



Australia Awards

Course Sector Short Course

Integrated Regional and Transnational Water Resource Management

Program Outline

Water is essential to the survival of the planet and, as a limited global resource, how we manage it is of critical importance. Complexity is forefront when considering the sharing of water resources between national priorities and further multiplied when the resource must be managed between multiple countries. The management of this essential resource in a transnational and regional context requires an understanding of what is physically feasible and technically and socially viable.

This course is designed to raise the capabilities of African professionals working in regional, national and local government, businesses, and water resource management institutions. Specific attention will be given to the hierarchical management of sub-national and national water resource utilization systems within a framework of multi-country management of water resources.

Both the Great Lakes region of eastern Africa and Australia have seen significant effort and advances in regional and transboundary management of water resources. The approach of this course ensures that this body of experience is captured and used to inform today's water managers and leaders. Participants will learn from in-classroom engagement with regional African institutions and industry partners alongside the core curriculum delivered by Australian and African academic staff. Participants will be required to develop and share case studies from their home-regions in Africa and critically evaluate solutions and problems from real in-African experiences.

The course will be delivered over 7 weeks and will be based in Eldoret, Kenya in partnership between the University of New South Wales, Eldoret University and the East Africa Community Lake Victoria Basin Commission. Participants will engage in formal and applied learning and will undertake a week-long fieldtrip across Kenya and Uganda to contextualise learnt information and gain first-hand insights into the inter-disciplinary nature of water management.

Course objectives

By the end of the course, participants will be able to comprehensively consider physical and socio-legal aspects of water resource management. Participants will:

- Gain a broad underpinning in water resource management and the hydrology of traditional surface and groundwater water sources and key management concepts such as strategic planning and integrated natural resources management.
- Be able to explain and apply foundational principles and theories that underpin water law and relate these to the broader environmental, economic and social challenges in their current roles.
- Have demonstrated a high level of collaboration, oral communication and problem solving while learning from real-world examples of shared resource management.
- Have discussed the challenges of transboundary water allocation, including conflicts of upper and lower riparian states and learned from successful examples of practical steps for managing shared water allocations.
- Be able to demonstrate how development activities impact water availability in surface and groundwater supplies and explain uncertainty and risk, including the predicted effects of climate change.
- Have a sound knowledge basis to describe the general costs for development of water resource infrastructure and its ongoing operation and maintenance costs.

Characteristics of ideal candidates

This course is specifically designed for adult learners and professionals currently employed in mid- and senior-level management positions. This course is aimed at the professional staff of sub-national and national government spheres and also recommended for staff from hydroelectric companies, water supply and sanitation utilities, members of local organizations, water resources promoters, and personnel interested in the opportunities and knowledge of best water management practices. This course is will be of greatest immediate benefit to district managers, government administrators, policy-engaged professionals, and others responsible for water management at the national and regional level who are keen to expand their knowledge of modern water management concepts and principles and apply them in a professional context. It is anticipated that candidates will have completed secondary education and most likely tertiary education, although equivalent professional experience in lieu of a tertiary qualification should suffice.

Course content – including pre and post engagement requirements

The curriculum will be delivered via participatory adult training methods, using multimedia presentations, expert presenters, facilitated group work and group presentations, a study tour and excursion, and weekend team building activities. The course will be delivered at University of Eldoret in weekly components under three overarching modules. These components will include both knowledge development and skills based training workshops and will be accompanied by relevant site visits and/or visits from industry to the classroom. The overarching modules of study are:

- **MODULE 1: Fundamentals of sharing water resources (3 weeks)**

This first module will describe and review the physical and socio-legal aspects of water resource management in the context of hydrology and geography of east Africa. Fundamentals of socio-legal aspects of transboundary and transnational water management will be analysed using case studies taken from the current sovereign and institutional arrangements for water stewardship in east Africa. In addition, the module will contain case studies of water transboundary water stewardship from the Australia, Botswana, Pakistan and India, the United States of America and the Mekong region.

- **MODULE 2: Study tour through Lake Victoria River Basin (1 week)**

The Study Tour expands on the classroom engagement with the implementors and partners of transnational management of the river basins containing African Great Lakes. The purpose is to contextualise and to gain first-hand insights into the inter-disciplinary nature of water management through two main lenses. First, through integrated water resources management from the upper catchment to Lake Victoria and second, through the national and international management and governance layers that provide stewardship across the internationally-shared river basin.

- **MODULE 3: Implementation of Water Resource Management (3 weeks)**

The final module provides an opportunity to practice different aspects of water resource management covered in modules 1 and 2. Emphasis is placed on specific challenges in transnational situations including dispute resolutions, addressing issues of equity, dealing with risk and uncertainty and ensuring that sufficient finance is available for the successful management of water resources. The content of module 3 will be presented in the context of case studies relating to the Participant-tailored experiences in their current roles. The case studies will be supported by formal lectures and tutorials, however, greater emphasis in module three is placed on the interactive, role play scenarios.

Prior to the beginning of the course participants will be contacted by the Course Coordinator to discuss each Recipient's current responsibilities and expertise in water management in their own countries/regions. Recipients will be asked to provide their priorities for the outcomes of their participation and will be asked about their English language skills and needs. UNSW will provide its state-of-the-art 'Personalised English Language Enhancement' (PELE) course to Recipients in the lead up to the course start date. PELE is designed for students who speak English as an additional language and will offer students the ability to identify their own language needs within their immediate contexts and develop a personal project to address any specific needs in their preferred way.

Of significant importance to this course is the successful development, reflection, adaptation and integration of each recipient's, Reintegration Action Plan (RAP). The aim of the RAP is to ensure each Recipient is equipped with new skills and knowledge that will be of benefit to their current positions of employment. In collaboration with the recipient's employer, the Course Coordinator will begin to develop the RAP with the recipient prior to the beginning of the course. Time will be set aside at the end of each day during the course for participation in reflective discussion groups and each week to reflect and update Recipients' RAPs. Recipients will be given a Reintegration Action Plan record form to assist with the reflection process. This record will contribute to 'fine tuning' a final RAP and will contain agreed-on measurable indicators to be reported on at 2 week, 1 month, 3 month and 6 month periods following course completion.

Course details on a weekly basis

	MODULE	COMPONENT	DESCRIPTION	LOCATION
WEEK 1	1 SHARING OF THE WATER RESOURCE	Physical aspects of integrated water management	The hydrology of traditional water sources, including surface waters (rivers and lakes) and ground water. Physical aspects focus on quantity and quality, including the influence of climate cycles (droughts & floods) and how these factors are accounted for in assessing sustainability.	University of Eldoret, Kenya
WEEK 2		Governance models for water resource management	The development of institutional arrangements for water resource management based on water and property law under different legal models.	University of Eldoret, Kenya
WEEK 3		Water rights and natural resource allocation	The development of substantive and policy aspects of water rights, resource allocation, and equity, diversity and inclusion factors in resource allocation.	University of Eldoret, Kenya
WEEK 4	2 STUDY TOUR	Transboundary water management in Eastern Africa	The study tour expands on the classroom engagement with the implementors and partners of transnational management of the river basins containing African Great Lakes.	Various, Kenya and Uganda
WEEK 5	3 IMPLEMENTATION OF WATER RESOURCE MANAGEMENT	Managing regional and transboundary water allocations	History of water allocation and applicable rules and practice, allocation challenges that arise from entry of new actors and interests in the water space, the intersection of water allocation and human rights.	University of Eldoret, Kenya
WEEK 6		Water resource data - accuracy, transparency and accountability	Data requirements associated with the sustainable and equitable management of water resources.	University of Eldoret, Kenya
WEEK 7		Water resource asset management and risk considerations	Financial viability of different water resource management systems, methods for estimating capital and operating costs, techniques for assessing life cycle costs, developing financing models and establishing water tariffs.	University of Eldoret, Kenya