Some Key Challenges of Governance and Management for the Nexus in a Southern African context

Dr Sabine Stuart-Hill
Centre for Water Resources Research (CWRR)
Stuart-Hills@ukzn.ac.za
033 260 5460
Key messages

- The Southern African region is experiencing unprecedented dynamics of change and on a variety of aspects.
- Organisational and individual vulnerabilities/disparities are high.
- Knowledge systems are weak.
- Nexus is an opportunity, but also pushes into a highly politicised arena and debate.
- All the above is on a scale that is not comparable to other regions in the world.
- Sustainable living and well-being needs a localised view, and context-specific governance.

Therefore, an urgent need for innovations in government management and governance beyond what we know!
In the Region Global Change Dynamics and Disparities are Incomparably High

- A region under-going rapid anthropogenic driven change; urban migration and land-use changes are dominating.

- The effects are often expressed through highly localized impacts.

- “The reality of a highly variable rainfall and water supplies, frequent floods and droughts, soils which require careful nurturing to retain their ability to produce and a population which is vulnerable to disease and poverty imply the potential for reaching a threshold [...] high.” (Ngcobo et al., 2013)

- Governments, some of them relatively newly formed, are struggling with these aspects.
Individual and Organisational Vulnerability and Disparity Levels are High

- ... due to partially extremely high poverty levels
- ... due to very high climate variability in some countries of the region
- ... due to human and financial capacity constraints
- ... due to lacking infrastructure
- ... due to very high disparities between rural and urban areas
- ... due to many countries in the region having adjusted or even re-designed laws in the past few decades
- ... due to implementation lagging

Democracies, governments and management not robust yet
### Summary of global nexus risks and vulnerabilities (Wakeford et al. 2015)

<table>
<thead>
<tr>
<th>Energy System Linkages</th>
<th>Food System Linkages</th>
<th>Water System Linkages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Security</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy (oil) price shocks, arising from:</td>
<td>Dependence on bioenergy sources derived from food crops raises energy access and affordability risks.</td>
<td>Water scarcity and impaired quality could constrain energy supplies, including hydropower and thermal power.</td>
</tr>
<tr>
<td>- Geopolitical disruptions to energy supply (e.g. oil, gas or electricity).</td>
<td>Low net energy yield of many bioenergy sources, implying higher energy prices.</td>
<td>Increasing demand for energy from water systems, and growing competition for water supplies with other sectors.</td>
</tr>
<tr>
<td>- Depletion of conventional fossil fuel resources, especially oil.</td>
<td>Increasing demand for energy from food systems to meet growing global food demand.</td>
<td>Rising water temperatures threaten thermal power stations.</td>
</tr>
<tr>
<td>- Rising costs to produce oil and gas.</td>
<td>Limits on land and water availability for growing bioenergy.</td>
<td>Possible increases in water prices due to water scarcity and demand growth would raise energy production costs.</td>
</tr>
<tr>
<td>- Financial market commodity speculation.</td>
<td>Climate change impacts on biofuel production.</td>
<td>Possible stricter regulations on water use for energy.</td>
</tr>
<tr>
<td>- Ageing infrastructure and lack of investment in new capacity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rapid demand growth in emerging markets.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Climate mitigation could impose restrictions on fossil fuel combustion.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Food Security</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy price shocks can raise food prices.</td>
<td>Rising food demand driven by growing population and rising incomes.</td>
<td>Water scarcity and impaired quality could constrain food production and processing.</td>
</tr>
<tr>
<td>Energy supply disruptions can negatively affect food production, storage and distribution, and increase food waste.</td>
<td>Constraints on arable land, eroding soils.</td>
<td>Competition from other water uses could drive up water prices for agriculture.</td>
</tr>
<tr>
<td>Increasing competition for biomass waste.</td>
<td>Global warming can affect crop yields.</td>
<td>Droughts and floods driven by climate change can impair food production.</td>
</tr>
<tr>
<td>Biofuels may threaten food security via competition for land and water.</td>
<td>Food prices are subject to financial speculation and price shocks are transmitted globally.</td>
<td></td>
</tr>
<tr>
<td><strong>Water Security</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy supply shocks can disturb water extraction, treatment and distribution.</td>
<td>Increasing demand for water from food systems and to meet food security goals.</td>
<td>Population and economic growth place additional strain on water supplies.</td>
</tr>
<tr>
<td>Increasing demand for water from energy systems, possibly exacerbated by climate mitigation (e.g. expansion of biofuels).</td>
<td>Water demand competition arising from foreign leasing of land for agriculture.</td>
<td>Geopolitical conflict over access to transboundary water resources.</td>
</tr>
<tr>
<td>Threat of rising energy costs feeding through to water prices.</td>
<td>Degradation of water resources from agriculture (e.g. fertilisers and pesticides) and food processing.</td>
<td>Financial constraints on water infrastructure development.</td>
</tr>
<tr>
<td>Pollution of water resources from energy extraction and processing.</td>
<td>Disruption of water-related ecosystem services from conversion of wetlands &amp; forests to farmland.</td>
<td>Impacts of climate change (e.g. changing rainfall patterns, more frequent droughts and floods, melting glaciers, etc.).</td>
</tr>
<tr>
<td>Spatial mismatch between energy and water systems.</td>
<td>Degradation of water quality from economic activities.</td>
<td></td>
</tr>
</tbody>
</table>
Knowledge systems are weak

- Limited monitoring networks and further decreasing (including theft as a major issue)
- Data processing and partial sharing is problematic
- Learning and adaptation not mainstreamed into governance practices
- Localised data especially on water quality and societal aspects and well-being missing

Responsive management and governance is hardly possible, also because of limited organisational robustness
Nexus pushes into a highly politicised arena and debate

- The region has a history of colonisation and authoritarian governance
  - Levels of democracy are basic
  - Discrimination and state centric governance are still prevailing
- Energy + Water = Economic Growth and Development
- Food + Water = Food Security and Poverty Reduction
- Often water use for electricity production is a strategic use and takes priority for allocation
- The right to water stands for empowerment and overcoming oppression

Understanding power relations becomes crucial and mainstreaming is hindered
WEF Nexus as a Window of Opportunity for the Region

- Water is an integrator and touches every part of our lives and well-being
- ... thus it enables us to
  - Engage
  - Facilitate
  - Negotiate
- Clarifies linkages to ensure economic development in the region, and poverty reduction
- ... or... is it right specific and not one size fits all

If coupled with adequate governance systems it has the potential to mature democracy and enable empowerment (sustainable development?)
The SDGs: A New Agenda for Sustainable Development

- A people centric vision, including aims such as dignity, prosperity and well-being on the backdrop of environmental protection and respectful use thereof.
- Such sustainable living and well-being needs a localised view, and thus, context specific governance.

Energy, food and water security are basic elements for livelihoods,

BUT well-being goes beyond this and requires a localised view to capture local phenomena and context.
Innovations in government, management and governance beyond what we know...

- Come and join us in having some great ideas!

Dr Sabine Stuart-Hill
Centre for Water Resources Research (CWRR)
Stuart-Hills@ukzn.ac.za
033 260 5460

Governance break-out group
Tuesday, 15:55