopo Basin

- The LRB has been **over-allocated for over 20 years**, extracting from ecological reserves and harming ecosystems.
- The basin is now considered **‘closed’**—no water remains for new allocations.
- Four major **inter-basin transfers** bring water into the LRB, including from **Lesotho**.
- The **Olifants River** is a major recipient, with over **250 million m³/year** transferred—mainly to support **coal power generation**.



Climate Vulnerability and the Case for Nexus Thinking in the LRB

- Climate change is reducing resilience, especially where dependence on natural resources is high.
- **Diverse land uses, ecosystems, and governance systems**, complicating responses.
- Water is over-allocated; food and livelihoods depend heavily on **rainfed agriculture** and **climate-sensitive resources**.
- Many areas have **undiversified economies**, high poverty, and limited capacity to respond to shocks.
- Nexus thinking helps identify system-wide drivers of vulnerability and propose **sustainable, integrated pathways**—beyond just hotspot-level responses.

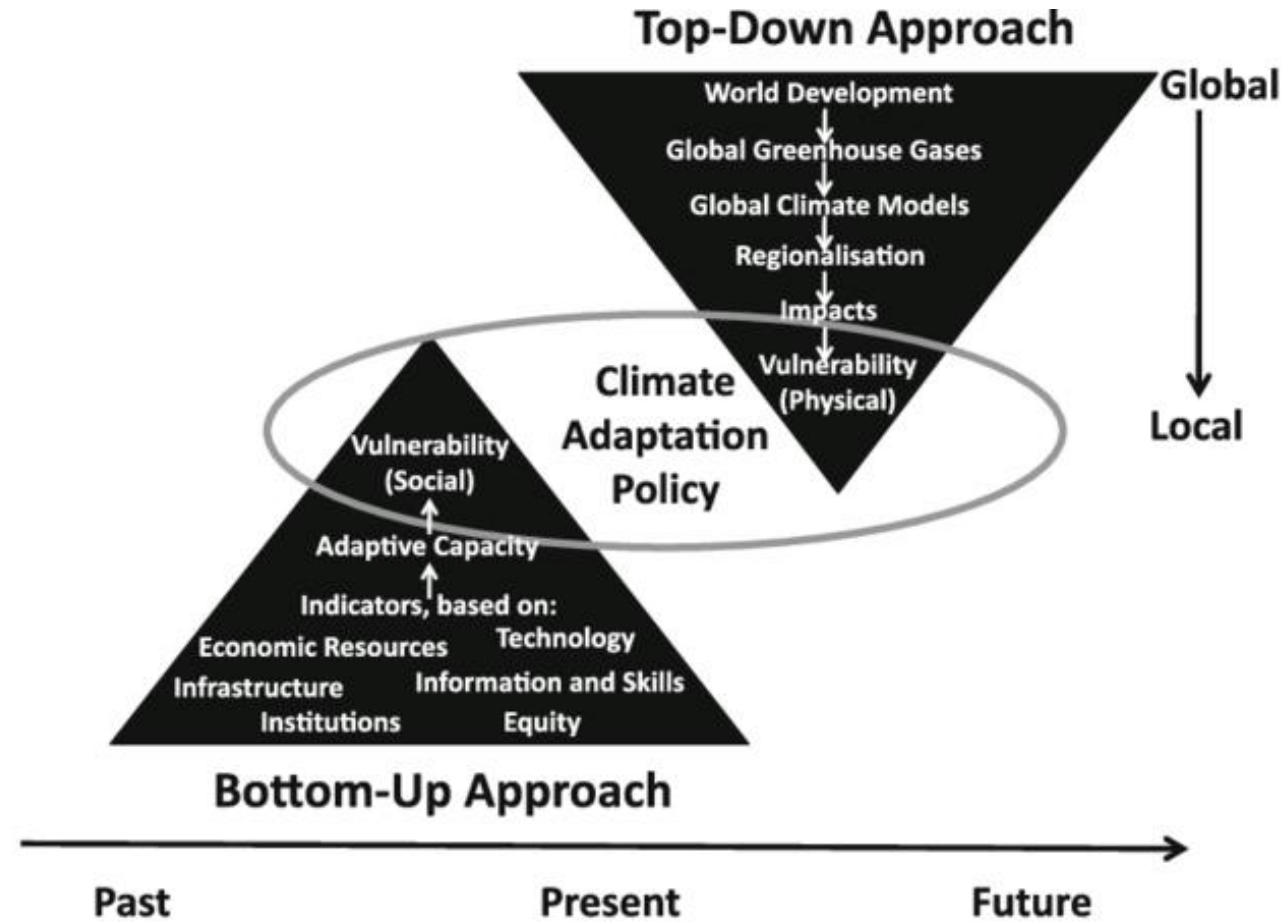


Future Climate Change Scenarios

Combining Top-Down and Bottom-Up Approaches to support National (and Local) Adaptation Planning.



Increasing Impacts Extreme Events (heat-waves, floods, and droughts)

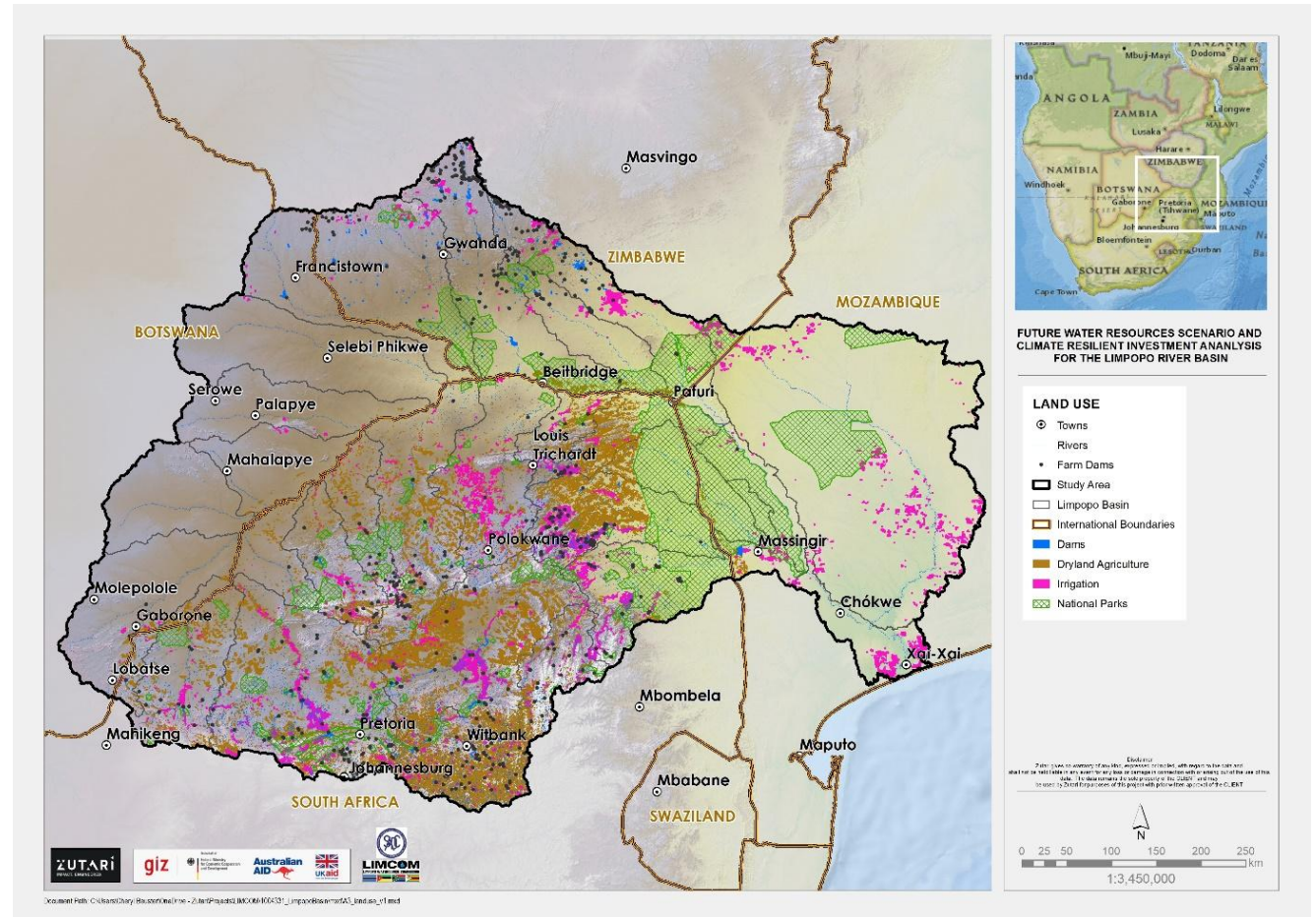


Updated Land use (including irrigation areas and Nature-based Solutions (NbS))

Updated land-use areas derived from global datasets and remote sensing/earth observation.

Used to determine changes in **irrigation** areas (and current and future demand) as well as increased deforestation and land **degradation**.

These data inform the water resources scenarios as well as consideration for NbS opportunities.



Socio-Economic Projections

Individual Socio-economic and water demand scenarios (Recon Studies)

Figure i: Water balance and reconciliation scenario for the Groot Letaba Main System

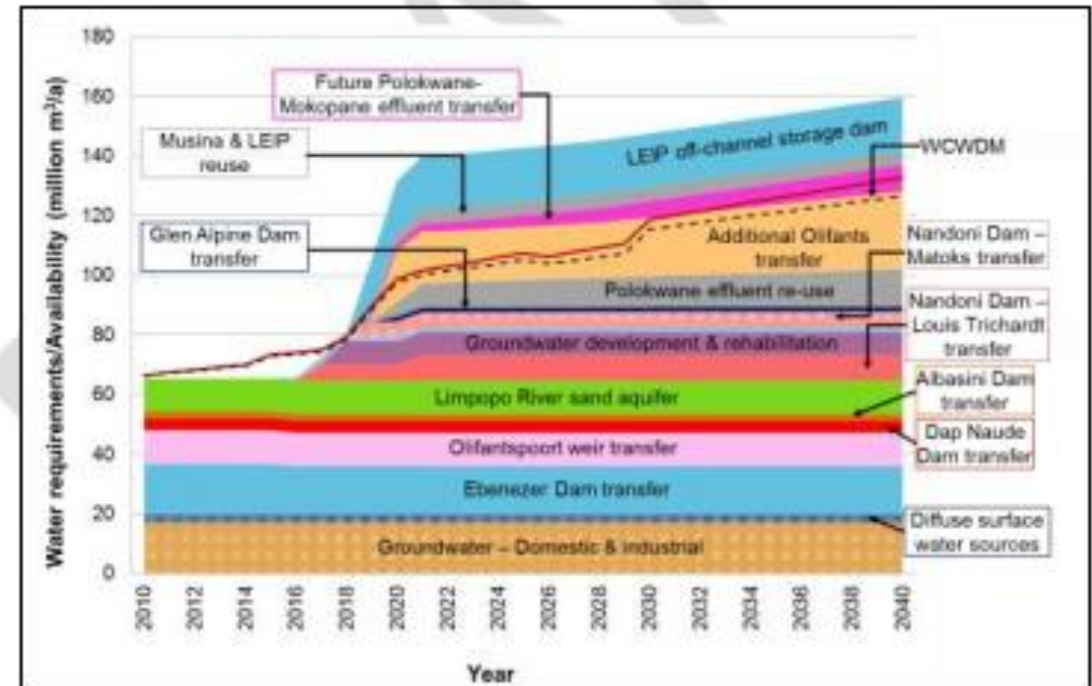
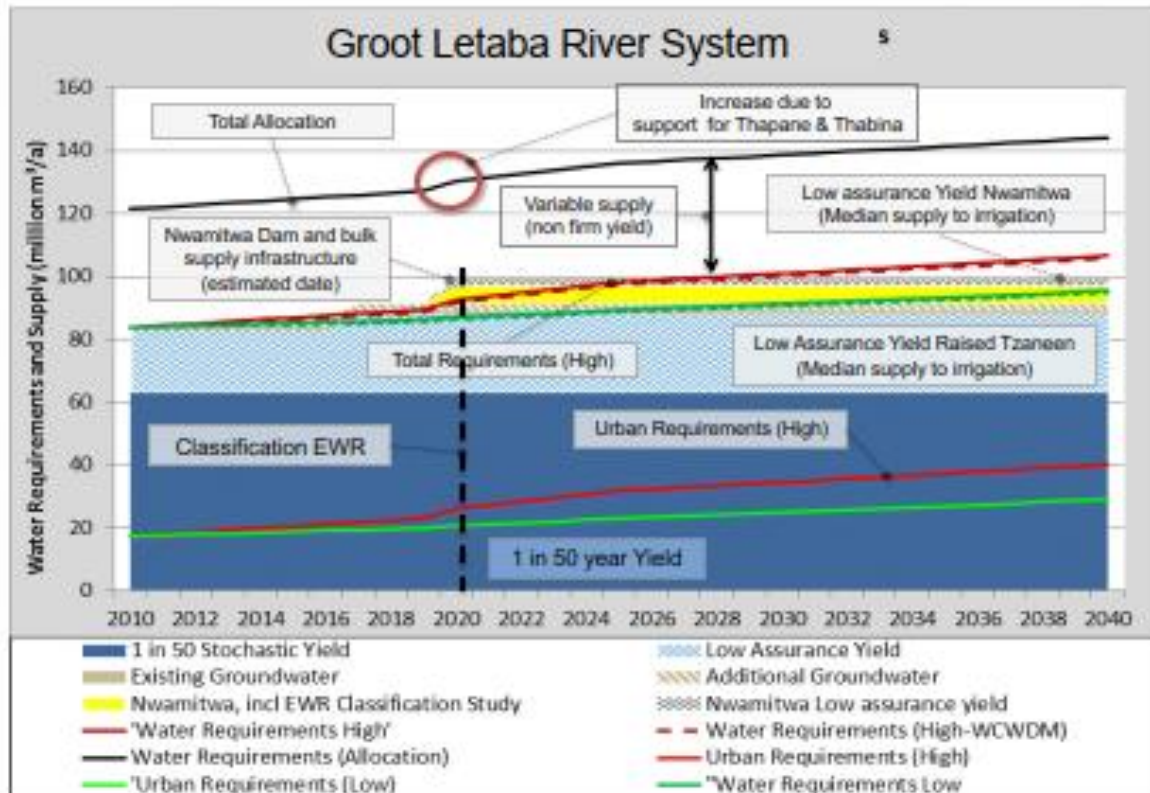


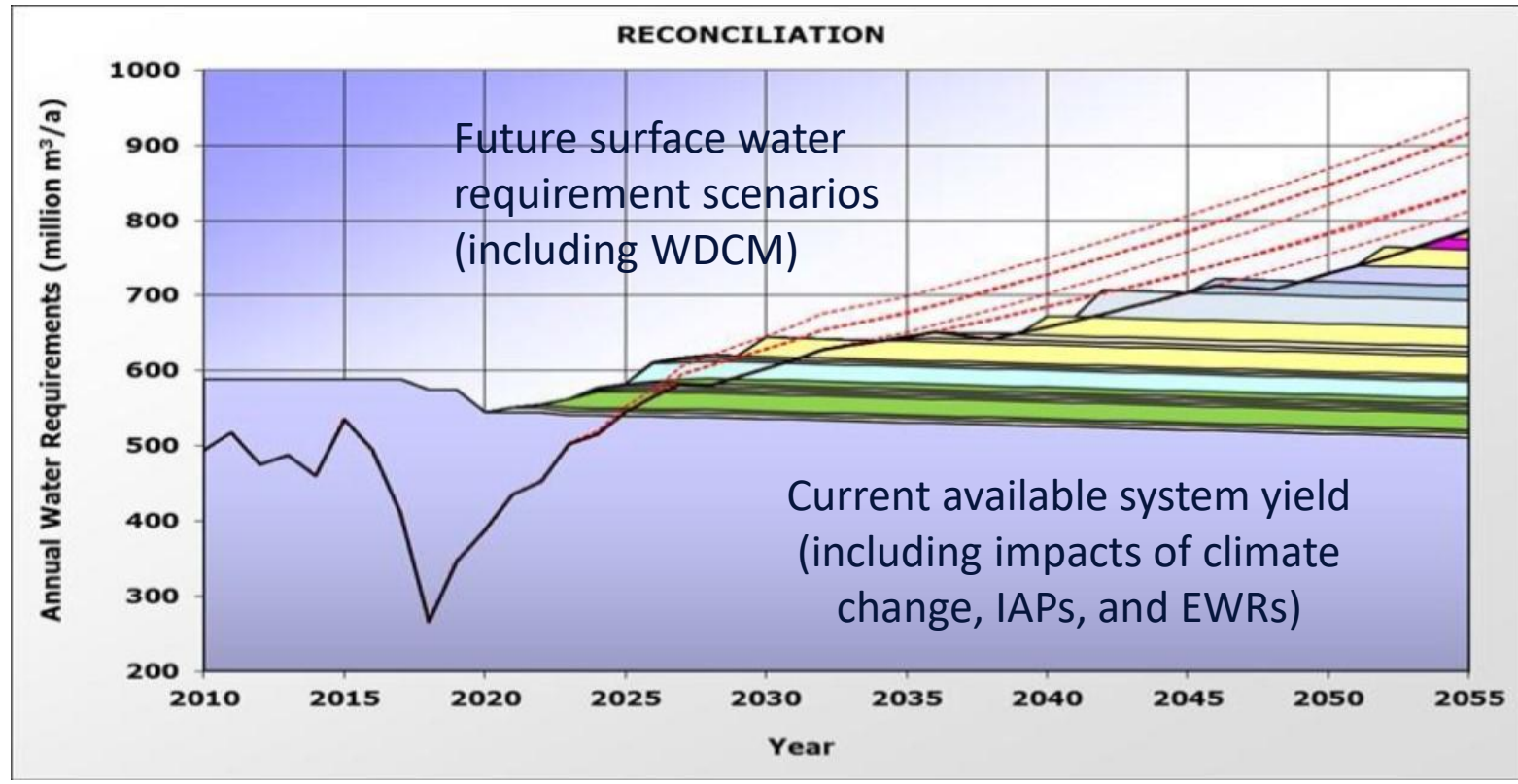
Figure 7.14 Water balance for the Sand catchment: Option 2

Note: Only domestic, mining and industrial sectors

What about the Just Energy Transition? (JET-IP)

Updated Water Balance Scenarios to 2060

Reconciliation of future water use requirements and augmentation options



Potential water supply augmentation options

Consideration for each of the four countries and basins.

Future Transboundary Water Management Scenarios

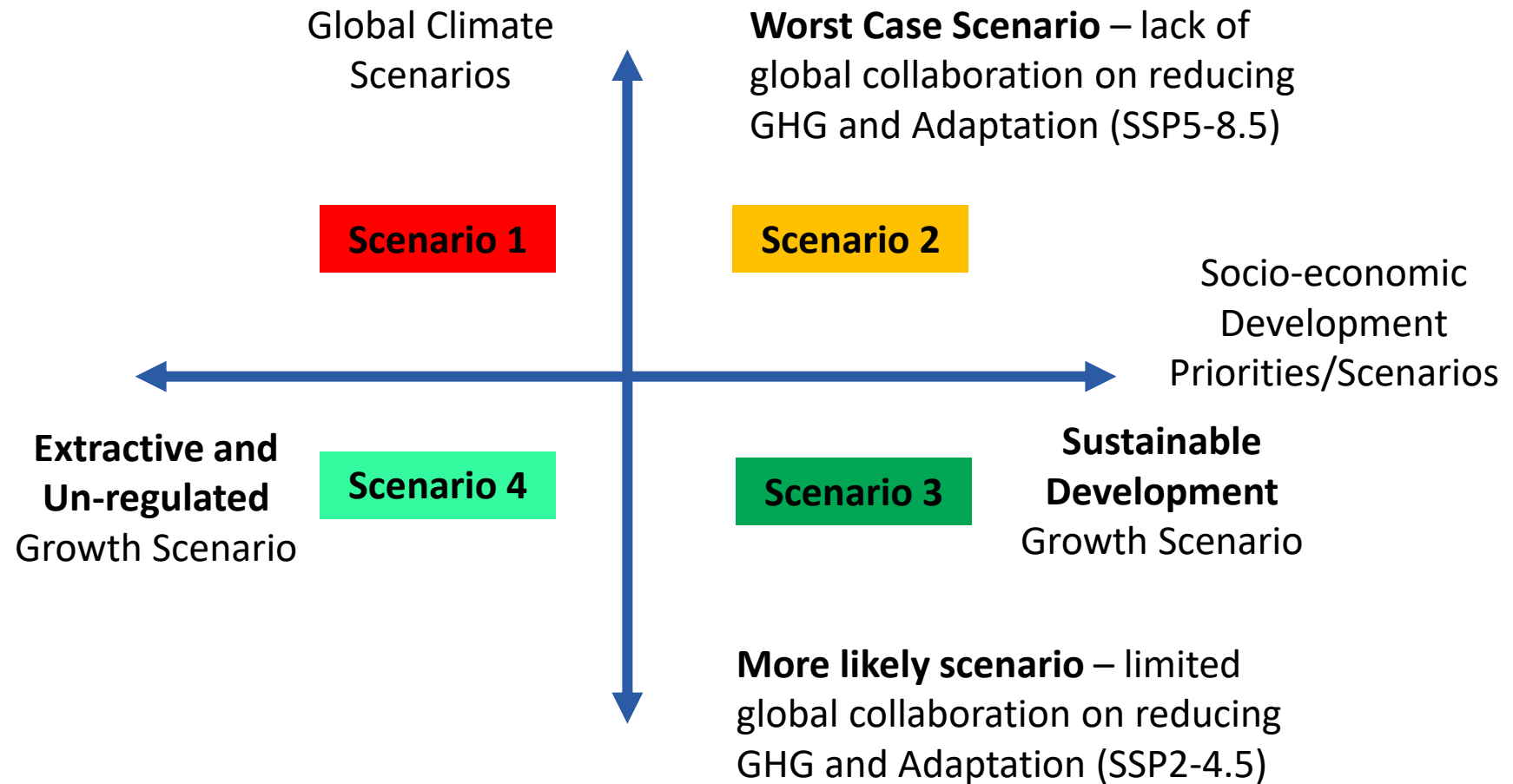
Scenario 1: "Falling Apart"

Scenario 2: "Self-preservation"

Scenario 3: "All together now"

Scenario 4: "Going it alone"

How can we defined these for the Limpopo Basin, and can we assess them with our analysis?



But.... What now?

Nexus Cooperation in the Limpopo River Basin

- Cross-sector coordination is vital for managing shared natural resources in the basin sustainably.
- Solutions that address water **quantity, quality,** and **ecosystems** work best when **communities** are central.
- **Transboundary cooperation** is the key enabler for effective nexus implementation.
- Regional dialogues are shifting from strategy to **joint action and investment planning.**
- Nexus approaches can boost **efficiency, resilience, and stability,** but clearer evidence of benefits is needed to drive uptake.

UNECE

Solutions and investments in the water-food-energy-ecosystems nexus

A synthesis of experiences in transboundary basins



Advancing Nexus Investments in the Limpopo River Basin

- **Basin-level action plans and coordinated strategies** are essential to scale nexus solutions across the four riparian states.
- The nexus approach could help unlock **co-financing from other sectors and private actors**, but evidence remains limited – more data collation > more evidence: LIMIS as knowledge management tool.
- **National-level projects** often lack transboundary impact unless built on **shared understanding and trust** between countries.
- **Cross-sector and cross-border collaboration**, supported by regional data sharing & alignment, offers real potential for joint investments with basin-wide benefits.

The screenshot displays the LIMIS website interface. The top navigation bar includes 'Data Resources', 'Login', and 'Register'. The main header features the text 'THE LIMPOPO WATERCOURSE COMMISSION' and 'LIMIS' over a landscape image. Below this, four key sections are highlighted: 'AIM', 'SOURCES', 'TOOLS', and 'DATA', each with a brief description of its function. The lower portion of the screenshot shows a data visualization interface with a map of the Limpopo River Basin, a 'Filters' sidebar, and a 'Details' panel. The map shows the basin's extent across Zimbabwe, Mozambique, Botswana, and Eswatini, with major cities and parks labeled. The 'Filters' sidebar includes options for 'Map Series', 'Field', 'Meta Data', 'Source', 'Project', 'Description', 'Date', 'Status', 'Interval', 'Is Time Series', and 'Data Access'. The 'Details' panel is currently empty.

Enabling Investment in the LRB

- Basin cooperation **reduces investment risks** and enables cross-border action.
- River basin organisation and TFCA are key to catalysing nexus solutions.
- Water, energy, and agriculture sectors must **co-develop integrated investments**.
- Involvement from finance and planning ministries is critical.
- Private financing can scale solutions—but needs high-level political support.
- Nexus approaches foster cooperation and **reduce conflict** risk.



Options for Adaptations at Scale in the Limpopo River Basin: A conceptual assessment

15 November 2013

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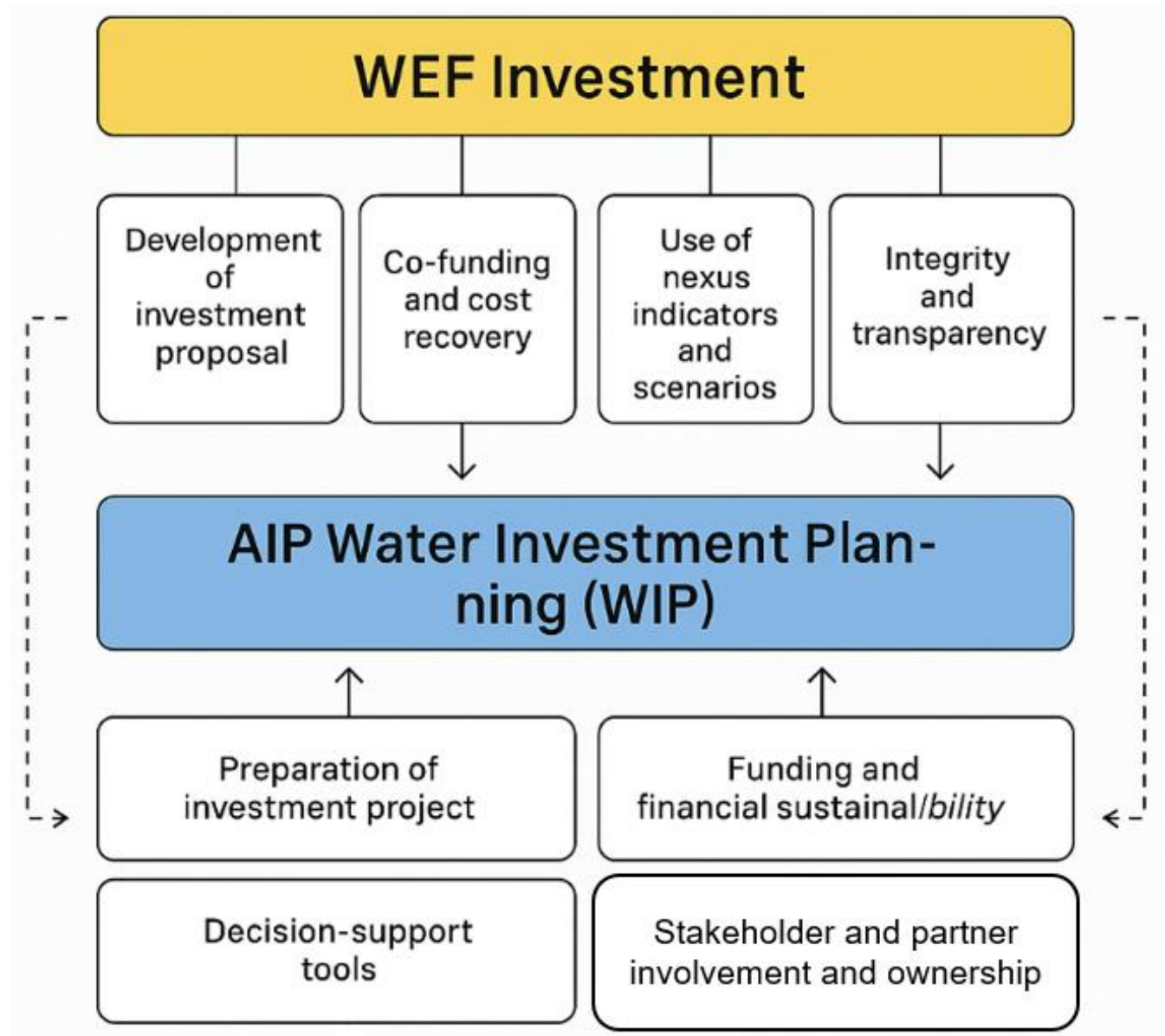
Consideration for NbS including *blending* of grey and green infrastructure

NbS are defined by IUCN as actions to protect, sustainably manage and restore natural or modified ecosystems to address societal challenges effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits. Potential NbS options for consideration:

- Improved catchment management and land-care (reducing soil erosion, flooding, groundwater recharge, and water security).
- Invasive Alien Plants (water security).
- Rangeland management
- Protection and/or rehabilitation of wetlands (sedimentation, flooding, water quality).
- Provision of environmental flows, flood control, etc.



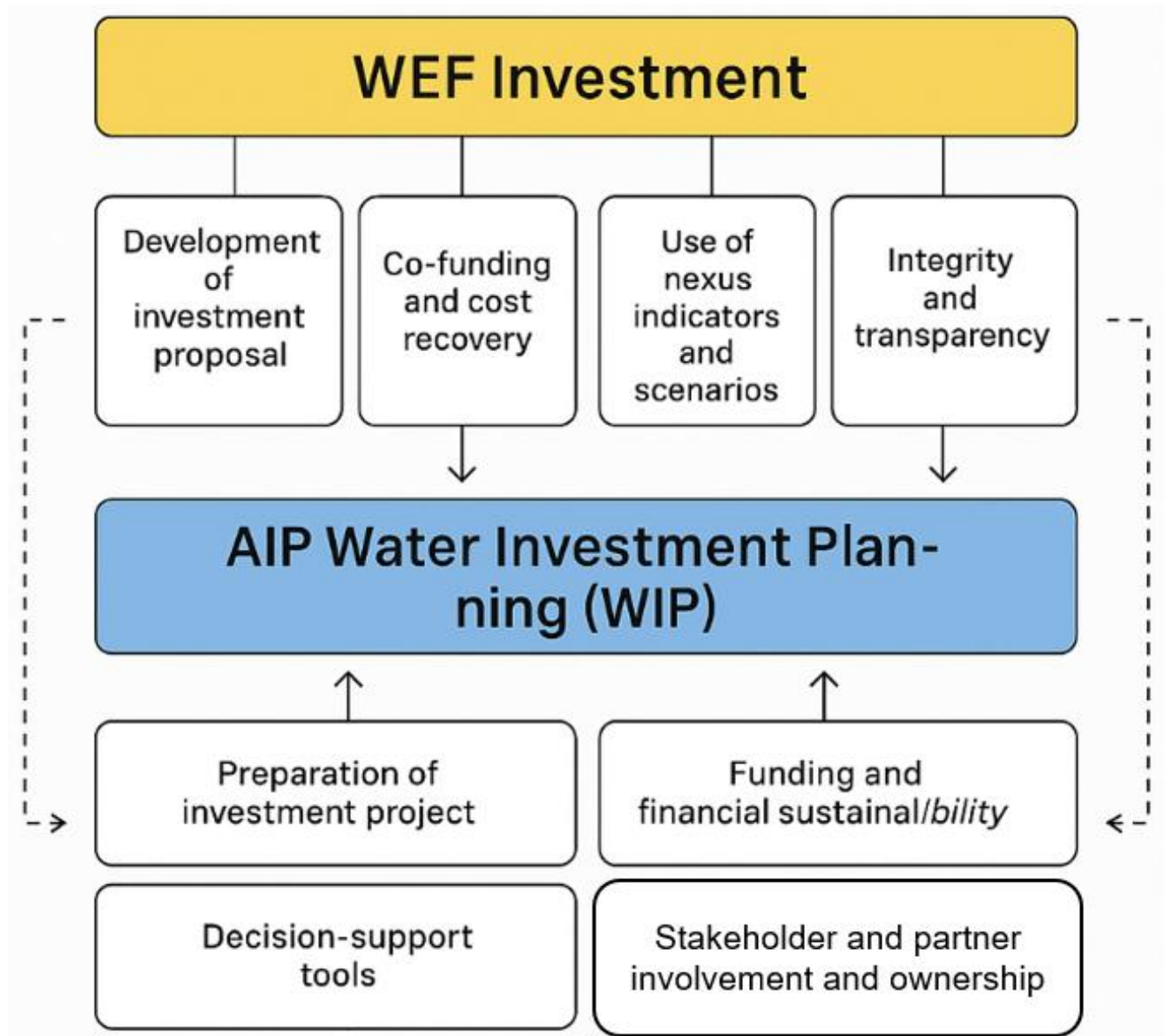
In closing: Align Regional/Continental approaches such as the AIP process (in Africa):



<https://aipwater.org/>

In closing: Align Regional/Continental approaches such as the AIP process (in Africa):

- Integrity and Transparency
- Return on Investment and cost recovery; CBA / CEA
- Transboundary catchments: collaboration with **TFCA's**
- Urban-rural linkages and **circular economies – and the just energy transition (JET)**
- **Source to sea (and in-sea including ocean economy)**
- **Anticipatory action** approach

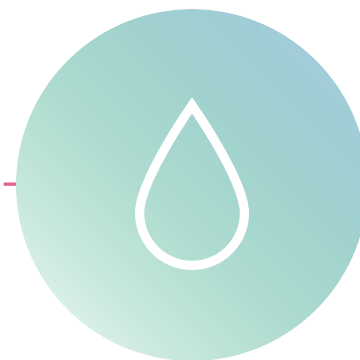


<https://aipwater.org/>

Focus of the sessions during the day

- **Capacity Building** for the Operationalisation and Implementation of the WEF Nexus (*Prof Jean-Marie Kileshye Onema*)

|Thank you



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