

# Participating Institutions of Higher Learning

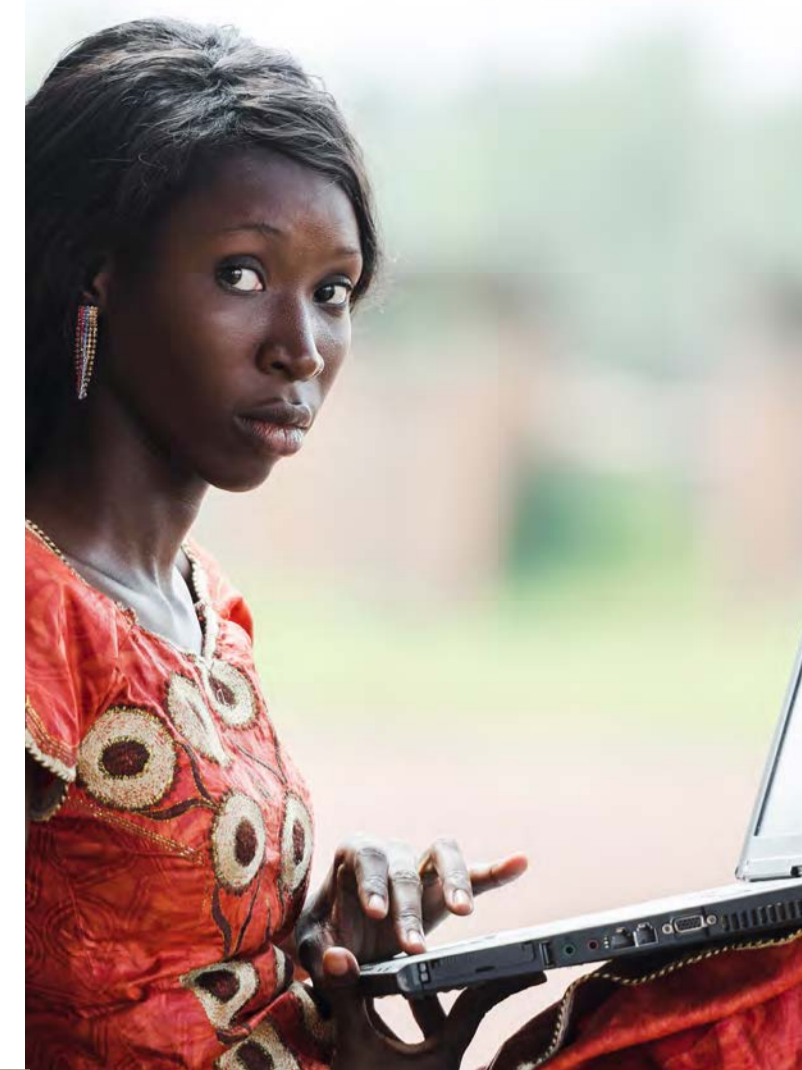
The Limpopo Basin Curriculum Innovation Network has been established by six institutions of higher learning (IHLs) in the Limpopo Basin, supported by AWARD via the RESILIM-O programme. These institutions have agreed to work collaboratively on the climate resilient development of the Olifants and wider Limpopo Basin.

The Limpopo Basin Curriculum Innovation Network involves six institutions of higher learning (IHLs) in the Limpopo Basin.

## The University of Limpopo

SOUTH AFRICA

Different components of climate resilience building and governance in the Limpopo Basin are covered by different departments at the University of Limpopo. These include Geography, Agriculture, Rural Development, Environmental Law, and Water and Sanitation. A SARChI Chair on Ecosystem Health conducts research on resilience and a Risk and a Vulnerability Science Centre deals with climate change resilience issues. The Rural Development Innovation Hub is tasked with curriculum innovation and partnership development. A problem-based Masters Degree in Water and Sanitation, and an Indigenous Knowledge BSc programme are currently in development, along with short courses that will address climate resilient development demands.



## The University of Venda

SOUTH AFRICA

A well-established School of Environmental Sciences offers a variety of under and postgraduate programmes in a range of areas relevant to climate resilience in the Limpopo Basin. These include ecology and natural resources management, geography and GIS, mining and environment (including rehabilitation), water resources management, and biodiversity. A SARChI Chair on Biodiversity Value Change works in the Vhembe Biosphere Reserve. New programmes in disaster risk reduction science, environmental engineering, freshwater ecology and GIS systems are being developed. The university are actively engaged in curriculum innovation in areas related to climate change resilience across a number of departments.



## The University of Mpumalanga

SOUTH AFRICA

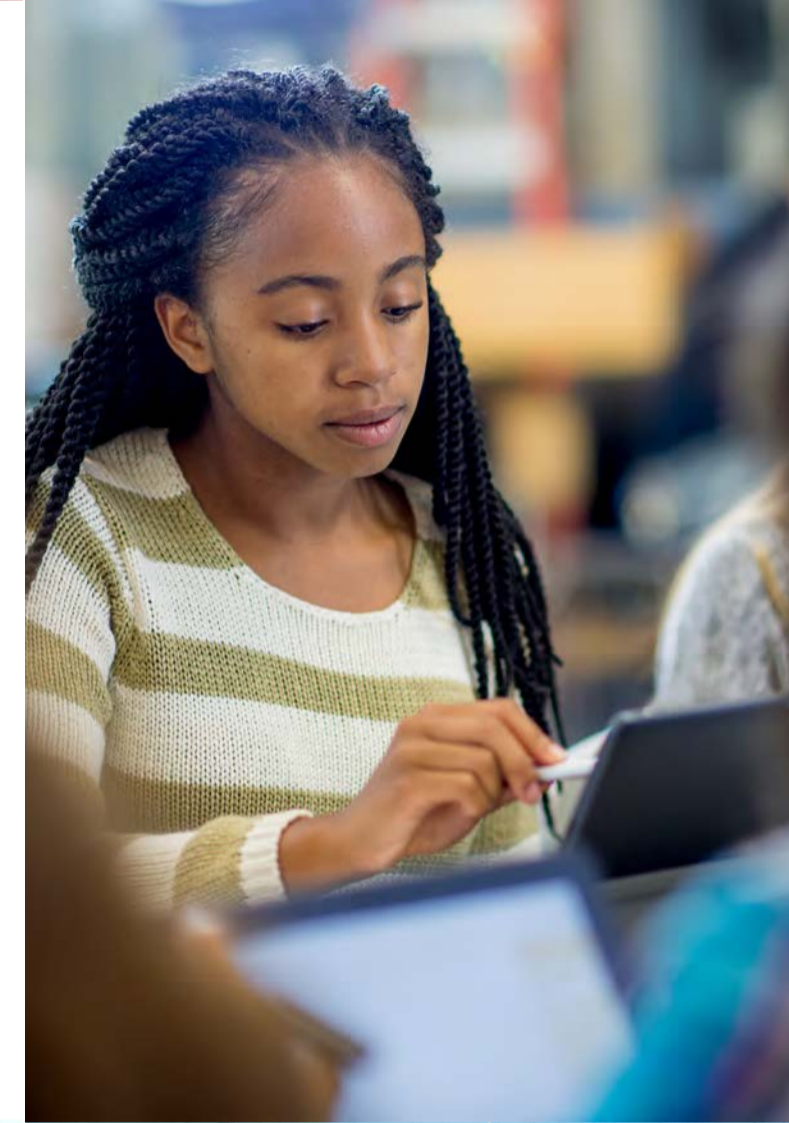
This new university has a strong agriculture school that is engaging with smallholder farmers' development (including rainwater harvesting, climate resilience and irrigation system efficiency); and a School of Science that is developing major electives for the Bachelor of Science in conservation science, agricultural science, and water sciences. The university also has a Rural Development qualification and overall has a strong commitment to social-ecological systems, sustainable development and climate resilience. Diploma programmes are also being offered. Curriculum innovation is currently taking place in the Conservation Diploma, and a new Advanced Diploma in Conservation Sciences is being developed to address climate resilience issues.



## The Southern African Wildlife College

SOUTH AFRICA

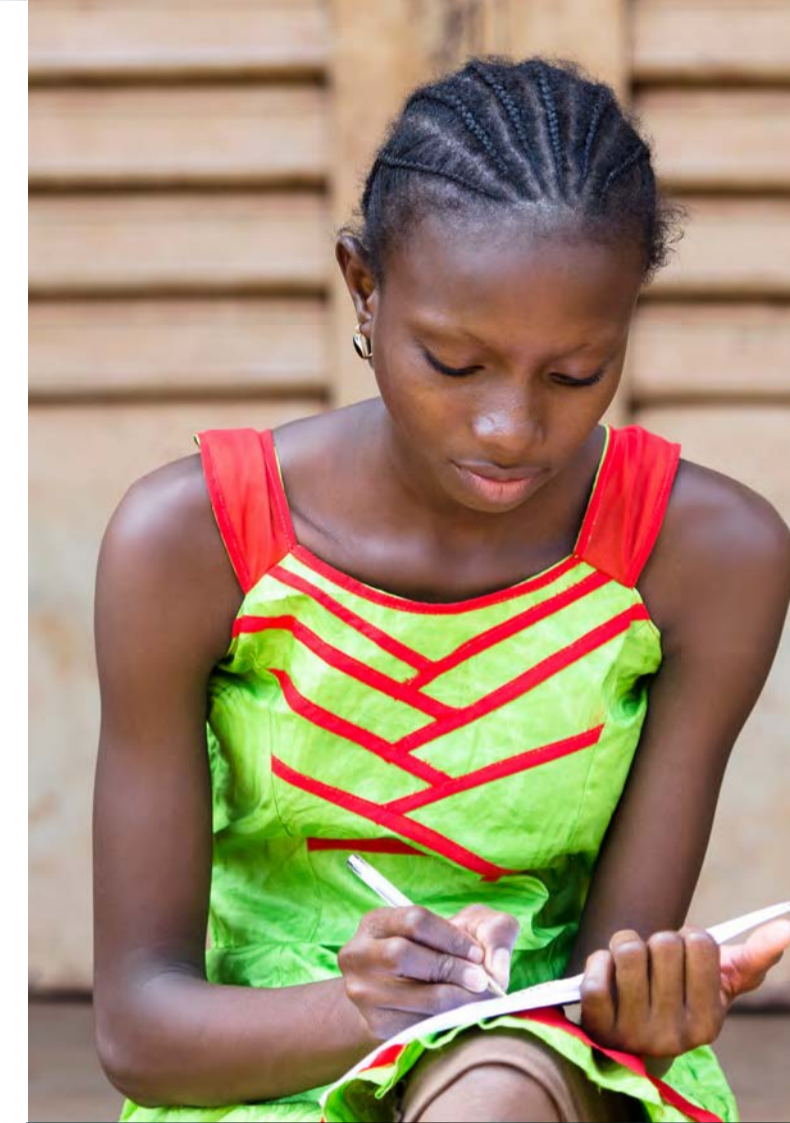
This regional private training institution serves the southern African region. It has a strong focus on professional training for conservation and wildlife management. The SAWC offers two Higher Education qualifications namely a Higher Certificate in Nature Conservation (NQF level 5), and an Advanced Certificate in Nature Conservation (NQF level 6) focusing on transboundary conservation management. It has a strong focus on applied learning, and hosts post-graduate scholars and other learners interested in gaining practical experience. The SAWC are in the process of updating their curricula in response to a social return on investment study, and changes in the national system of accreditation.



## Eduardo Mondlane University

MOZAMBIQUE

The University has conducted research and training on climate resilience in the Limpopo Basin. The Faculties of Agronomy and Forestry, Science (Physics Department), and Arts and Social Sciences (Geography Department) offer a range of programmes that are integrating climate resilience. A new Masters programme in Disaster Risk Management and Climate Change is in development, and a Masters and PhD programme in Energy Science and Technology exists. Centres such as the International Centre for Water Governance and the Centre for Agriculture and Natural Resources Management studies are also engaging in climate change research, teaching and curriculum innovation.



## Pedagogical University

MOZAMBIQUE

The Pedagogical University plays a critical role in the education system of Mozambique as it trains most of the country's teachers. It also conducts research on energy, biodiversity, water systems and climate change in the Limpopo Basin and Limpopo National Park and influences community education and social learning. The Faculty of Natural Sciences and Maths, and the Faculty of Land Science and Environment include climate change concerns in teachers training. The University has postgraduate programmes in Energy and the Environment, and Environmental Management. The PU has a special interest in place-based curriculum innovation to address the Mozambique education policy requirement of 20% localized curriculum in schools.



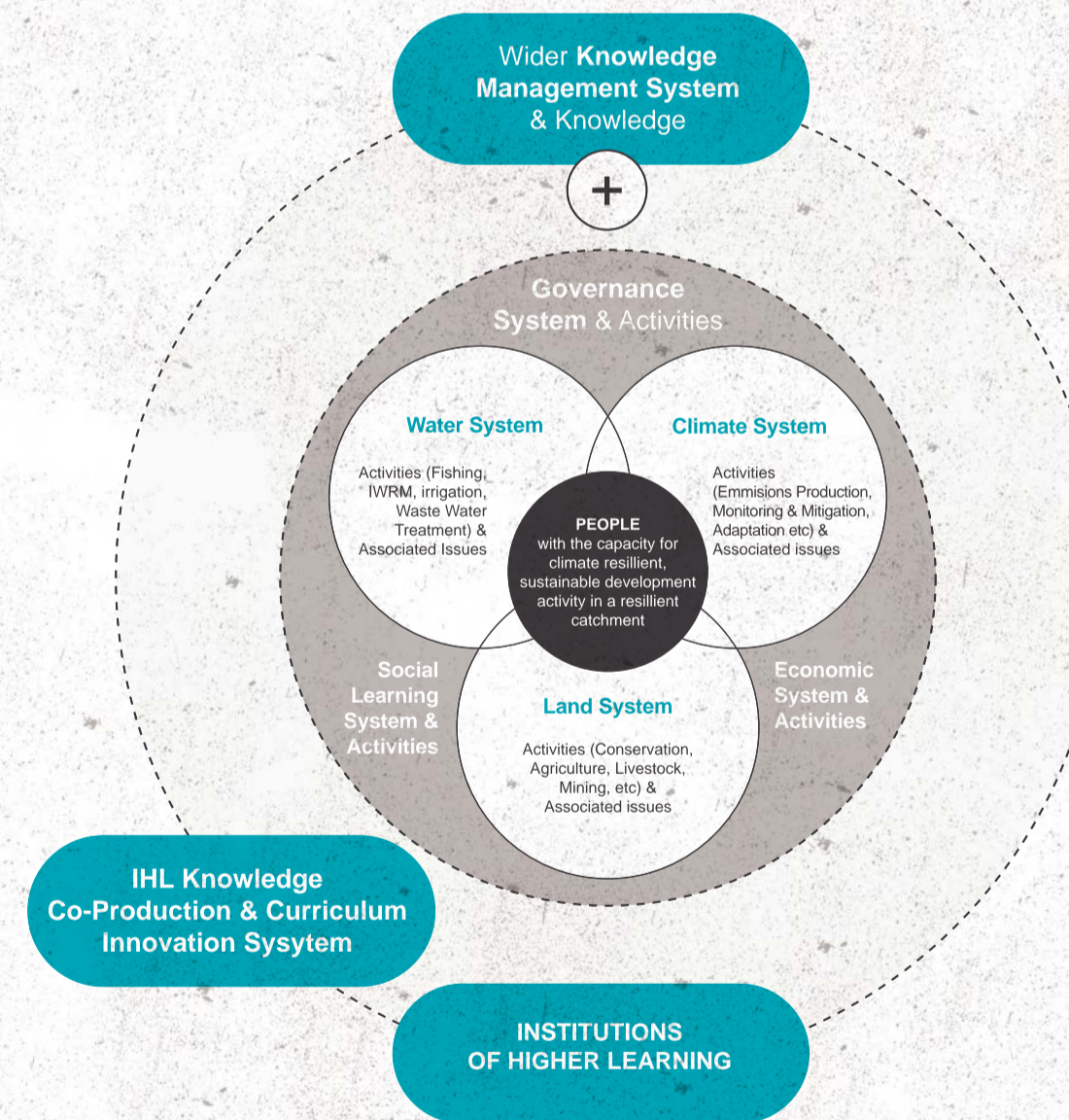
# Conceptual Framework

The LBCIN will design curriculum innovations that strengthen systems approaches to governance and social learning, in order to improve river basin management, through integration of the biophysical and social sciences, and theory and practice.

The focus will be on supporting people to develop capacity for climate resilient, sustainable development activities and practices in a resilient catchment. This will involve giving attention to the interrelated water, climate, land, governance, economic and social learning systems each with their own activities, vulnerabilities and issues that require addressing.

Institutions of Higher Learning are part of a wider system of social learning, and can engage in curriculum innovation and research that is connected to community concerns. They can also share knowledge into the wider knowledge management system involving policy and practice actors.

Ultimately they have a responsibility for supporting the next generation of managers and leaders in the catchment to develop systems thinking, values and action competences relevant to a sustainable, climate resilient development path.



## Principles guiding curriculum innovation in the LBCIN

1. Put people and their activities first within a systemic approach to resilience building and sustainable development.
2. Think 'intensely local and global' at the same time.
3. Engage in interdisciplinary teams to strengthen relevance and responsiveness (involve social and natural sciences).
4. Develop systems thinking with an emphasis on social-ecological systems and adaptive responses.
5. Build feedback loops into thinking and practice (from multi-stakeholders including communities).
6. Develop place-based, situated learning approaches that take account of local and indigenous knowledge systems as well as scientific knowledges.
7. Integrate theory and practice (praxis) in ways that link to occupational streams and applied learning outcomes.
8. Develop competences for futures oriented thinking, resilience building and adaptive capacity.
9. Actively develop transformative learning approaches and capacity for learning to learn.

“ This network will help to improve our curriculum and our collaboration. ”

(LBCIN participant)



**SOCIAL LEARNING**  
Social learning is a process of social engagement around common concerns leading to transformation of individual thoughts and ideas, as well as changes in social units or groups, and transformation of the situation through collective and concerted action.

**SYSTEMS THINKING**  
Systems Thinking involves the understanding of a phenomenon within the context of a larger whole; to understand things systemically literally means to put them into a context, to establish the nature of their relationships.

**PRAXIS**  
Praxis involves the integration of theory and practice. It involves theory-and-practice in practice.

**RESILIENCE**  
Resilience of an ecological system is its ability to 'bounce back' in the face of shocks.

“ We need to extend the area of study and include other countries and river basins in southern Africa. ”

(LBCIN participant)

# The Limpopo Basin and Olifants Tributary

The Limpopo River and its contributing waterways are critical for supporting life. The Limpopo Basin is one of the most economically and socially important river basins in southern Africa. It has a youthful population with potential to drive sustainable development.

The Olifants is a critically important transboundary tributary of the Limpopo River, linking South Africa and Mozambique.

The Olifants basin is under enormous pressure. It is being degraded by pollution, inadequate land use, poorly enforced policies and regulations, and loss of biodiversity.

People here face water shortages, increased floods, and declines in crop productivity as climate change further stresses an already water limited region.

There is an urgent need to:

Reduce (climate) vulnerability and enhance climate resilience in the Limpopo Basin.

Develop science-based adaptation strategies using systems approaches.

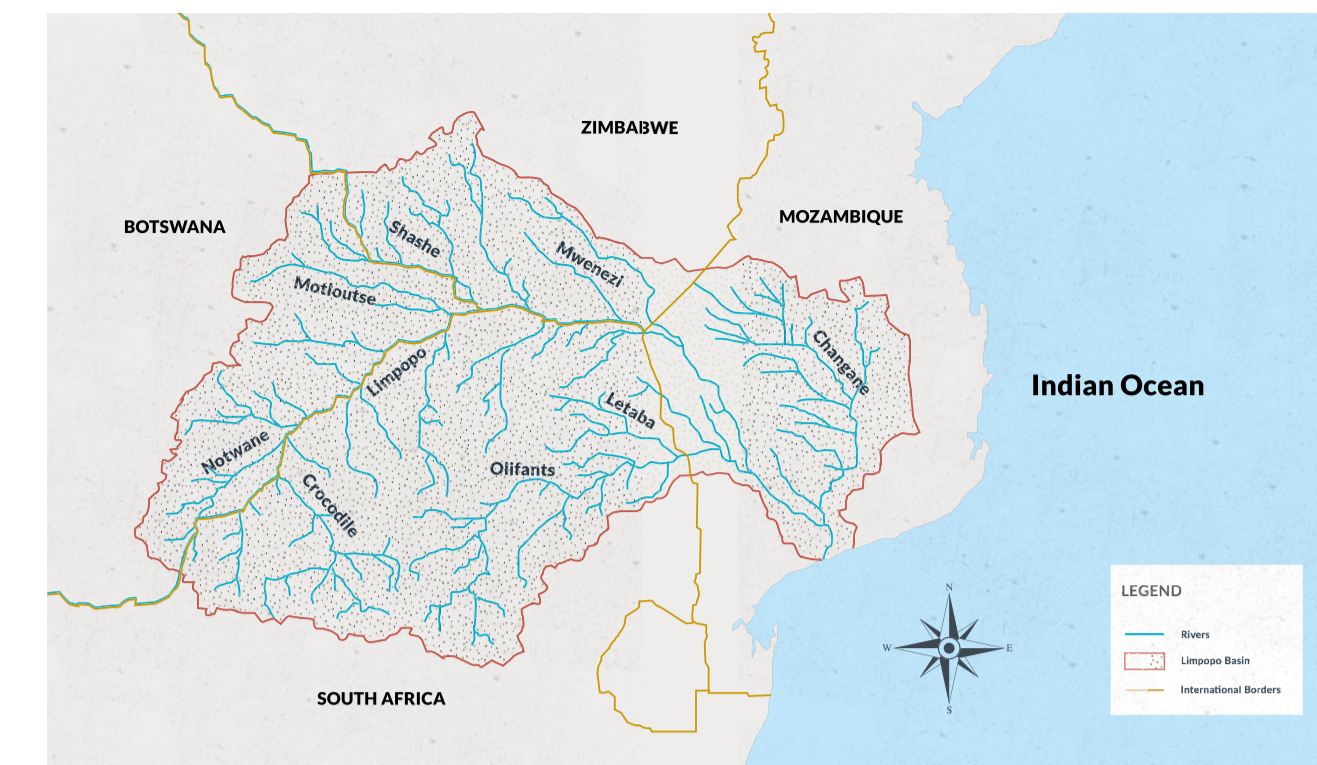
Strengthen transboundary Integrated Water Resources Management (IWRM), biodiversity conservation, sustainable development, improved governance and social learning.

Facilitate knowledge exchange and co-operation across institutions of Higher Learning to drive curriculum innovation and research.

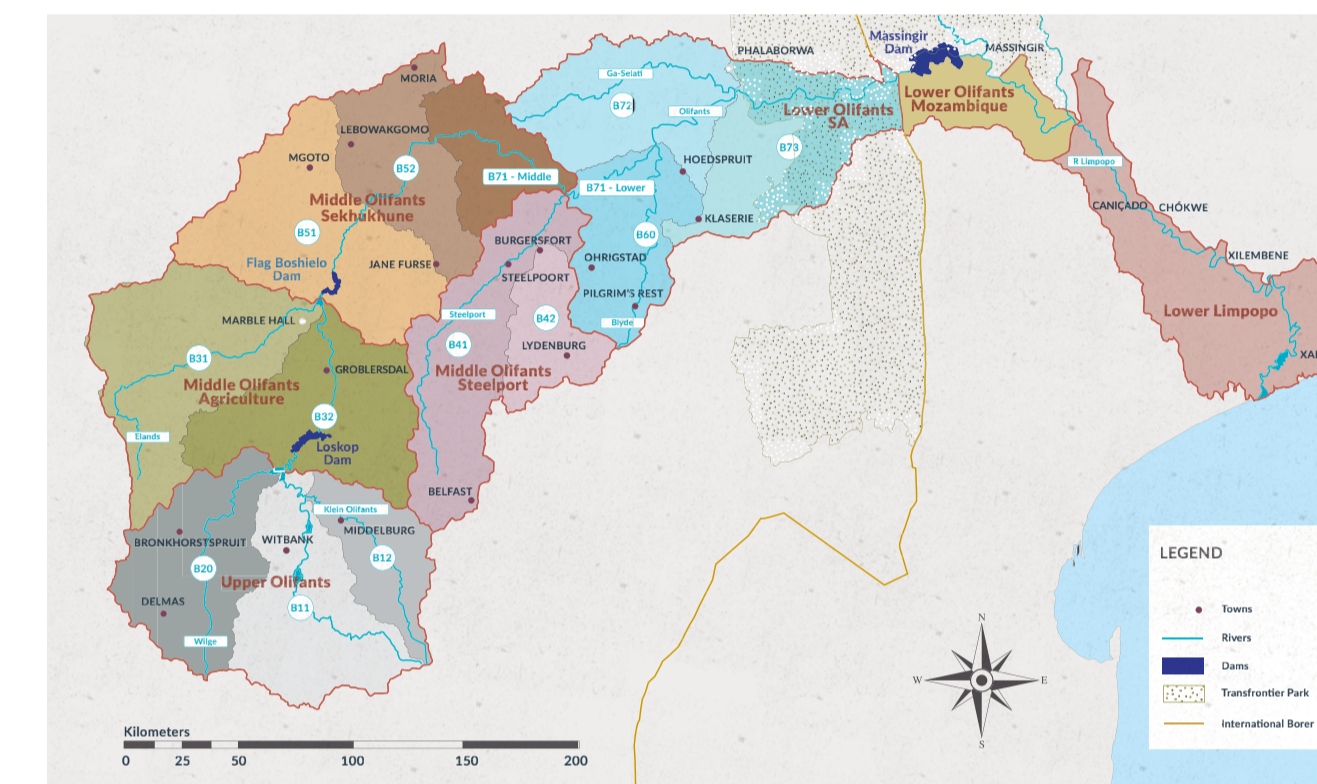
Strengthen alignment of higher education with climate resilient development.

*The Limpopo Basin Curriculum Innovation Network has been formed to respond to these needs, and increase the relevance and responsiveness of curricula to the basin's dynamic social-ecological context.*

The Limpopo River Basin



Hydrological boundaries in the Olifants Catchment



## Mission

The Limpopo Basin Curriculum Innovation Network is a platform for institutions of higher learning to share ideas and research outputs on climate change resilience in the Limpopo Basin in order to facilitate development, review and incorporation of innovative curriculum into the higher education system.

## Objectives

1. Collaboratively mobilise existing expertise in the catchment for social-ecological system resilience building via capacity building, research and transformative learning.
2. Engage in pro-active curriculum innovation processes, research and knowledge sharing to enhance existing educational programmes, strengths, and expertise.

Supported by the USAID RESILIM-O programme of the Association of Water and Rural Development (AWARD), the start up focus will be the Olifants River Basin, Curriculum Innovation will cover the biophysical, social, economic and governance dimensions of the basin(s). This focus will expand with time to include the whole Limpopo Basin.



The Limpopo Basin Curriculum Innovation Network is supported by the RESILIM-O programme of the Association of Water and Rural Development, who is a partner in the LBCIN. Rhodes University's SARCHI Chair in Global Change and Social Learning Systems is facilitating the start up of the network for 2017 and 2018. The programme funding is provided by USAID through the RESILIM-O programme.



A network members database, and an overview of the activities of the LBCIN can be found on the following e-platform [www.lbcin.org](http://www.lbcin.org)

info@award.org.za  
www.facebook.com/awardSA  
e-mail: elrc@ru.ac.za



“There is real need to develop a network for climate change curriculum innovation at regional level.”

(LBCIN participant)

## Roadmap for the Limpopo Basin Curriculum Innovation Network

### 2017

- 2017: Limpopo Basin Curriculum Innovation Network established
- 2017: Collaborative development of Conceptual Framework, Mission Statement and Learning Programme Review Tools
- 2017: Establishment of an interactive e-platform for knowledge exchange and co-learning

### 2018

- 2017: Establishment of an interactive e-platform for knowledge exchange and co-learning
- 2018: Review existing curricula and design new curricula for climate resilient development
- 2018: Collaborative development of at least two selected learning programmes
- 2018: Collaborative development of curriculum development expertise for systems approaches, social learning and climate resilient, sustainable development
- 2018: Sharing of scientific expertise, and development of collaborative research questions
- 2018: Resource mobilisation for ongoing network activities and research collaboration
- 2018: Ongoing intra and inter-institutional networking and partnership formation for curriculum innovation

