Water Futures and Solutions Workshop

Entebbe, December 4-6 2018
Dr. Simon Langan

Towards Innovative Solutions through Integrative Water Futures Analysis
IIASA - RESEARCH FOR A CHANGING WORLD
World Economic Forum 2017
Top 5 Global Risks in Terms of Impact


<table>
<thead>
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<th>2013</th>
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<th>2015</th>
<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td>Major systemic financial failure</td>
<td>Fiscal crises</td>
<td>Water crises</td>
<td>Failure of climate-change mitigation and adaptation</td>
<td>Weapons of mass destruction</td>
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<td>Water supply crises</td>
<td>Climate change</td>
<td>Rapid and massive spread of infectious diseases</td>
<td>Weapons of mass destruction</td>
<td>Extreme weather events</td>
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<td>Chronic fiscal imbalances</td>
<td>Water crises</td>
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<td>Diffusion of weapons of mass destruction</td>
<td>Unemployment and underemployment</td>
<td>Interstate conflict with regional consequences</td>
<td>Large-scale involuntary migration</td>
<td>Major natural disasters</td>
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<td>Failure of climate-change mitigation and adaptation</td>
<td>Critical information infrastructure breakdown</td>
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<td>Severe energy price shock</td>
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Economic  Environmental  Geopolitical  Societal  Technological
WFaS brief history

“There is a water crisis today. But the crisis is not about having too little water to satisfy our needs. It is a crisis of managing water so badly that billions of people—and the environment—suffer badly”

World Water Vision Cosgrove and Rijsberman 2000, WWC

- Establishment of WFaS with UNESCO
- 2013 Established as a phased partnership approach led from IIASA
- 2016 finalization of global ‘Fast Track’ Approach
- 2016 establishment of first ‘regional node’ (E. Africa)
Water Futures and Solutions (WFaS)

Three major components

Work feeds into global effort on SDG’s, UNFCC and beyond
Context: A rapidly changing world

• Up to 2 billion more people by 2050
• Need to produce 70 percent more food
• With increasing development energy and food demands are rising. Water demands to meet these are expected to rise by 55 percent
• Set against a background of a more variable and changing water resource availability
• Up to 40 percent of the world's population will live in severe water-stressed regions
• Increased migration

What actions – policies/investments supported by evidence for interaction?
How and where do these change in the future with change in population (demand) and climate (resources) and how best to manage in an integrated manner?
Solutions for a water secure East Africa in 2050

Looking into mid- to long term water resources management

• Approaches, tools and techniques
• Understanding key determinants
• Unlock collaboration, mutual benefits
WFaS LAICO, December 2017

50+ participants from:
• Government, transboundary organisations
• Academia
• Civil society organisations
• Business representatives
Meeting framed by and explored:

major drivers:
How will the Lake Victoria Basin be transforming in order to achieve the EAC Vision 2050?
- creating qualitative storylines of key drivers.
- quantifying major drivers.

challenges and solutions
What are the major water management challenges associated with the EAC vision 2050 and how can these be addressed?
- identify and discuss challenges and trade-offs.
- identify and discuss solutions and synergies.
Understanding development scenarios:

Draft story lines:
- Socio-economic trends and domestic water, Simon Langan
- Surface water and ground water resources, Peter Burek
- Agriculture, livestock and fishery, Sylvia Tramberend
- Industry incl. energy, manufacturing and commerce, Clarissa Mulders / Robert Burtscher

Quantification: Discussion based on clue cards, validation and some hints for further research.
Modeling approach
Socio-economic change - Population

How to improve management against changing climate, possibly, longer, more frequent droughts and shorter and changing start to wet season??

Lake Victoria basin

From 46 Mio. people in 2010 to 87 – 120 Mio. people in 2050 (depending on scenario SSP1-SSP3)

90% - 260% increase
Who will join us next time?
This meeting: Sharing experience on modelling outcomes under different scenarios

Build on your experience from the region

• Explore the results and underpinning data sets
• Discuss how to maximize the utility of the results and work
  – Key messages
  – Who would find results useful
  – What format
• Forward look
Forward look

• Proposal to ADA pilots to scaling out for Agricultural water management
• Work in Zambezi
• Discussions with AMCOW
• YSSP and post-doc opportunities
YSSP Program

- Program aims at advanced Ph.D students
- Runs from June 1 until August 31
- Research on issues of global environmental, economic and social change
- Interdisciplinary, international, independent
- Wide range of scientific events, including both social and natural sciences, often with important policy dimensions
“Water is a precious resource, crucial to realizing the sustainable development goals, which at their heart aim to eradicate poverty.”
UN Secretary-General Ban Ki-moon
21\textsuperscript{th} January 2016, Davos

Thank you
Simon Langan