

Supporting better decisions across the nexus of water-energy-food challenges: Case of the Zambezi Basin

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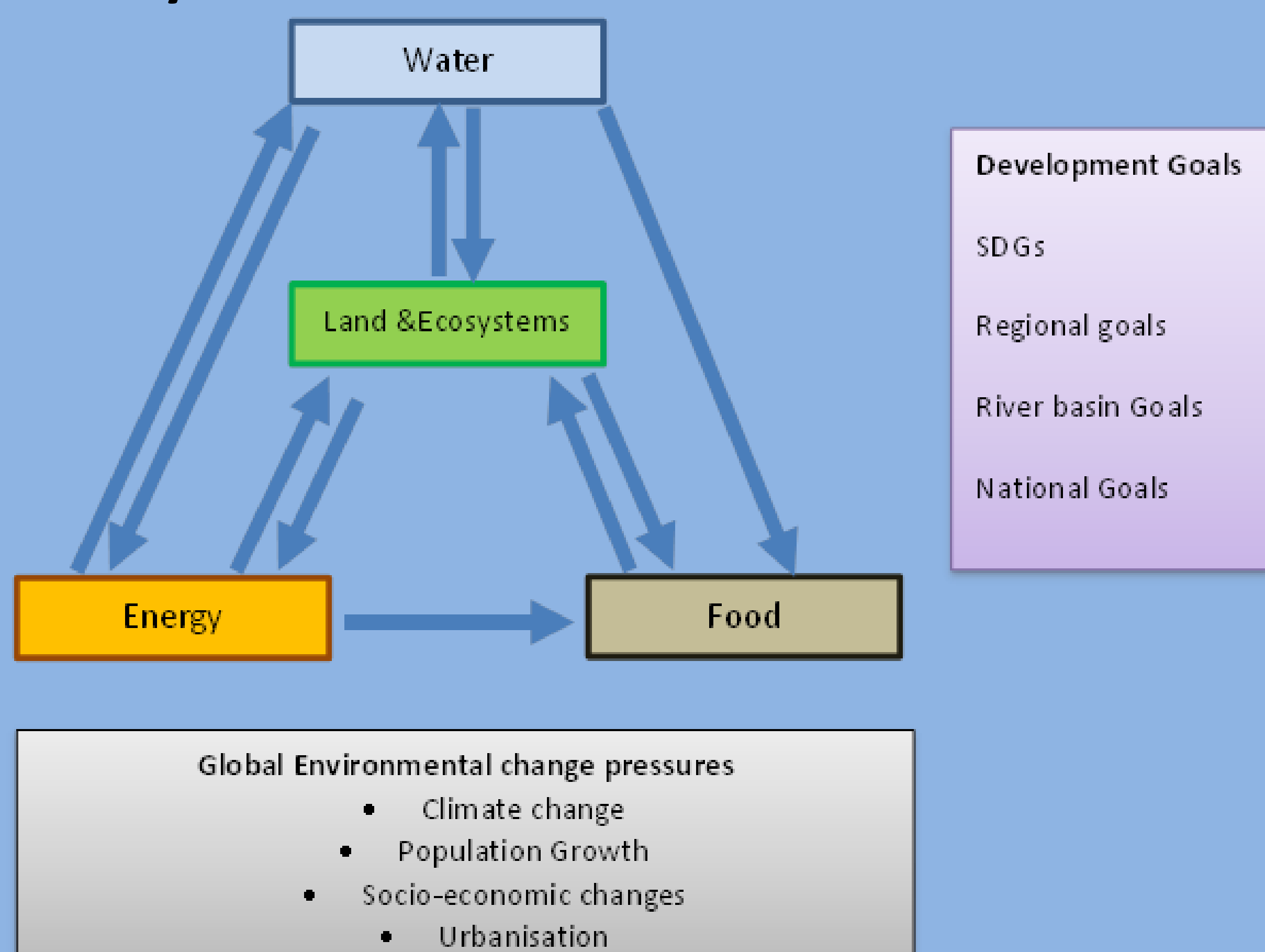
Introduction and Background

- Forecasts indicate that in the next 30 years, an increase of 120 million ha will be required to meet increasing food demands of a growing population (Tidwell, 2016); while Trainor et al (2016) argues that energy development is a major driver of land use change; of which the impacts on land and water resources are poorly understood.
- The pressures on the planet could result in resource shortages, leading to water, energy and food insecurity, hampering economic development, social and geopolitical tensions and irreparable environmental damage
- Water, energy and food are inextricably linked and are among the biggest global challenges to humanity today. The nexus is 'an approach to assessment, policy development and implementation that focuses simultaneously on water, energy and food security.

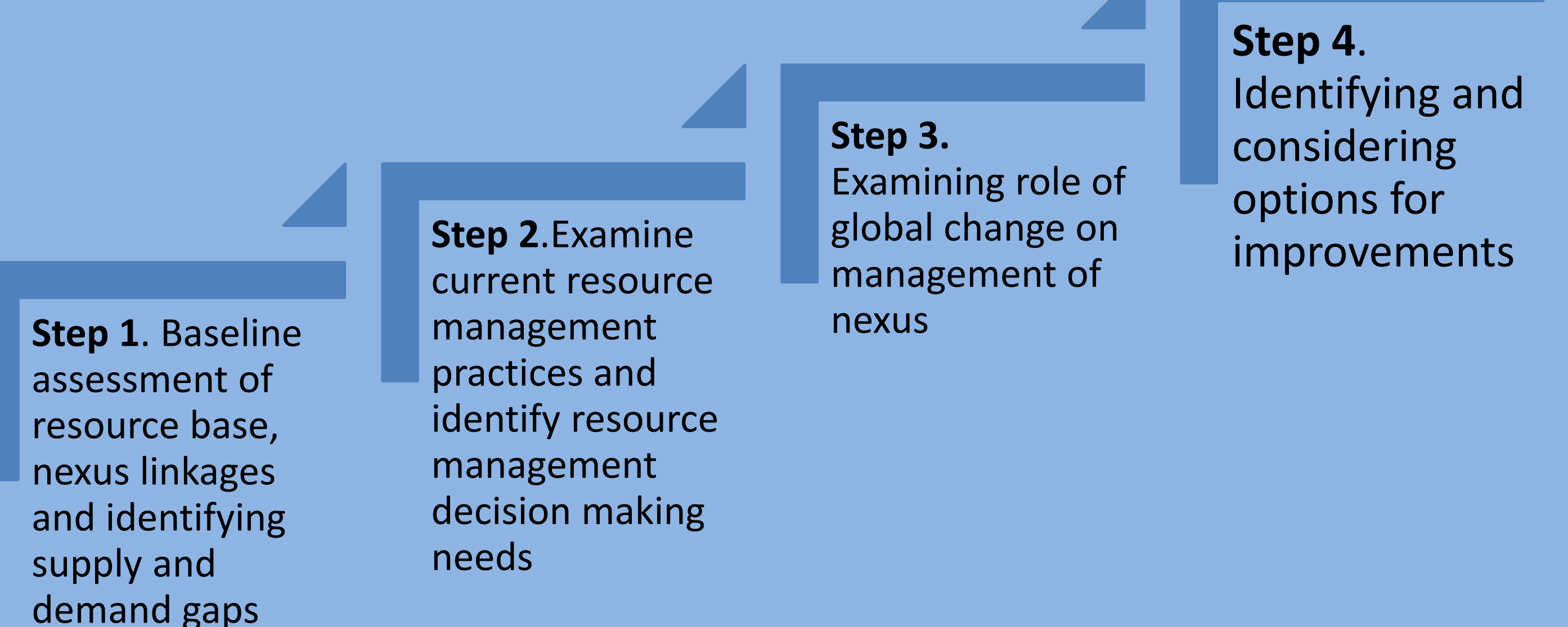
Main Objectives of study :

- Using nexus approach to support better decision making in the Zambezi basin and it's riparian countries
- Evaluate the impact of
 - climate change,
 - population growth,
 - socio-economic changes and
 - urbanisation.

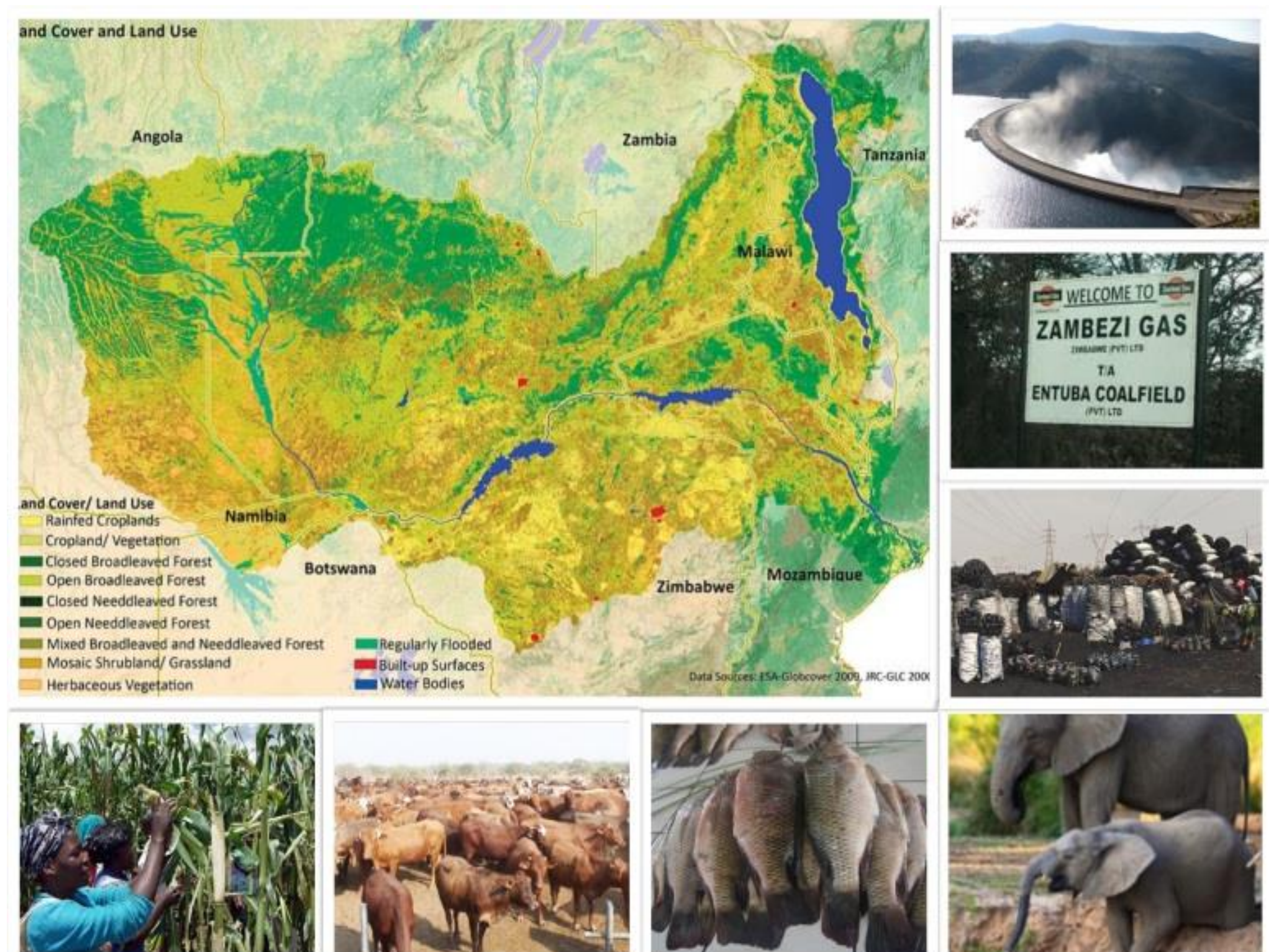
Analytical Framework



Research design



Adapted from: World Economic Forum (2011)



Future steps

- Baseline data collection for water resources, energy and food production; Identification of interlinkages as well as supply and demand gaps
- Integrated systems simulation
- Evaluation of the impacts of Global environmental change pressures on water, energy and food systems
- Options and trade-off analysis

References

- SADC/SARDC and others 2012. Zambezi River Basin Atlas of the Changing Environment. SADC, SARDC, ZAMCOM, GRID-Arendal, UNEP. Gaborone, Harare and Arendal.
- Trainor AM, McDonald RI, Fargione J (2016) Energy Sprawl Is the Largest Driver of Land Use Change in United States. PLoS ONE 11(9): e0162269. doi:10.1371/journal.pone.0162269
- Tidwell, T.L. J Environ Stud Sci (2016) 6: 214. doi:10.1007/s13412-016-0367-8
- Photos: UNEP's Africa Water Atlas; zaraho.org.zm; Namibia newspaper at newera.com.na; African Wildlife foundation -awf.org/landscapes/zambezi; Lifetime energy.org/category/blog

Acknowledgements
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