

United Nations University

Institute for Integrated Management of Material Fluxes and of Resources

Knowledge Academy for the Resource Nexus (KARE) at UNU-FLORES

Serena Coetzee

Head of Education, UNU-FLORES

Coordinator, UNU Network on e-learning

Webinar, AI and other digital tools for Education for Sustainable Development, 22 April 2026

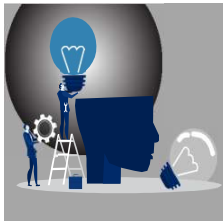


UNU System

A global system of research and training institutes coordinated by UNU Centre in Tokyo



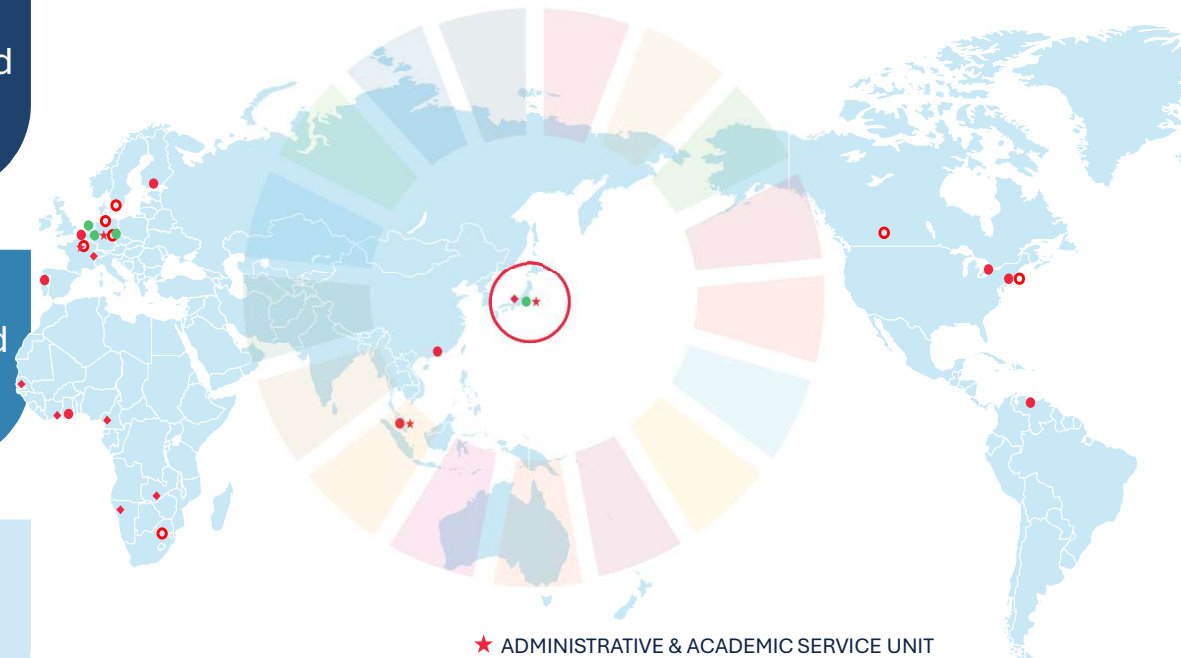
A university dedicated to being **“truly international”** and focused on the Charter’s goals of peace and progress.



A think tank for the UN System and its Member States

13

Institutes located in 12 countries



- ★ ADMINISTRATIVE & ACADEMIC SERVICE UNIT
- INSTITUTE
- RESEARCH INSTITUTE WITH POSTGRADUATE DEGREE PROGRAMME
- ◆ OPERATING UNIT
- UNU HUB

UNU Strategy 2025-2029: Priority Areas



António Guterres
United Nations Secretary-General

Tshilidzi Marwala
Rector of the United Nations University
Under-Secretary-General of the United Nations



Knowledge: Enhancing knowledge and capacity through research and education



Partnerships: Strengthening partnerships, particularly in the Global South, and enhanced collaboration within the UN system



Impact: Greater visibility and impact through expansion and outreach, particularly in the Global South.

UNU Network on e-learning

- Internal, thematic network established in 2025 for
 - Exchange of knowledge and experiences among institutes
 - Develop a unified e-learning approach
 - Joint funding proposals for long-term sustainable infrastructure and governance
- UNU education and capacity development is unique
 - State-of-the-art knowledge produced from context relevant interdisciplinary research
 - Only postgraduate programmes and capacity development for professionals / policy makers
 - Partners from the Global South and North in academia, governments and the UN system connecting science, policy and practice

Net Zero 101: What, Why and How



“Net Zero 101: What, Why and How” is a free and self-paced e-learning course that provides a foundational understanding of climate change, the science behind it, and its impacts, while showcasing actionable steps one can take as a responsible citizen to contribute to climate action and achieve a net-zero society.

Login to enrol >

Download syllabus ↓

Climate change

<https://unu.edu/ias/certificate-programmes/net-zero-101-what-why-and-how>



Learning Centre



About Learning Centre

The United Nations University Institute for Water, Environment and Health's (UNU-INWEH) online Learning Centre (LC) provides university students and practicing water, environment and health professionals with an opportunity to strengthen their capacity in several focused and multidisciplinary learning areas. It offers free courses in several formats, including short courses for self-paced learning, course content for blended learning programs and customized curriculum development with regional centres, and courses to support capacity development activities for specific tools and systems. The courses are peer-reviewed by a range of experts and are closely aligned with the UNU-INWEH strategic plan.

Available Courses

 <p>SDG 6 Policy Support System Available Now</p>	 <p>Système d'appui à la décision de... Available Now</p>	 <p>Sistema de soporte a las... Available Now</p>	 <p>Big Data Analysis for Water-related... Available Now</p>
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<https://lc.unu.edu/>

Our Online Courses

Capacity Development Office - Online course

Governance in Theory and Practice

This course introduces the wider multidisciplinary study of governance and offers diverse literature and methodological approaches.

Capacity Development Office - Online course

Public Policy Analysis

This course will be introduced to

Capacity Development Office - Online course

Introduction to Impact Evaluation of Policies and Programmes

A course instructing the methodologies required to conduct a rigorous impact evaluation of a development policy, programme, or intervention.

Capacity Development Office - Online course

The Public Policy Process

This course provides a critical

Capacity Development Office - Online course

Impact Evaluation of Policies and Programmes: Estimation and Analysis of Causal Impacts

This course builds upon the impact evaluation course and provides a hands-on approach to estimating and analysing causal impacts

Capacity Development Office - Online course

Certificate Programme: Governance and Policy Evaluation

Capacity Development Office - Online course

Introduction to Migration Studies

Over eight the course will cover important terms, concepts, definitions, data and flows related to migration studies.

Capacity Development Office - Online course

How to Communicate Research through Policy Briefs

<https://unu.edu/merit/online-courses>

Decent work and economic growth: Achieving SDG 8



Textile e-learning course



Free e-learning course

**A Resource Nexus Approach
in the Textile Sector**

@50
50TH ANNIVERSARY
UNITED NATIONS UNIVERSITY
2025

Enroll here

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Advancing the Resource Nexus from Dresden



Mandate

The mandate of UNU-FLORES is to advance knowledge on the sustainable management of environmental resources through the Resource Nexus approach.

Strategic Approach

1. Research and Innovation Development
2. Education and Capacity Development
3. Outreach, Advocacy and Impact



UNU-FLORES Team



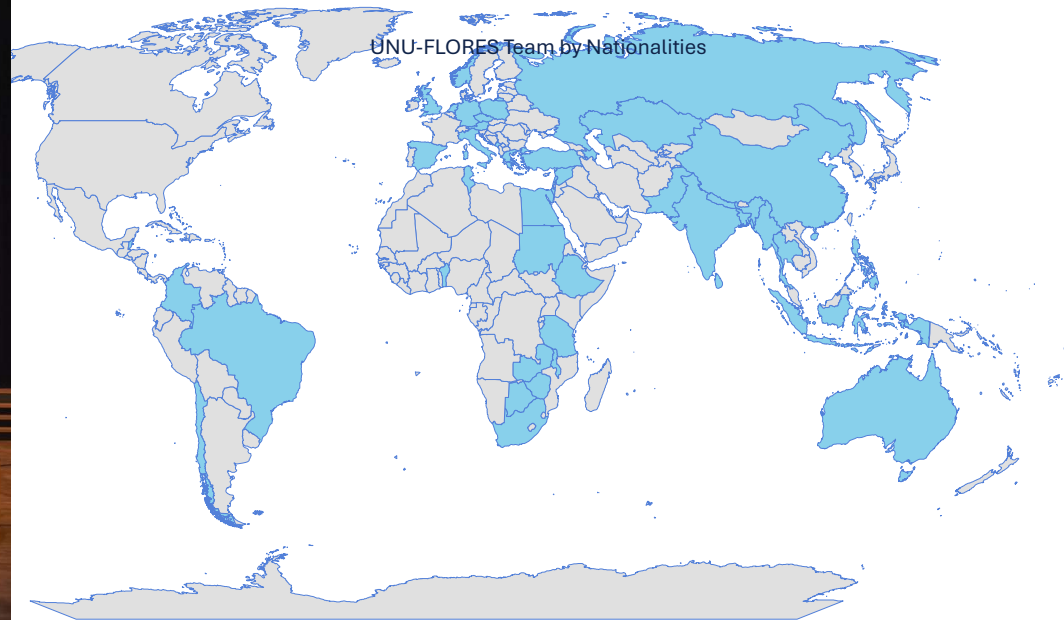
111
Team Members



57
Female Colleagues



59
From the Global South



A Resource Nexus approach for sustainable and integrated management of environmental resources



The Resource Nexus in our focus areas



Advancing the Resource Nexus for...



Resilient Food, Forest and Ecosystems



Transformed Landscapes



Sustainable Buildings and Construction



Responsible Electronics



Circular Textiles

... to address the **triple planetary crisis** of climate change, biodiversity loss and pollution and

... to enable and empower people to sustainably **transform policies, businesses and societies** by respecting political, economic, societal, technological, environmental and legal contexts.

Impact from the outset



- Environmental resources
- Interdisciplinary team
- Experts from over 50 countries
- UN system
- Focus: Global South

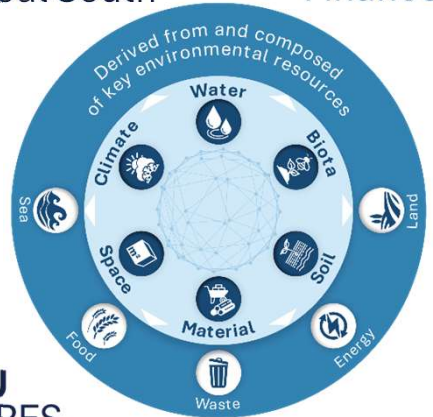
- Systems Thinking
- Data Science
- Citizen Science
- Governance Lens
- Sustainability, Resilience, Risk Assessment
- Barriers Analysis
- Finance Lens

- Research and Innovation Development
 - Scientific publications
 - Tools (e.g., AID)
 - Resource Nexus Assessment

- Education and Capacity Development
 - Certificates
 - Accredited courses
 - Master and Doctoral Graduates

- Outreach, Advocacy and Impact
 - Policy briefs
 - Events
 - Media

- Advancing the Resource Nexus for**
- Resilient Food, Forest and Ecosystems
 - Transformed Landscapes
 - Sustainable Buildings and Construction
 - Responsible Electronics
 - Circular Textiles
- ...to address the triple planetary crisis** of climate change, biodiversity loss and pollution and
- ... to enable and empower people** to sustainably transform policies, businesses and societies by respecting political, economic, societal, technological, environmental and legal contexts.



Knowledge Academy for the Resource Nexus (KARE)

Learn



Engage

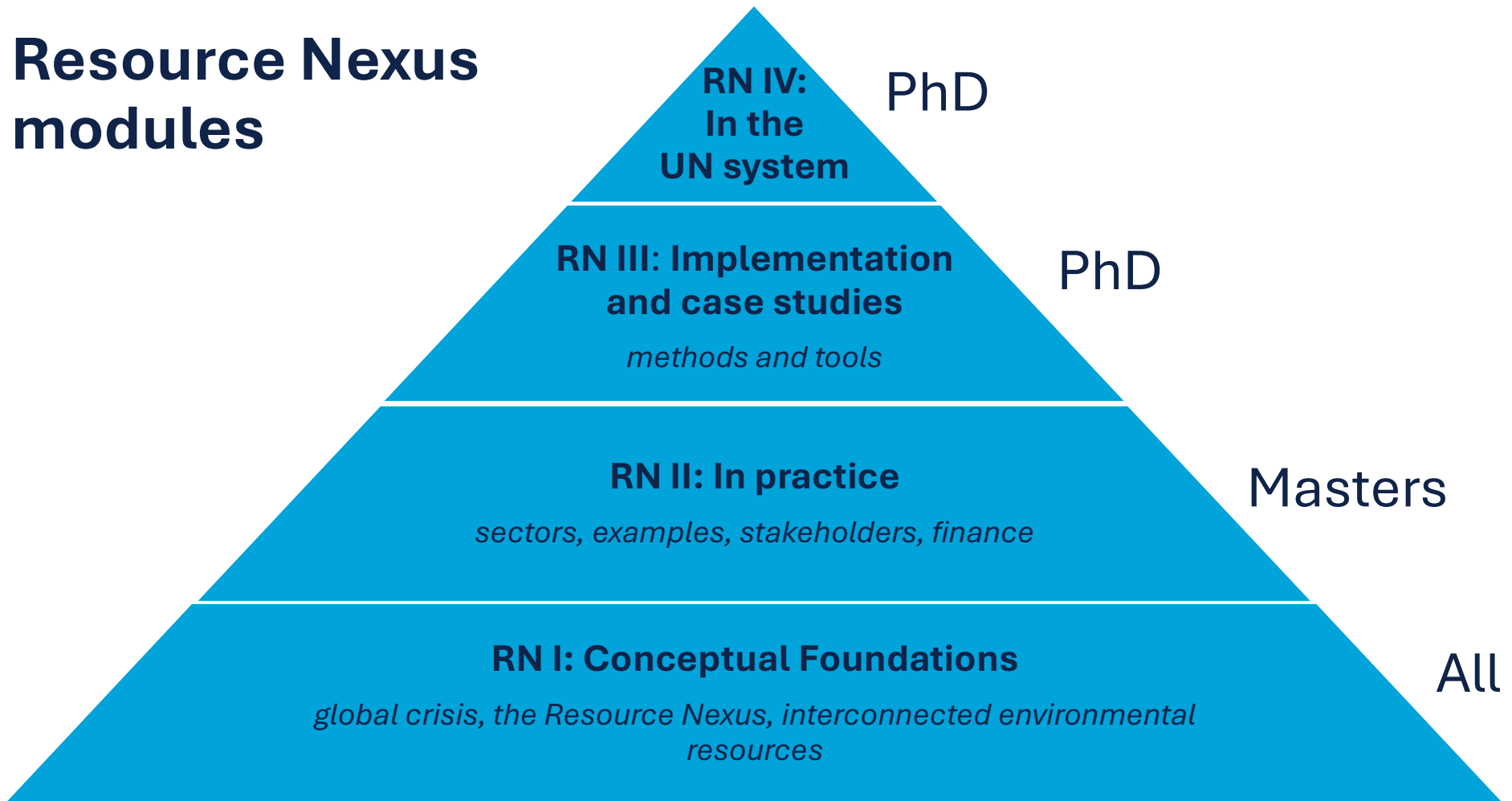


Apply



Outcome
Resource Nexus thinking
is embedded in sustainable development planning, implementation and monitoring

Resource Nexus modules



Resource Nexus I - Conceptual Foundations

The course introduces the learner to the following topics:

- the triple planetary **crisis**;
- natural and **environmental resources**;
- the **sustainable and integrated management** of environmental resources;
- the role of **systems analysis** and modelling;
- key and derived environmental resources, their interdependencies and interconnections;
- the relationship in advancing the **SDGs**; and
- review of scientific literature to establish the state-of-the-art knowledge about the **Resource Nexus approach on a specific topic**.

Resource Nexus II – In practice

This course covers the following topics:

- the Resource Nexus approach in different **sectors**, such as the textile, construction, food, agriculture or electronics sector;
- examples of **specific resource groupings** and their systemic interdependencies and interconnections;
- **achieving impact** with the implementation of the Resource Nexus approach by following the theory of change framework;
- how to deal with **actors and stakeholders** involved in the Resource Nexus approach; and
- development of an **introductory chapter for a research study** that applies the Resource Nexus approach.

UNU-FLORES Doctoral Programme



**Current
doctoral
researchers**



**Completed
doctoral
researchers**



**Current doctoral
researchers from
the Global South**



**Current female
doctoral
researchers**

Unique features

- Resource Nexus approach
- Policy-science-practice interface
- Connection to the UN system
- Hands-on training in advocacy and communication



Donors:



Partners:



UNU-FLORES focus areas

 Resilient Food, Forest and Ecosystems

 Transformed Landscapes

 Sustainable Buildings and Construction

 Responsible Electronics

 Circular Textiles



<https://www.youtube.com/watch?v=mSRwy7iBP0I&list=PLr-o8b1HW7BF8oeQsWkGNimiNWQM3U97q&index=8&pp=iAQB>

UNU-FLORES focus areas

 Resilient Food, Forest and Ecosystems

 Transformed Landscapes

 Sustainable Buildings and Construction

 Responsible Electronics

 Circular Textiles



<https://youtu.be/lek4D36gHqc?list=PLr-o8b1HW7BF8oeQsWkGNimiNWQM3U97q>

UNU-FLORES focus areas

 Resilient Food, Forest and Ecosystems

 **Transformed Landscapes**

 Sustainable Buildings and Construction




 Responsible Electronics

 Circular Textiles



<https://youtu.be/lG3DyNY7Rq0>

UNU-FLORES focus areas

-  Resilient Food, Forest and Ecosystems
-  Transformed Landscapes
-  **Sustainable Buildings and Construction**
-  Responsible Electronics
-  Circular Textiles



<https://www.youtube.com/watch?v=qMCPeIdD6ko&list=PLr-o8b1HW7BF8oeQsWkGNimiNWQM3U97q&index=7&pp=iAQB>



Climate-Neutral And Resource- Efficient Construction



UNU-FLORES focus areas

 Resilient Food, Forest and Ecosystems

 Transformed Landscapes

 Sustainable Buildings and Construction

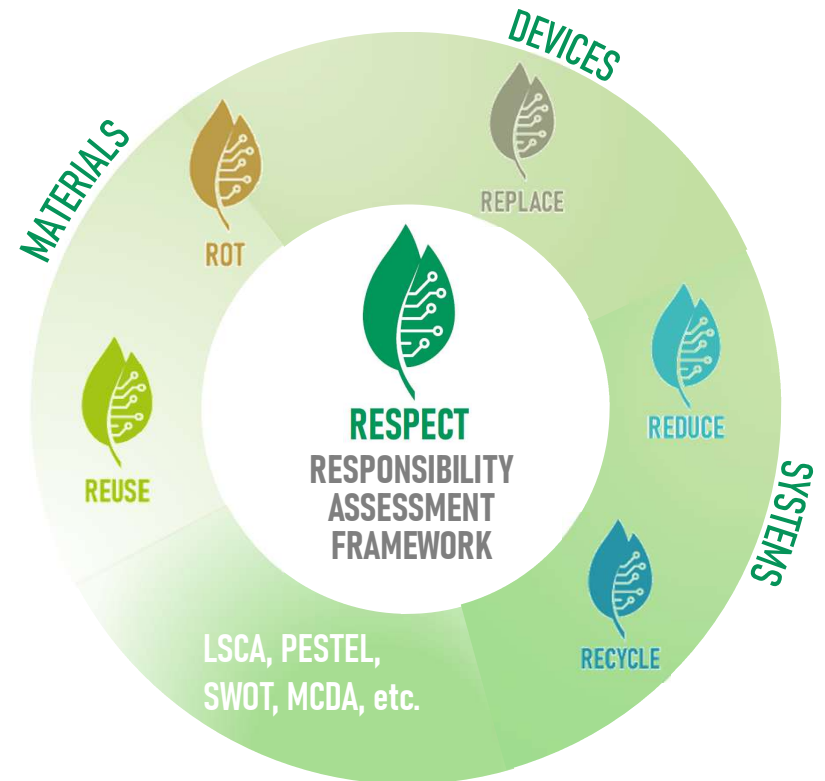
 **Responsible Electronics**

 Circular Textiles

Cluster of Excellence



Responsible Electronics
in the
Climate Change
Era (**REC²**)



<https://tu-dresden.de/tu-dresden/exzellenz/exzellenzcluster/rec2>

ABCD Centre - Global Water and Climate Adaption Centre



International
Joint Masters on
Water Security and
Global Change

Digital infrastructure
for teaching and
learning

Visit

<https://abcd-centre.org/unu-flores.html>



Transfer workshops



ENTRY →

Workshop

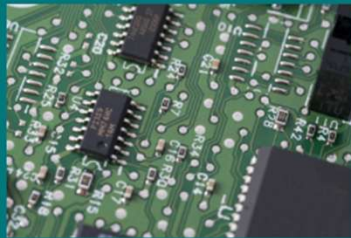
EXIT →

- Participants complete e-learning material
- Online discussion forum activated
- Each participant submits their water security challenge
- Completion + submission = **entry ticket** for workshop

- Lightning talk by each participant
- Collaboratively identify and describe a **joint challenge** for discussions during the workshop
- Challenge guides the workshop
- Presentations end with questions / discussion related to the challenge

- Share expertise & experiences related to solutions
- Co-create context-specific solutions
- Co-designed solution = **exit ticket**

Supported by the digital infrastructure for teaching and learning



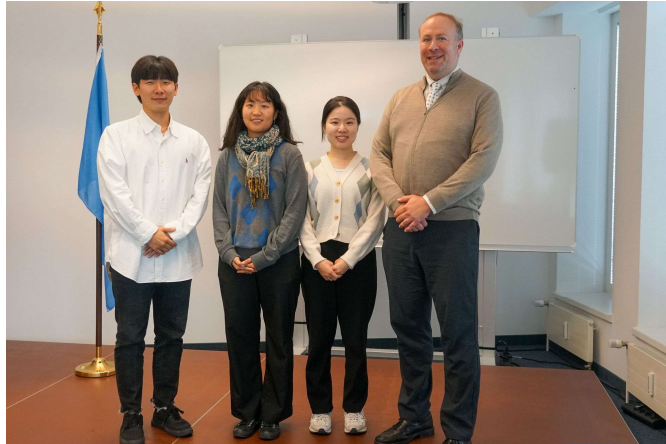
Learning Needs Assessment- Electronics and the Resource Nexus: A lifecycle perspective

As part of our collaboration with **K-eco**, **UNU-FLORES** (<https://unu.edu/flores>) is developing a short (30–60-minute) online learning module for policymakers and postgraduate students on the environmental and resource implications of electronics across their lifecycle, from a Resource Nexus perspective (<https://unu.edu/flores/what-nexus-approach>).

The module will cover the four key stages of the electronics lifecycle:

1. Raw material sourcing and processing (e.g., extraction of critical materials such as lithium, cobalt, and rare earth elements)
2. Manufacturing and production (including energy, water, and material use in production processes)
3. Use phase (e.g., energy consumption of electronic devices and digital infrastructure)
4. End-of-life and circular recovery (e-waste management, recycling, and resource recovery).

Internships at UNU-FLORES



6-month internship at
UNU-FLORES for
hands-on experience of the
Resource Nexus approach



Curious about the Resource Nexus?

NEXUS SEMINAR

A collaboration between UNU-FLORES & TUD

The diagram illustrates the Resource Nexus as a circular flow of interconnected elements. At the center is a globe. Surrounding it are icons for Water, Biota, Land, Energy, Waste, Material, Food, Space, and Climate. The text 'Derived from the composition of key environmental resources' is written in a circular path around the central globe.



SEMINAR NO. 80

NEXUS SEMINAR

A collaboration between UNU-FLORES & TUD

Towards Evidence-based Community-Engaged Water-Energy-Food Systems Transformation

Prof. Bassel Daher

- Assistant Director for Sustainable Development | Texas A&M Energy Institute
- Adjunct Assistant Professor | Department of Biological and Agricultural Engineering
- Research Fellow | Institute for Science, Technology, and Public Policy

09 December 2024 | 14:50 CET | Online



SEMINAR NO. 81

NEXUS SEMINAR

A collaboration between UNU-FLORES & TUD

Reframing Sustainability through the Lens of Socioecological Debt

Prof. Maano Ramutsindela

Professor and Future Africa Research Chair in Sustainability Transformations

13 January 2025 | 14:50 CET | Online



SEMINAR NO. 79

NEXUS SEMINAR

A collaboration between UNU-FLORES & TUD

Paying CEOs for Environmental and Social Performance: What We Know and What We Don't Know

Prof. Dr. Peter Schäfer

Professor of Management Accounting & Control, TU Dresden

18 November 2024 | 14:50 CET | Online



Nexus seminars will resume... <https://unu.edu/flores/events>



Innovation driver: HØW Global Ideas Competition

- **Vision:** Buildings with a public function made of secondary materials – circular, inclusive, and sustainable
- **Goal:** To bring ideas to life by bringing next-gen architects/designers closer to stakeholders for their projects
- **Transfer:** HØW criteria can be integrated into future buildings
- **Strategic relevance:** circularity, Resource Nexus, UN role as convener



5

Advisory board members



6

Jury members



927

Applications



112

Countries



1,005

Authors



225

Eligible submissions



UNU
FLORES

Integrated in *Bundesforschungszentrums für klimaneutrales und ressourceneffizientes Bauen (BFZ)*

UNU Hub FLY: Future of Learning with Youth



What is it about?

The Learning Planet Youth Design Challenge (LPYDC) invites youth aged 15–26 to submit innovative education projects that create real-world impact.

Projects should align with one of the following themes:

- Environment & Climate
- Flourishing – Well-Being & Socio-Emotional Development
- Mental Health & Wellbeing

Share the challenge with your network

Frequently Asked Questions





United Nations

Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States

- Home
- Who We Are
- Our Work
- Meetings
- News
- Resources

Home - High-level Expert Group Meeting on Online University or Equivalent Platform for STEM Education for the Least Developed Countries (LDCs)

High-level Expert Group Meeting on Online University or Equivalent Platform for STEM Education for the Least Developed Countries (LDCs)



Tuesday, 03 June 2025 - 9:30am to Wednesday, 04 June 2025 - 5:30pm

Upcoming Meetings

- Annual Meeting of National Focal Points of Least Developed Countries
- Global LLDC Workshop
- Closing the Financing Gap: The Infrastructure Investment and Financing Facility for Landlocked Developing Countries
- EW4All Webinar on Early Warning &



<https://www.un.org/ohrrls/events/high-level-expert-group-meeting-online-university-or-equivalent-platform-stem-education-ldcs>

For more information...

Brouwer, F., Caucci, S., Karthe, D. et al., 2023. Advancing the resource nexus concept for research and practice. *Sustainability Nexus Forum* 31, 41–65.
<https://doi.org/10.1007/s00550-024-00533-1>

European Environmental Agency (EEA), 2022. *Resource nexus and the European Green Deal*. Publications Office of the European Union,
<https://doi.org/10.2800/23787>

 <https://www.youtube.com/@UNUFLORES>

Empowering scientists, practitioners, policy and decision makers with Resource Nexus thinking

<https://unu.edu/flores/>, click on 'Learning'