Document from the 7th Africa Water Week, held in Libreville, Gabon, 29 October – 2 November 2018

A knowledge asset of the African Ministers’ Council on Water

This material is shared as a learning resource to promote awareness and good practice in the provision, use and management of water resources for sustainable social and economic development and maintenance of African ecosystems.

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Climate Resilient Infrastructure Development Facility

Contributing to transforming infrastructure delivery in Southern Africa

Africa Water Week
1 November 2018

Charles Reeve, Team Leader
Water risks in SADC

- High levels of water insecurity
- Vulnerability to climate shocks
- Tremendous temporal and spatial variability in available water resources exacerbated by impact of climate variability
- Major shared river basins – multi-country regional response to climate change challenging
- Huge infrastructure investment backlog – impacts on disaster preparedness: call to action!
Understanding Climate Risk
Inter-annual variability measures the variation in water supply between years.
The probability that a flood will occur in a given year.
Drought is defined as a contiguous period when soil moisture remains below the 20th percentile. Length is measured in months, and dryness is the average number of percentage points by which soil moisture drops below the 20th percentile.

Data source: Aquastat
2015 drought impact

- Severe water rationing in Gaborone
- Hydropower plants closed in Tanzania
- Power production from the Zambezi curtailed
- Emergency feeding programmes in Zimbabwe
<table>
<thead>
<tr>
<th>CLIMATE RISK</th>
<th>ADAPTATION / RESPONSE Backbone</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-season Variability</td>
<td>Storage</td>
</tr>
<tr>
<td></td>
<td>Irrigation</td>
</tr>
<tr>
<td>Annual Variability</td>
<td>Dams</td>
</tr>
<tr>
<td>Drought</td>
<td>Large dams</td>
</tr>
<tr>
<td>Floods</td>
<td>Flood warning</td>
</tr>
<tr>
<td></td>
<td>Levees</td>
</tr>
<tr>
<td></td>
<td>Dams</td>
</tr>
<tr>
<td>Low flows</td>
<td>Storage releases</td>
</tr>
<tr>
<td></td>
<td>Water management (tech, ration, leakage)</td>
</tr>
</tbody>
</table>

*Water Infrastructure is an adaptation backbone for agro based economies predominant in SADC*
Plan and Project Preparation Cycle

Plan / Strategy
- e.g. SNOC
- Master Plan / Basin Strategy

Eligibility
- Includes screening, scoping & finalising the concept

Bankability
- Pre-feasibility and feasibility / outline design including CBA/DA/ESI/CCRA

Financial Close
- Detailed design, consents, EMP, procurement, finance / packaging

Climate Resilient Development Pathways
- River basin level climate vulnerability and risk analysis of strategic water infrastructure development options

Climate Change Risk Assessment (CCRA)
- Assessment of risks to a project under feasibility & the services it provides, as well as making recommendations for additional / improving resilience (Track 1 small - Track 2 large)

Vulnerability Mapping
- High level, large scale assessment of climate vulnerability of a large area to confirm if a project from an official plan is appropriate in terms of an area’s resilience challenges

Vulnerability Assessment Tool (VAT)
- Detailed scoping of vulnerability at the project level to inform potential project scope. Used to identify a new project not already on an official plan (CRIDF’s sugar sector case study)

Regional vulnerability analysis
- Developed for programmatic GOF proposals similar to CRIDF YA

Resilient Project

Projections & Impacts Paper
- Corridor/SCIM projects
- Supports Track 1 CCRA & VAT

www.cridf.com
A Climate Vulnerability Assessment Tool for communities and water infrastructure
Problem Statement

• Rural communities facing climate risks - highly vulnerable to climate impacts
• Communities have limited capacity to adapt to risks
• Tool assesses current risk and vulnerability
• Based on updated Intergovernmental Panel on Climate Change methodology
How the tool works: Framework

V = S - AC
R = H + (E x V)
How the tool works:

Structure

Survey
• Questionnaire to local stakeholders on climate and climate impact
• Questionnaire on adaptive capacity

Assessment and diagnostics
• Climate risks
• Status of adaptive capacity
• Review interventions
• Propose prioritised interventions
VULNERABILITY

CURRENT

The table below illustrates the current vulnerability - viewed by the same categories as 'sensitivity' and 'adaptive capacity'.

<table>
<thead>
<tr>
<th>Human</th>
<th>Institutions</th>
<th>Infrastructure</th>
<th>Natural Resources</th>
<th>Financial Resources</th>
</tr>
</thead>
</table>

The table below illustrates the current vulnerability - viewed by the same categories as 'exposure'.

<table>
<thead>
<tr>
<th>Livelihoods</th>
<th>Health &amp; Safety</th>
<th>Services</th>
<th>Water Supply</th>
<th>Infrastructure</th>
</tr>
</thead>
</table>

The table below illustrates the current levels of vulnerability in more detail.

<table>
<thead>
<tr>
<th>Livelihoods</th>
<th>Food security</th>
<th>Crops</th>
<th>Livestock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health &amp; Safety</td>
<td>Water Borne Diseases</td>
<td>Vector Diseases</td>
<td>Safety</td>
</tr>
<tr>
<td>Services</td>
<td>Housing</td>
<td>Land</td>
<td>Community</td>
</tr>
<tr>
<td>Water Supply</td>
<td>Access</td>
<td>Quality</td>
<td>Droughts</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Water Supply</td>
<td>Water Treatment</td>
<td>Water Storage</td>
</tr>
</tbody>
</table>

Legend: Low | Medium | High

The graph below illustrates the current levels of vulnerability.

The graph below illustrates the current levels of vulnerability.
Preparing transboundary, climate resilient water infrastructure finance applications in Southern Africa
## Financing for adaptation

*Impacts, returns, risks, opportunities and mitigating factors related to the following issues need to be addressed:*

<table>
<thead>
<tr>
<th>Issues common to all infrastructure projects</th>
<th>Issues specific to adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Technical</td>
<td>1. Climate change risk assessment</td>
</tr>
<tr>
<td>2. Financial</td>
<td>2. Livelihoods</td>
</tr>
<tr>
<td>3. Environmental</td>
<td>3. Uncertainty needs to be factored into the design</td>
</tr>
<tr>
<td>4. Social</td>
<td></td>
</tr>
<tr>
<td>5. Legal and regulatory</td>
<td></td>
</tr>
<tr>
<td>6. Market / End-users</td>
<td></td>
</tr>
<tr>
<td>7. Development impact</td>
<td></td>
</tr>
</tbody>
</table>
Water Infrastructure: small projects aggregated to achieve scale and transformative impacts

<table>
<thead>
<tr>
<th>Project</th>
<th>Building climate resilience of vulnerable agricultural livelihoods (Zimbabwe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsor</td>
<td>Gov of Zimbabwe</td>
</tr>
</tbody>
</table>
| Other projects | • Sustainable agriculture  
• Access to markets  
• climate, agricultural and market information |
| Key issues | • small projects aggregated to achieve scale and transformative impacts  
• Multi-source financing: government of Zimbabwe, UNDP, CRIDF  
• Operations and maintenance funding from the Government |
Key lessons in preparing adaptation focused projects for finance

• Adaptation impact can be achieved
  • Livelihoods matter: “resilient poverty is an oxymoron” (Robert Muir-Wood)
  • The longer-term resilience issues are not always obvious
  • Water infrastructure is often the anchor of a multi-faceted approach

• Robust project preparation is critical:
  • Economic IRR is as important to funders as Financial IRR
  • Coordinating different funders’ needs and expectations is essential
  • The private sector can play a crucial role in mobilising adaptation focused investments
Thank You

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