



River Elbe, Dresden, Germany

UNU-FLORES

ANNUAL REPORT 2019

AT THE FOREFRONT
OF THE RESOURCE NEXUS



UNITED NATIONS
UNIVERSITY

UNU-FLORES

UNU-FLORES

ANNUAL REPORT 2019

United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES)

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2019 At a Glance



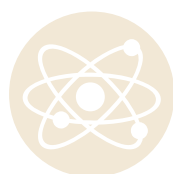
36

No. of peer-reviewed publications



30

No. of events



21

No. of projects



22

No. of interns



3

No. of PhD graduates



48

No. of researchers

FOREWORD

I am delighted to introduce you to the 2019 UNU-FLORES Annual Report, in its very first iteration as a digital publication. Following my appointment as Director of UNU-FLORES in 2018, I have endeavoured to strengthen management by implementing positive changes to management control systems. These goals were embraced with collaborative input from members of both staff and the student body at a strategic retreat early in 2019, where four key pillars of institutional objectives were identified: the undertaking of a transdisciplinary approach, strategic collaboration, achievement of institutional sustainability, and proving academic excellence through policy-relevant research.

This institutional commitment to adapting management control systems has so far resulted in the implementation of flexible working arrangements, the development of a floating office concept, a dedication to achieving CO₂ neutrality, and the introduction of a rolling budget.

If I were to describe the past year for UNU-FLORES in one word, I would say: transition. 2019 has seen the Institute evolve, and indeed, transition across administrative and strategic levels. Some highlights of which include a transition in research strategy – from a focus on water, soil, and waste to a more encompassing resource nexus, and a transition in staff structuring to support agility and a transdisciplinary approach to research.

UNU-FLORES has also made extensive strides in expanding the Institute's network of partners in 2019 and kicking off a new UNU Water Network in conjunction with other institutes across the UNU network. The Institute has further strengthened its highly valued relationship with German ministerial bodies, such as the Saxon State Ministry for Energy, Climate Protection, the Environment, and Agriculture (SMEKUL), as well as expanding its outreach to include the private sector.

While the six-year employment rule of the United Nations University has seen some of the Institute's longest-serving and highly regarded researchers leave us, this rule also has the benefit of bringing fresh ideas to UNU-FLORES, and I greatly look forward welcoming the new Heads of Research Programmes to our team in 2020.

2019 has proven to be a rewarding year, thanks in no small part to the diligent and impactful work of our researchers, students, interns, and staff. I have no doubt that 2020 – especially with the [Dresden Nexus Conference](#) – will bring a wealth of exciting and meaningful opportunities and accomplishments for UNU-FLORES.

Thank you for your continued support of our institute.

Warm regards,
Prof. Edeltraud Guenther
Director, UNU-FLORES



[Prof. Edeltraud Guenther](#), Director

RESEARCH & POLICY IMPACT

The adoption of the **UN Sustainable Development Goals (SDGs)** in 2015 was an unprecedented milestone for the international community. The 2030 Agenda for Sustainable Development is a one-of-a-kind roadmap tackling wide-ranging issues from eradicating poverty to fostering partnerships for the goals. At UNU-FLORES, the [Nexus Approach](#) is at the core of our research strategy. With nearly all SDGs relying in one way or another on environmental resources, nexus thinking thus does not only equip us to recognise the interlinkages between the SDGs, but also supports the development of strategies that are more effective and socially acceptable.

To varying degrees, the activities at UNU-FLORES are broadly aligned with all seventeen SDGs. Where research is concerned, a total of **21 projects** contributed towards **twelve of the seventeen SDGs** in 2019. Out of these, our projects, publications, and activities/events have aligned most directly with seven SDGs along three themes: **resource efficiency** (SDGs 2 and 6), **climate action** (SDGs 13 and 15), and **society and economy** (SDGs 11, 12, and 17).

› [View the Research Projects](#)

In all of its work, UNU-FLORES advocates for **open science** and where possible publishes in open access journals to allow unobstructed and free access to knowledge and data. The [Nexus Tools Platform](#) and the [Nexus Observatory](#), in which the former is nested in, both support the cause of making data more easily accessible. UNU-FLORES also strives to remain engaged with **policy processes**. Various multi-year initiatives fill the gaps in capacity development and bridge science to policy.

› [View the Publications](#)

“Before involving stakeholders to tackle real-world problems, researchers need to sit together to find an integrative way to break down communication barriers between scientists of different disciplines as well as among scientists and non-scientists.”

In [“Towards Transdisciplinarity: Finding a Common Language to Better Design Stakeholder Involvement”](#) by Dominique Schmachtel

RESOURCE EFFICIENCY



CLIMATE ACTION



SOCIETY AND ECONOMY



Aligning Our Research with the Sustainable Development Goals

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Assessing and Synthesising Climate-Related Data for Integrated Water-Soil Management in East Africa

Assessing Material Flow with an Ecosystem Services Approach: The Case of Mezquital Valley, Mexico

Cycle Management in African Smallholder Agriculture

Integrated Evaluation of Wastewater Irrigation for Sustainable Agriculture and Groundwater Development

The Multifunctionality of Constructed Wetlands

Tools for Nexus-Oriented Resources Management

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Resource Recovery from Wastewater in the Americas - Assessing the Water-Soil-Waste Nexus (SludgeTec)

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Monitoring Sustainability of Rural Water Supplies in Sub-Saharan Africa

Resource Recovery from Wastewater in the Americas - Assessing the Water-Soil-Waste Nexus (SludgeTec)

The Multifunctionality of Constructed Wetlands

1 NO POVERTY

Development of Models to Predict Land-Use-Induced Soil Pore-Space Changes and their Hydrological Impacts (SoilPoreDyn)

E-Learning Courses on Nexus Governance

Impact of Soil and Crop Management Practices on Soil Water and Carbon Dynamics

2 ZERO HUNGER

Assessing and Synthesising Climate-Related Data for Integrated Water-Soil Management in East Africa

Assessing Material Flow with an Ecosystem Services Approach: The Case of Mezquital Valley, Mexico

Cycle Management in African Smallholder Agriculture

Development of Models to Predict Land-Use-Induced Soil Pore-Space Changes and their Hydrological Impacts (SoilPoreDyn)

Impact of Soil and Crop Management Practices on Soil Water and Carbon Dynamics

Integrated Evaluation of Wastewater Irrigation for Sustainable Agriculture and Groundwater Development

Nexus Thinking and Circular Economy

Organic Waste Composting through Nexus Thinking

Resource Recovery from Wastewater in the Americas - Assessing the Water-Soil-Waste Nexus (SludgeTec)

SUWA in Iran, Mexico, Tunisia, and Colombia

The Impact of Soil Variability on Crop Water Productivity and Food Security of Irrigated Agriculture in West-Africa

Tools for Nexus-Oriented Resources Management

3 GOOD HEALTH

Human Driven Spread of Antibiotic Resistance in the Mediterranean Sea: The Role of Microplastic

Monitoring Plastics in Freshwaters – A Participatory Approach

Monitoring Sustainability of Rural Water Supplies in Sub-Saharan Africa

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

Addressing Wicked Resource Management Problems

Assessing and Synthesising Climate-Related Data for Integrated Water-Soil Management in East Africa

Assessing Material Flow with an Ecosystem Services Approach: The Case of Mezquital Valley, Mexico

Decision Support Framework for Water Reuse in Water-Scarce Regions Involving Risk and Sustainability Assessments

Human Driven Spread of Antibiotic Resistance in the Mediterranean Sea: The Role of Microplastic

Integrated Evaluation of Wastewater Irrigation for Sustainable Agriculture and Groundwater Development

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SUWA in Iran, Mexico, Tunisia, and Colombia

The Impact of Soil Variability on Crop Water Productivity and Food Security of Irrigated Agriculture in West-Africa

The Multifunctionality of Constructed Wetlands

The Role of Citizen Science in Water Quality Monitoring

Tools for Nexus-Oriented Resources Management

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Assessing Material Flow with an Ecosystem Services Approach: The Case of Mezquital Valley, Mexico

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Organic Waste Composting through Nexus Thinking

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SUWA in Iran, Mexico, Tunisia, and Colombia

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E-Learning Courses on Nexus Governance

Integrated Evaluation of Wastewater Irrigation for Sustainable Agriculture and Groundwater Development

Resource Recovery from Wastewater in the Americas - Assessing the Water-Soil-Waste Nexus (SludgeTec)

10 REDUCED INEQUALITIES

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

8 DECENT WORK AND ECONOMIC GROWTH

7 AFFORDABLE AND CLEAN ENERGY

Cycle Management in African Smallholder Agriculture



RESOURCE EFFICIENCY

PROJECT

Water is one of the most important inputs required for plant growth in agriculture and to ensure food security. However, the West African region faces problems connected to water scarcity as well as depleting soil fertility. With a high variability in the seasonal rainfall and other climate variables, the beforementioned factors impact yield risks and, thus, food security. The objective of the **study “[The Impact of Soil Variability on Crop Water Productivity and Food Security of Irrigated Agriculture in West Africa](#)”** is to evaluate crop responses to the soil and climate variability under irrigated agriculture for a specific site in the region. The results serve as guidance for local stakeholders to devise easy-to-use, cost-effective, and efficient decision-making support tools for the management of their irrigated agricultural fields and for the increase of irrigation efficiency, altogether contributing towards improving water-use efficiency in irrigated agriculture in the West African region.

PROJECT

Sustainable, high-yield crop production is critical to maintaining food security, especially under climate change. Long-term sustainability of high crop yields requires soil management practices that promote soil function, soil quality, and soil health. The **project “[Impact of Soil and Crop Management Practices on Soil Water and Carbon Dynamics](#)”** takes on a much-needed integrated approach to increase our understanding on the interactions of temporal soil pore system evolution and soil organic carbon dynamics. This will help enhance the accuracy of impact assessments of long-term climate and land-use management strategies on soil health and its response to the environment.

PROJECT

To help address data gaps in global water quality monitoring, practitioners are increasingly calling for citizens to take on an active role in the process and complement the use of other methods such as remote sensing. However, the participation of citizens in water quality monitoring is also a controversial issue. Challenges include, for example, a potential lack of appropriate know-how and skills. The **project “[The Role of Citizen Science in Water Quality Monitoring](#)”** aims to define the factors that enable and impede effective citizen science activities in the field of water quality monitoring. The results of this research will help scholars, practitioners, and entities better design citizen science activities in the domain.

What does it take for enhanced citizen participation in sustainable development? In collaboration with UNU-CS, UNU-FLORES co-hosted a [session at CODATA2019](#) and put together [six key takeaways](#) from it.





PUBLICATION

Nexus approaches often aim to build upon Integrated Management Approaches to water, land, and waste; the concept of which emerged in the 1990s and established a prominent insight into the integration of environmental systems. In the [article “Learning from Integrated Management Approaches to Implement the Nexus”](#) in the *Journal of Environmental Management*, our experts shed light on the background and connections between three Integrated Management Approaches and two Nexus Approaches, assessing the goals and features of each, and the perception of target systems and their integration into research and beyond.

PUBLICATION

While waste management practices have always been flexible enough to incorporate modern technology into its processes, modern-day waste management should now consider ways for society to benefit from this resource, as opposed to past methods of burying or burning waste. In the [book chapter “Promoting Waste-to-Energy: Nexus Thinking, Policy Instruments, and Implications for the Environment”](#) in *Current Developments in Biotechnology & Bioengineering: Waste Treatment Processes for Energy Generation*, our experts consider the potential of waste-to-energy conversion and discuss how policy instruments can be used to promote this resource.

PUBLICATION

Understanding the patterns of land-use and land-cover changes to natural landscapes as a result of anthropogenic activity is critical for efficient environmental management – particularly in regions that are impacted by population growth and climate change, such as East African countries. Using remote sensing techniques and geographic information systems, the [study “Land-Use and Land-Cover \(LULC\) Change Detection in Wami River Basin, Tanzania”](#) follows the explorations of our experts into the changes to these patterns over a 16-year period in the upstream and downstream Wami River Basin, Tanzania.

PUBLICATION

Water quality monitoring is crucial for managing and protecting riverine ecosystems, however, current design practices to monitor water quality often rely on unsubstantiated criteria, as opposed to accountable algorithms. In the [paper “The Selection of Design Methods for River Water Quality Monitoring Networks: A Review”](#), as published in *Environmental Earth Sciences*, our experts review the commonly used design methods and their resulting monitoring setups, to identify optimum selection principles for future management.

EVENT

At [World Water Week 2019](#) UNU-FLORES co-convoked three **sessions** around the conference theme “Water for society: Including all”. Organised in Stockholm, Sweden, every year World Water Week is the focal point for the globe’s water issues. The conference kicked off with the session “Leaving No One Behind, the UN World Water Development Report” for UNU-FLORES, with the presentation of the WWDR. This was followed by a *Gold Standard* session “Tapping into the Future: Universal Access to Sanitation” discussing Latin American and Caribbean experiences in advancing clean water and sanitation from not only the governance but also financial and social aspects. The third session “Climate- and Water-driven Migration, Conflict and Human Security” (*Gold Standard*) sought to enhance knowledge and steer joint thinking for addressing conflicts and human security in regions undergoing water crises. UNU-FLORES co-convoked two out of the three sessions with UNU-INWEH. *Gold Standard* sessions meet the gender balance requirements.

EVENT

As part of the work on the UN Environment World Water Quality Assessment, UNU-FLORES participated in the [WWQA 2nd Global Workshop](#) to take stock of ongoing activities and devise a way forward in the operationalisation of the World Water Quality Alliance (WWQA). In addition to taking part in this overall initiative, our experts also presented the results of the project “Harmonization of monitoring methodologies of macro-plastics and microplastics in rivers and lakes – to reduce and prevent marine litter and microplastics pollution from rivers”, conducted in collaboration with the Helmholtz Centre for Environmental Research – UFZ.





Dr Sabrina Kirschke, Senior Research Associate

"Good quality of freshwater resources is fundamental in achieving sustainable social-ecological systems. However, poor governance often results in pollution of rivers, lakes, and groundwater. My research at UNU-FLORES focuses on designing governance strategies for improved water quality within the nexus of the resources water, soil, and waste."

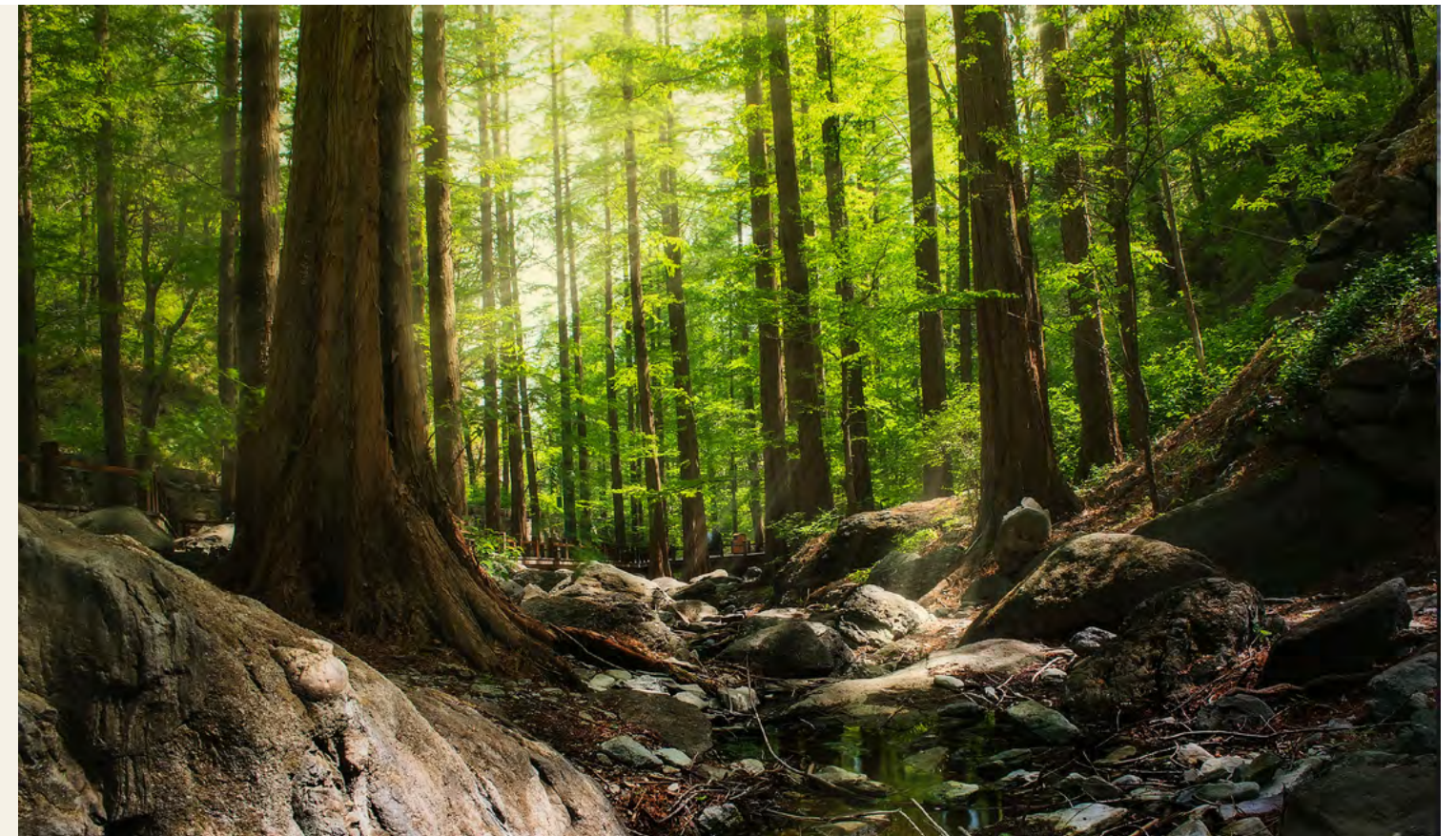
– [Dr Sabrina Kirschke](#), Senior Research Associate



CLIMATE ACTION

PROJECT

With global changes such as a growing world population and climate change, the demand for agricultural products and the occurrence of extreme weather conditions is on the rise. Adaptive land use as a preventative measure – particularly in the conservation of soil and water – gains in importance. The planning of adaptation strategies is often based on the application of numerical models. The project [“Development of Models to Predict Land-Use-Induced Soil Pore-Space Changes and their Hydrological Impacts \(SoilPoreDyn\)”](#) aims to increase our knowledge about soil pore-space changes under different land-use practices. In [“Modeling the Evolution of Soil Structural Pore Space in Agricultural Soils Following Tillage”](#) in *Geoderma*, our experts seek to combine information in modelling studies related to pore size and hydraulic characteristics in order to assess how soil properties shift in relation to its treatment. Changes in soil hydrological models have shown to improve simulations of water dynamics. The *Soil and Tillage Research* article [“Quantification of Soil Pore Dynamics During a Winter Wheat Cropping Cycle Under Different Tillage Regimes”](#) presents our experts’ analysis of the impact of different tillage treatments on soil pore dynamics. The methods and models derived form the basis for the development and assessment of sustainable land-use systems.



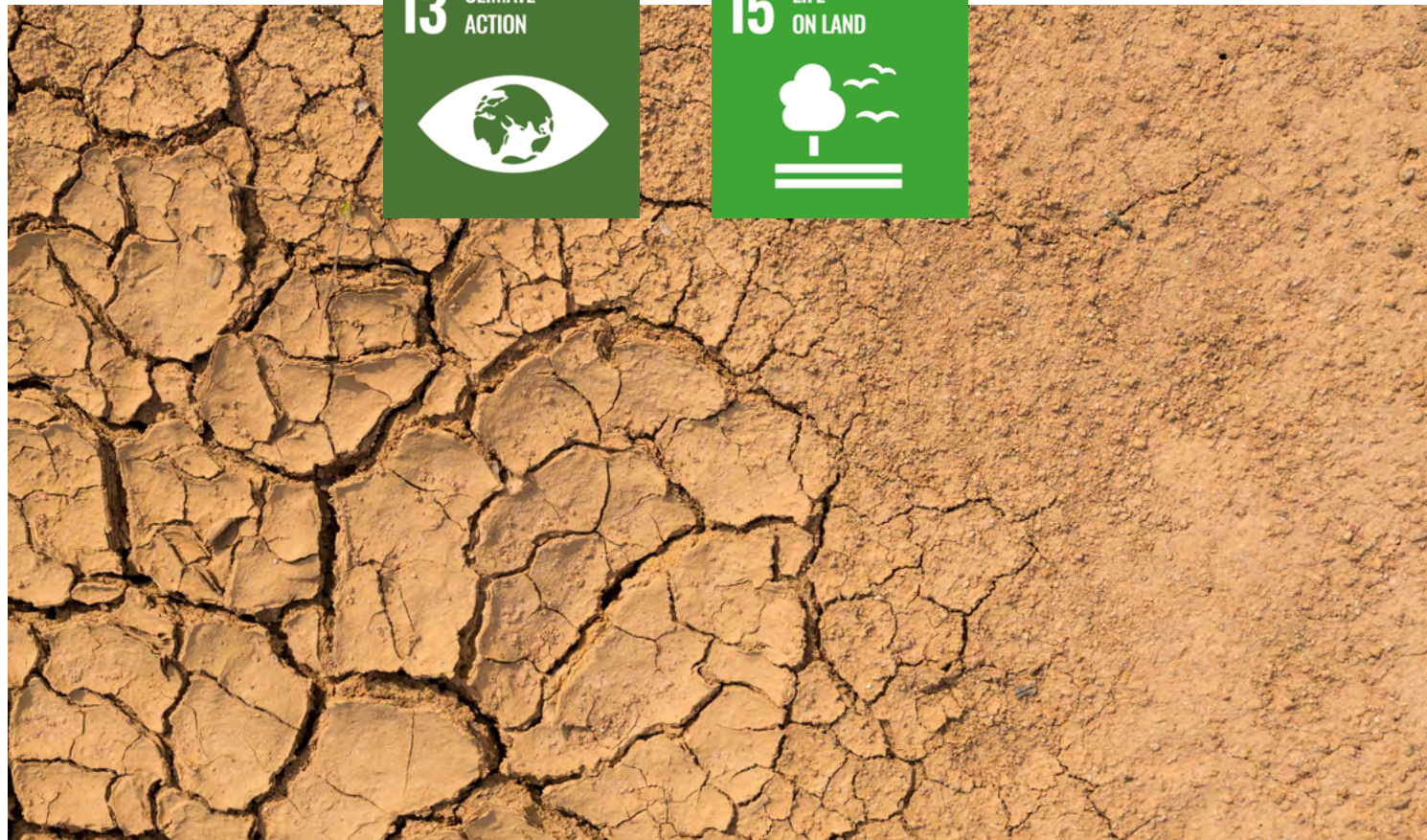
PUBLICATIONS

To support plans to implement environmental management strategies for sustainable development in Africa, we need good sources of climate information to help identify areas and problems and manage environmental resources more sustainably than previously possible. The paper [“Long-Term Trends in Rainfall and Temperature Using High-Resolution Climate Datasets in East Africa”](#) in *Nature’s Scientific Reports* details our experts’ assessments of the long-term trends in rainfall, maximum and minimum temperatures on seasonal and annual times scales in East Africa.

High-quality data can support or facilitate decision-making and help in developing adaptation measures in sectors such as agriculture, energy, and water. High-resolution climate data is required to drive impact assessment models. In the *Nature* paper, [“Statistically Downscaled Climate Dataset for East Africa”](#), our experts overcome this data challenge by producing a station-based climate projection.

PUBLICATION

While afforestation programmes have attracted international attention and contribute towards the achievement of the SDGs, recent studies suggest that these campaigns can result in unintended ecological and water security concerns, unless properly implemented. The analysis [“How Afforestation Affects the Water Cycle in Drylands: A Process-Based Comparative Analysis”](#) in *Global Change Biology* details the investigations of our experts into the effects of forest structure and environmental factors on the full water cycle in a typical multi-layer plantation forest composed of black locust on the Loess Plateau, China.



EVENT

Soil erosion is one of the ten major soil threats identified in the 2015 Status of the World's Soil Resources report. It poses a major threat to global food security and to the achievement of the SDGs. UNU-FLORES led a **session** at the [Global Symposium on Soil Erosion \(GSER19\)](#) on "Best Practices and Policy to Face Soil Erosion", discussing water and climate co-benefits in actions to control soil erosion.

MEDIA COVERAGE

In a **media interview** with CGTN America – China 24, Dr Kai Schwärzel addressed ["China's Efforts to Combat Desertification"](#) by assessing programmes applying biological and engineering measures for afforestation in dry lands, with the overall objective of securing the land in China. While focus was placed on one resource, this placed another resource in the ecosystem in jeopardy. Dr Schwärzel addressed water scarcity as an unintended consequence of the afforestation campaigns.

NEWS

Celebrated every 10 November, **World Science Day for Peace and Development** highlights the significant role of science in society and the need to engage the wider public in debates on emerging scientific issues. On this occasion, we published an exclusive interview with Prof. Rattan Lal, a highly esteemed scholar in the soil sciences, who advocates for science to be communicated. In the piece ["Soil Is the Solution to Climate Change and Communication Is Key to Unlock It: Prof. Rattan Lal"](#), we explored the intersections of climate science and communications and how to bridge the two.

NEWS

While communications are key to increasing policy impact, the appointment of UNU-FLORES researcher Dr Lulu Zhang as part of the **European Focus Group on Protecting Agricultural Soil from Pollution** sees her involvement in the review of existing knowledge about ways to measure soil contamination and to share information, among others. The Focus Group has also been tasked to identify a set of good practices to prevent agricultural soil contamination from various sources and to remedy agricultural soil contamination, and identify remaining research needs from practice and propose possible directions for further research. Dr Zhang takes part in two working groups, integrating nexus concepts in the analysis of the issues at hand.

CAMPAIGN

To mark the **World Day to Combat Desertification**, UNU-FLORES led collaboration efforts across the UNU network to create a **social video series** on why we need to take care of our land. With its network of researchers worldwide, UNU tackles various land-related topics ranging from land degradation to soil and land use management. The video series going with the hashtag [#UNU4Land](#) featured UNU experts working on these areas of research.

"Land is fundamental to our lives – it is a source of food, energy, and water, and a sink for greenhouse gases. The sustainable use of land helps our society and economy to thrive. My research at UNU aims to unlock the potential of land to meet future demand without further depleting the finite land resource."

– [Dr Lulu Zhang](#), Senior Research Associate



Dr Lulu Zhang, Senior Research Associate



SOCIETY & ECONOMY



PROJECT

When the population increases, so does the demand for water. In water-scarce Latin America, for instance, population growth is significant, coupled with a high rate of urbanisation. While wastewater has been recognised as a valuable resource, issues within the wastewater management sector reflect the need for new water resources management strategies. The **project** [“Decision Support Framework for Water Reuse in Water-Scarce Regions Involving Risk and Sustainability Assessments”](#) seeks to develop and test a framework that supports decision-making when evaluating the sustainability of water reuse measures in order to reduce the risk of water scarcity. Such an assessment would allow the decision maker to know if and how water reuse can help lower the risk of water scarcity and how the sustainability of the system is related to this risk reduction.

PROJECT

Organic waste composting is an excellent example to demonstrate the power and benefits of nexus thinking. While it may itself not be a new topic, current literature tends to focus on either waste from the management point of view or soil/agriculture from the nutrient recycling point of view. In fact, these two sectors potentially stand to benefit from each other but information on it is hard to come by. The **project** [“Organic Waste Composting through Nexus Thinking”](#) seeks to fill the gaps from the science to implementation of organic waste composting and to explain its importance in the context of sustainability, circular economy, and waste recycling. By bringing waste management experts and soil scientists together, this project advances nexus thinking by facilitating the mindset needed for policy integration to promote an integrated management of resources.

PUBLICATION

Based on theoretical insights derived from agent-based modelling, the **article** [“One Swallow Does Not Make a Summer: Siloes, Trade-Offs and Synergies in the Water-Energy-Food Nexus”](#) in *Frontiers in Environmental Science*, critically examines the recent UN-Water directive on SDG target 6.3. Our experts advocate for a heightened understanding of factors determining effective wastewater use, while accommodating for regional variation and institutional change.

PUBLICATIONS

The case study **report** titled [“Towards Sustainable Wastewater Treatment Systems: Implementing a Nexus Approach in Two Cases in Latin America”](#) (also available in Spanish) consolidates the findings of the [SludgeTec](#) project, which provided a platform for international experts and local stakeholders to co-design sustainable wastewater treatment and management options. Although the recovery of useful components from the wastewater by-product of sewage sludge can partially buffer the continuous depletion of natural resources, complex variables including safe-use practices and lack of technical capacity have resulted in sludge recovery being considered as a problem. In the **article** [“Selecting Sustainable Sewage Sludge Reuse Options Through a Systematic Assessment Framework: Methodology and Case Study in Latin America”](#) as published in the *Journal of Cleaner Production*, our experts provide a decision support framework to guide decision-making towards selecting sustainable options.

MEDIA COVERAGE

The failure of wastewater treatment plants can have a major negative impact on the environment. Given the fast-approaching deadline of Agenda 2030, how can wastewater treatment plants incorporate sustainability into their design and core operation? Our experts make three key recommendations to better harness the potential of wastewater treatment plants in advancing sustainable thinking in the **article** [“End ‘End-of-Pipe’ Thinking to Gear Up Sustainability Thinking”](#) as featured on the *Green Growth Knowledge Platform*.





EVENT

The **SDG Global Festival of Action** is a ground-breaking event, positioned to gather and inspire SDGs campaigners and multi-stakeholder partners to scale up and broaden the global movement to take action for the SDGs. In 2019, UNU-FLORES co-organised two sessions with different stakeholders. In collaboration with UNU-MERIT, the session [“Squaring Up for a Circular Economy”](#) aimed to tackle the barriers that prevent us from behaving more sustainably and trigger a different way of thinking through the concept of circular economy. Together with two other speakers from UNU-MERIT, Prof. Hiroshan Hettiarachchi (UNU-FLORES) walked more than 80 workshop participants through the main avenues to a circular economy. The workshop successfully delivered the message of waste as a resource and its place in a circular economy. Youth activists, civil society representatives, and public officials from across the globe shared their views, co-designed ‘nudge’ solutions, and inspired each other to explore and expand the concept. UNU-FLORES co-organised a second session [“Co-Producing a City Transformation”](#) with the City of Dresden. The session addressed the challenges of mobilising people and city administration officials to transform their city into a sustainable city, taking the example of Dresden’s experience as a future city (“Zukunftsstadt”) project.

EVENT

At the **TEDxDresdenSalon** event entitled [“Sustainable Business: Competitive Advantage or Idealism?”](#), UNU-FLORES Director Prof. Edeltraud Guenther invited participants to look at the relationship between the economy and the SDGs, asking if they represent a competitive advantage or rather idealism, from a scientific perspective. Organised by the TEDxDresden team, the event gathered approximately 30 participants at Impact Hub Dresden to discuss [sustainability in business and its real benefits](#). Sustainability enthusiasts and advocates from different backgrounds from academia, major corporations, start-ups, and non-governmental organisations to private individuals shared the biggest hurdles in their day-to-day operations when it comes to sustainability.

EVENT

Why does good science not always inform policy? The scientific and policy communities are still organised according to sectoral and disciplinary structures and true dialogue is rare. UNU-FLORES convened the [International Dialogue on Working at the Science-Policy Interface](#) to discuss how we can increase policy-relevant academic inputs to the decision- and policy-making process. By the end of the evening event, scientists had [three main takeaways](#) in order to achieve a meaningful science-policy interface.



Dr Serena Caucci, Senior Research Associate

“Without proper urban water services — even in poor and rural settings — we cannot achieve healthy living conditions. My research seeks to illuminate the connections between urban growth and sanitation, and to provide clean water and sanitation to all.”

— [Dr Serena Caucci](#), Senior Research Associate

EDUCATION & CAPACITY BUILDING



PhD Defence of Sridhar Patra (India)

Joint PhD Programme

UNU-FLORES prides itself on providing early-career scientists with a nurturing and incubatory environment to help them reach their full potential, and the [Joint PhD Programme in Integrated Management of Water, Soil, and Waste](#) is a cornerstone of this commitment. Jointly offered with the [Technische Universität Dresden](#), Germany, which has maintained its reputation as a [University of Excellence](#), the programme aims at creating a new generation of environmental scientists, engineers, and managers to conduct, promote, and provide guidance on the sustainable management of water, soil, and waste. These resources and their sustainable management are of concern to the United Nations and its Member States, particularly to developing countries and emerging economies.

UNU-FLORES's leverage on an **extensive regional, national, and international research network** offers a great opportunity for PhD researchers to benefit from unique connections to ministries, the UN System, and other international institutions. Partnerships and collaborations with key stakeholders constitute the main sources of financial support for the PhD programme. The work related to specific regions is based on close cooperation with **local institutions** including governmental agencies, universities, research institutes, and NGOs – for example, in Ethiopia, India, Tanzania, and Togo. Similarly, close collaboration with other **UN agencies** also shapes the PhD programme. Altogether, this fosters a productive scientific exchange and contributes to the successful implementation of the PhD projects.

In 2019, we had the privilege of seeing **three** of our students successfully defend their doctoral theses and take the exciting first steps towards their new careers in science.

- 7 May 2019: [Mahesh Jampani](#) (India)
- 16 September 2019: [Sridhar Patra](#) (India)
- 18 December 2019: [Agossou Gadedjisso-Tossou](#) (Togo)

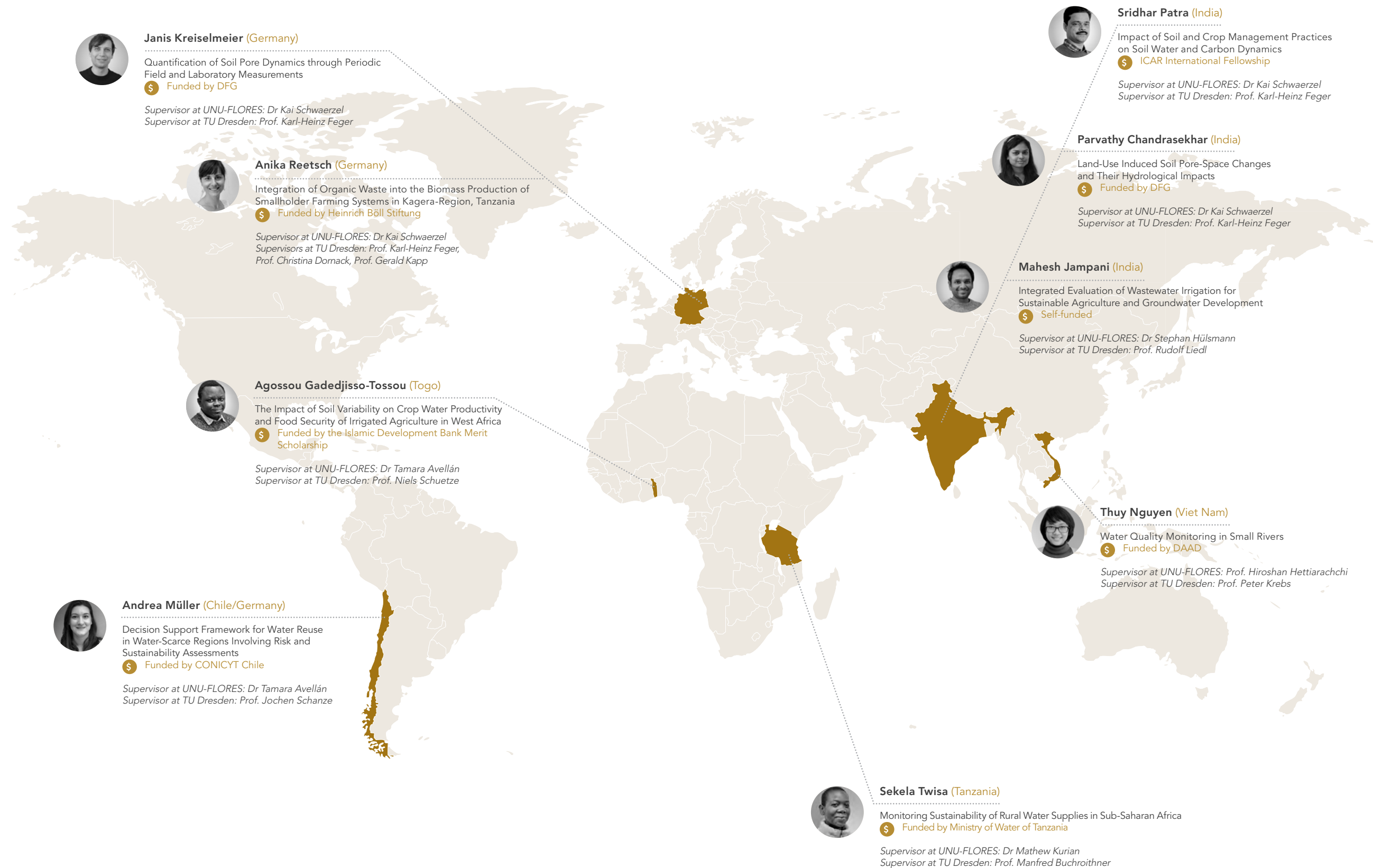
The annual [PhD Symposium](#) offers an opportunity for the PhD candidates currently carrying out their research to evaluate their progress to date.

[View the Joint PhD Programme](#)



PhD Symposium

Bringing Together Early-Career Scientists Across Different Nations



Visiting Scholars Programme



[Natalia Jimenez](#) (Colombia), Alexander von Humboldt Climate Fellow



[Shilpa Rumjeet](#) (South Africa), Green Talents Awardee

UNU-FLORES welcomes exceptional academics at various stages in their academic career for a duration of between three and twelve months. In 2019 we hosted four visiting scholars who conducted valuable scientific research in these main areas:

- Safe Use of Wastewater in Agriculture (SUWA) – governance and policymaking in Colombia
- Smart water solutions for cities – wastewater treatment and public-private partnership to address sustainable development
- Mining for recovery as an option for dumpsite rehabilitation
- Collective action in waste management – recycling and recovery initiatives in Brazil, Indonesia, and Nigeria using the institutional analysis and development framework

2019 saw UNU-FLORES host visiting scholars from the Alexander von Humboldt Foundation and BMBF's Green Talents Programme in the promotion of the exchange of ideas and new synergies in research.

"UNU-FLORES, as a reputable international organisation with experts from fields dealing with various environmental resources along with a congenial research environment, is a value addition to my research. It is a great opportunity to be able to bridge the work being done both at United Nations University and my parent organisation, CSIR-NEERI."

– [Dr Sunil Kumar](#), Senior Fellow, Alexander von Humboldt Foundation

[View the Visiting Scholars Programme](#)



Dr Sunil Kumar (India), Alexander von Humboldt Senior Fellow

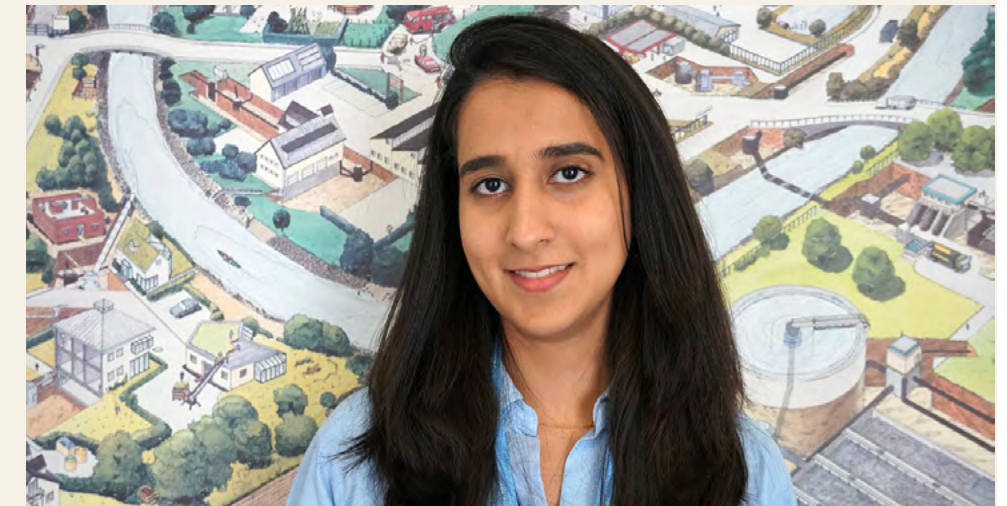
Internship Programme



[Leena Renita Dsilva](#) (India), Research Intern



[Oleksandr Mialyk](#) (Ukraine), Research Intern



[Hafsa Mahmood](#) (Pakistan), Research Intern



[Seohyun Park](#) (Korea), Communications & Advocacy Intern



[Niyanta Shetye](#) (India), Communications & Advocacy Intern



[Dominique Schmachtel](#) (Germany), Research Intern

UNU-FLORES offers a rigorous internship programme giving students and recent graduates the opportunity to develop new skills and knowledge in a constructive setting for the practical application of their capacities acquired during their studies. Through hands-on experience, interns work in a variety of areas from academic research, event organisation, communications and advocacy, and institutional development and administration. The internship programme was a great success in 2019 with **22 interns** having had the opportunity to acquire new knowledge, develop their skills, and support the work of UNU-FLORES. To allow for a more integrated programme where interns can grow and develop to meet their goals while they work alongside experts in their respective fields of interest, the programme has been redesigned and adapted to better meet the needs of interns and the Institute.

"My passion to learn more about soils motivated me to apply for an internship at UNU-FLORES. I got the opportunity to be part of an institution that develops strategies to address global pressing challenges such as the sustainable use and integrated management of environmental resources like soil, water, waste, and energy."

– Leena Renita Dsilva (India), Research Intern

"Diversity makes our lives colourful and UNU-FLORES is definitely the place where you can experience it."

– Oleksandr Mialyk (Ukraine), Research Intern

"A UNU-FLORES internship offers you diverse experiences and a range of benefits in terms of your personal development, career, and academic learning."

– Hafsa Mahmood (Pakistan), Research Intern

"My favourite part of work is seeing my work reach the public."

– Seohyun Park (Korea), Communications & Advocacy Intern

"I wanted to gain hands-on experience in the field of science communication. With such a cross-cutting research communications internship, I got to work on diverse projects from writing feature stories to conceptualising social media campaigns."

– Niyanta Shetye (India), Communications & Advocacy Intern

"Whether or not you are planning to become a researcher or pursue a PhD later, an internship at UNU-FLORES gave me the opportunity to be surrounded by experts and work in an international environment."

– Dominique Schmachtel (Germany), Research Intern

[View the Internship Programme](#)

Nexus Seminar Series



[Back to Nature: How Sustainable is Construction with Wood?](#)

by Prof. Peer Haller

In collaboration with PRISMA – Centre for Sustainability Assessment and Policy on behalf of TU Dresden, UNU-FLORES organises the Nexus Seminar Series. The joint seminar series features lectures by senior scholars that highlight all dimensions of research on the Nexus Approach, ranging from hands-on implementation strategies to theoretical debates. In 2019, eight seminars took place on a wide range of nexus-related topics from both the natural and social sciences.

- No. 34: [Back to Nature: How Sustainable is Construction with Wood?](#) by Prof. Peer Haller (21 January 2019)
- No. 35: [Developments and Challenges in the Energy Industry](#) by Prof. Dominik Möst (15 April 2019)
- No. 36: [One Swallow Does Not Make a Summer: Siloes, Trade-offs, and Synergies in the Water-Energy-Food Nexus](#) by Dr Mathew Kurian (20 May 2019)
- No. 37: [Integrated Modelling and Management of Water Resources: The Ecosystem Perspective on the Nexus Approach](#) by Dr Stephan Hülsmann (17 June 2019)
- No. 38: [Sustainable Water Management Strategies: A Focus on Corporate Supply Chain Management](#) by Dr Jonathan Clive Morris (22 July 2019)
- No. 39: [Numerical Modelling in Hydrogeological Sciences: Critical Evaluation or Picture-Perfect?](#) by Prof. Marc Walther (21 October 2019)
- No. 40: [Waste Management and Circular Economy: Turning a Problem into a Solution](#) by Prof. Hiroshan Hettiarachchi (19 November 2019)
- No. 41: [Measuring and Managing the Resource Nexus](#) by Prof. Edeltraud Guenther (16 December 2019)

The Nexus Seminars serve not only as a platform for **scientific exchange and cooperation** between UNU-FLORES and TU Dresden but also as a medium for the partner institutions to discuss their research with a broader audience. The series was also part of CIPSEM's **UNEP/UNESCO/BMU programme for postgraduate studies in environmental management**, and in 2019, a Master's course at the School of International Studies and Faculty of Business and Economics at TU Dresden.

[View the full series](#)



[Developments and Challenges in the Energy Industry](#)

by Prof. Dominik Möst



[One Swallow Does Not Make a Summer: Siloes, Trade-offs, and Synergies in the Water-Energy-Food Nexus](#)

by Dr Mathew Kurian



[Integrated Modelling and Management of Water Resources: The Ecosystem Perspective on the Nexus Approach](#)

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Nexus Seminar Series



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[Numerical Modelling in Hydrogeological Sciences: Critical Evaluation or Picture-Perfect?](#)
by Prof. Marc Walther



[Measuring and Managing the Resource Nexus](#)
by Prof. Edeltraud Guenther

Capacity Building



Leave no waste behind: Exploring bottom-up initiatives in Ghana

Complementing the host of educational opportunities offered at the Institute, **capacity development in the Global South** took various forms for UNU-FLORES in 2019. In collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), UNU-FLORES seeks to contribute towards capacity building in the **textile and garment industry in Bangladesh**. Working together with Technische Universität Dresden and Ahsanullah University of Science and Technology (AUST), UNU-FLORES provides expertise on recruitment, training, and evaluation of academic personnel in the areas of sustainability and innovation in the project.

In collaboration with UNU-MERIT, the session [“Multi-Stakeholder Forum on a Cross-National Study of Urban Solid Waste Management”](#) at the CReWAS conference in Ghana aimed at capacity building in Africa.

“Success stories often have policy backing prior to or during the implementation. But it does not have to be a pre-condition if we use innovative thinking.”

– Prof. Hiroshan Hettiarachchi in [“Leave No Waste Behind: Exploring Bottom-Up Initiatives in Ghana”](#)



Interview with Prof. Bancy Mati (Kenya), Advisory Committee member

The Centre for International Postgraduate Studies of Environmental Management (CIPSEM) at TU Dresden provides postgraduate training in environmental management for experts from emerging and developing countries. As part of the **UNEP/UNESCO/BMU programme for postgraduate studies in environmental management** at CIPSEM, UNU-FLORES experts deliver guest lectures to participants who return to their home organisations in their respective countries with the new insights gained. The lectures delivered in 2019 are:

- “Circular Economy and Waste Management in the Light of Nexus Thinking” by Prof. Hiroshan Hettiarachchi (21 June 2019)
- “In the Nexus: Land Degradation and Successful Restoration Strategies” by Dr Lulu Zhang (28 October 2019)

“When I see change in the lives of farmers or water users, I feel inspired. I find it motivating to see successes of water resources management despite difficult conditions. On the other hand, when I see failure, it gives me the next idea of what needs to be done. My excitement comes from seeing change among local communities.”

– Prof. Bancy Mati, Advisory Committee member in [“‘The Knowledge is with the People’: Insights from Professor Bancy Mati”](#) by Atiqah Fairuz Salleh

ADVOCACY

Events in the Region

To commemorate [UN Day](#) in Dresden, UNU-FLORES works together with local partners to shed light on the key issues of the United Nations and their significance in the daily lives of the local community. In 2019, UNU-FLORES, the United Nations Association for Germany – for Saxony, Saxony-Anhalt and Thuringia e.V., City of Dresden, Lokale Agenda 21 für Dresden e.V., UNICEF Working Group Dresden, Lions Club Dresden Agenda 21, and Technische Universität Dresden lined up an exciting week-long programme on the topic of the “Future of Work”, in recognition of the 100th anniversary of the International Labor Organization (ILO). The activities included a school programme and a workshop with local entrepreneurs and start-ups. As part of the commemorative event, UNU-FLORES invited Dr Annette Niederfranke, Director of the ILO Representation in Germany, to report on how governments, employees, and employers around the world can better meet the challenges of the work landscape of the next century. Together with Deputy Mayor of Dresden Eva Jähnigen, the evening event discussed solutions for entrepreneurs and the city government in terms of sustainability and corporate culture.



Commemorating the UN Day in Dresden with Dr Annette Niederfranke (ILO) and Deputy Mayor Eva Jähnigen (City of Dresden)



A member of the German Federal Armed Forces asks a question during a visit to UNU-FLORES

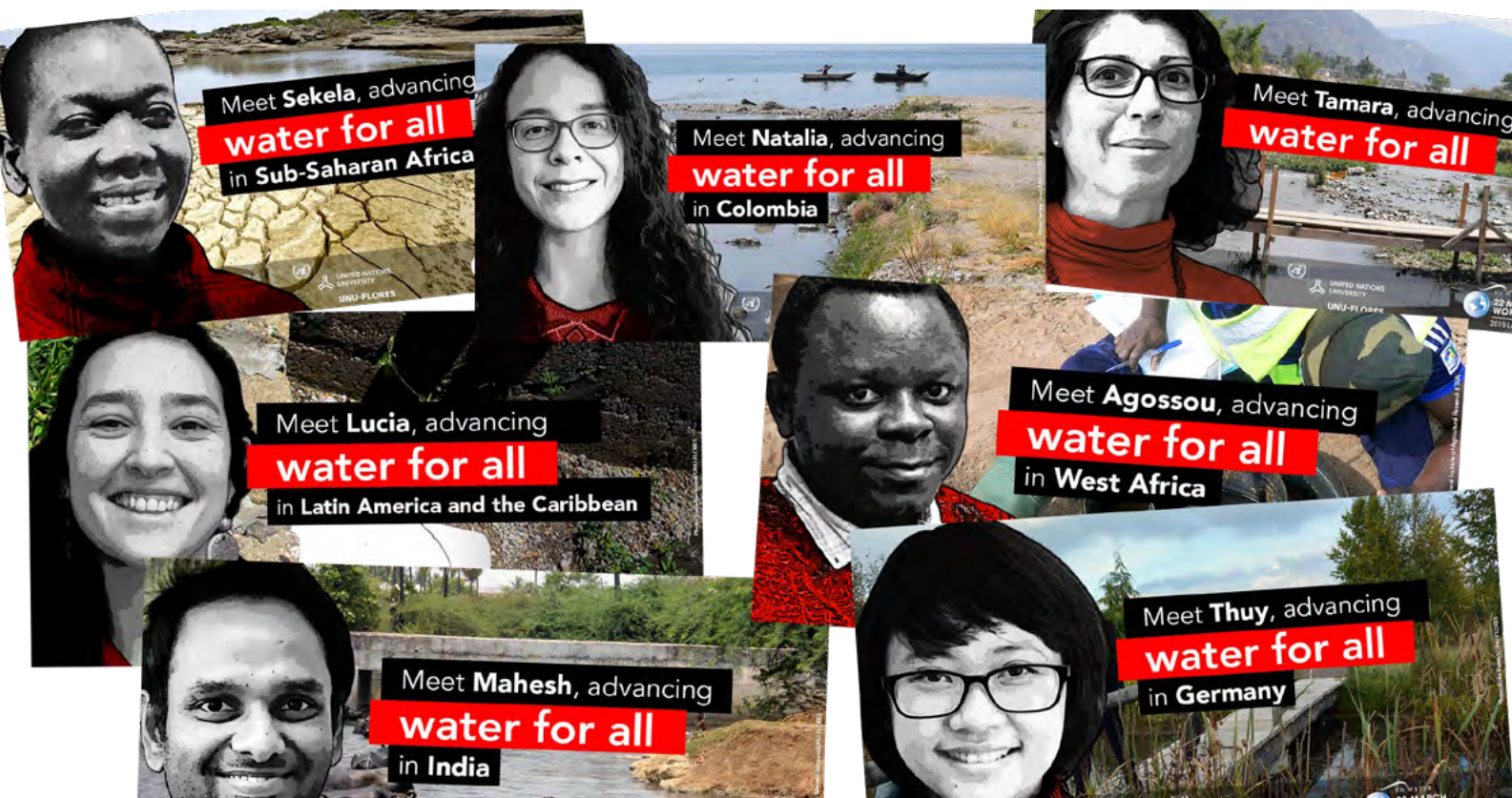
UNU-FLORES and the Saxon State Ministry for Environment and Agriculture organised the very first [Day of Sustainability](#) (*Tag der Nachhaltigkeit*) in Saxony in 2019 under the topic “Sustainable Management of Resources”. The diverse programme included talks by the Saxon State Minister of the Environment and Agriculture Thomas Schmidt, Prof. Edeltraud Guenther, Director of UNU-FLORES, and Dr Fatima Denton, Director of UNU-INRA.

UNU-FLORES also advanced advocacy efforts locally by participating in **discussion panels** such as that during the inaugural network meeting of local actors working on the topic of water ([1. Sachsen-Netzwerktreffen WASSER INTERNATIONAL](#)) and by **opening our doors** to welcome the [German Federal Armed Forces](#) for a half-day session discussing sustainability issues.

In Service to the United Nations

UNU-FLORES actively participates in **UN-Water** initiatives and contributes to the **World Water Development Report (WWDR)** and the **Policy Brief on Water and Climate Change**. Dr Tamara Avellán (co-lead author) and Dr Stephan Hülsmann (contributing author) contributed to the UNESCO World Water Assessment Programme's 2019 edition of the WWDR on "[Leaving No One Behind](#)". They explored the physical and environmental dimensions of water provisioning and sanitation services and highlighted the need for mitigating water stress and achieving water security, respectively.

Every year, the WWDR is launched on **World Water Day** (22 March). Aligning with the wider UN-Water initiative, UNU-FLORES ran a **digital media campaign** to boost the profiles of our senior researchers and early-career scientists working on various dimensions of water. The campaign garnered impressive results and resonated very well with our audiences, with an engagement rate of up to 26 per cent on Facebook and 2.5 per cent on Twitter.



World Water Day 2019 digital media campaign

Digital Media

In the digital realm, the institutional website, newsletter, and social media are key channels for informing a wide range of stakeholders of the Institute's latest research and activities. UNU-FLORES's digital footprint continually drives traffic to the valuable work of our researchers via engaging and content-forward campaigns and articles. 2019 saw UNU-FLORES paving its way on [LinkedIn](#) and preparing for the launch of an [Instagram](#) account in 2020. This marks the expansion of the Institute's footprint on social media, in addition to the existing presence on [Facebook](#), [Twitter](#), and [YouTube](#).

Initiatives at the Institute

In line with its mission, UNU-FLORES 'walks the sustainability talk' by moving towards paperless processes. The printing of publications has ceased to make way for more digital publications such as the current report. More on the sustainability front, UNU-FLORES has committed to achieving **CO₂ neutrality** by the end of 2020 and the **Green Committee** has seen the revision of office procurement to source for responsibly and sustainably produced supplies for the office. Interviews and meetings take place mostly by teleconference and meeting materials are shared exclusively electronically. The Institute also practises green procurement by engaging catering providers that source local organic food production wherever possible and with an exclusively vegetarian menu.



UNU-FLORES welcomed Minister of State Thomas Schmidt from the Saxon State Ministry for Energy, Climate Protection, the Environment, and Agriculture (SMEKUL)

PARTNERS & NETWORKING

2019 has been a year of networking and strengthening of partnerships for UNU-FLORES. Over several weeks in the first quarter, UNU-FLORES Director Prof. Edeltraud Guenther met with various [local](#) and [regional](#) authorities in Germany to strengthen local ties. Aimed at finding synergies and paving the way for closer collaboration, the inaugural high-level meetings led to signing a [Memorandum of Understanding](#) (MoU) with SMEKUL and a [Letter of Engagement](#) with the Free State of Saxony to engage UNU-FLORES as a scientific partner in the transformation of Saxony's lignite mining areas.



Prof. Guenther [visits](#) Deputy Mayor Eva Jähnigen, in charge of environmental affairs and municipal utilities in Dresden

In addition to collaborating for the [Day of Sustainability](#), SMEKUL is also funding a PhD research project at UNU-FLORES on the multifunctional use of agricultural landscape under climate change.

Apart from intensifying donor relations in Saxony, UNU-FLORES has also placed a focus on key partnerships and consolidation of networks. Close relationships are maintained with **Technische Universität Dresden (TU Dresden)** and UN-Water, for example, through regular meetings and continued collaboration. UNU-FLORES strengthened its cooperation with local partner university TU Dresden. Amendments to the existing framework agreement see a greater alignment between the two institutions in various dimensions inter alia co-opting of UNU-FLORES researchers as professors at TU Dresden, membership prospects to the DRESDEN-concept, educational programmes (PhD, Master thesis), research, as well as on the ICT front. Meanwhile, the MoU renewal with the **Korea Environment Corporation (K-eco)** shows the Institute's commitment to promote the training of young scientists.



Dr Uwe Müller, Head of Department Water, Soil, and Recyclables from the Saxon State Office for Environment, Agriculture, and Geology paid UNU-FLORES a [courtesy visit](#)



Prof. Guenther visited the [State Chancellery](#) to meet with Minister of State Oliver Schenk



Prof. Guenther visited the Saxon State Ministry for Higher Education, Research, and the Arts ([SMWK](#)) and met with the State Minister Dr Eva-Maria Stange



State Minister Thomas Schmidt and Dr David Malone (Rector of UNU and Under-Secretary-General of the UN) signed an [MoU](#)



TU Dresden Rector Prof. Hans Müller-Steinhagen with Dr David Malone



Prof. Guenther, Prof. Fatima Denton (UNU-INRA), and Dr Shinobu Yume Yamaguchi (UNU-IAS) at the [Day of Sustainability 2019](#) in Dresden



UNU-FLORES renews its MoU with K-eco

Network consolidation happens through establishing tripartite partnerships and rallying around thematic clusters. Tripartite agreements have been signed with **CzechGlobe** and **Wroclaw University**, each time including both UNU-FLORES and TU Dresden. 2019 also saw the launch of the **UNU Water Network**. Besides strengthening collaboration across UNU, UNU-FLORES has also intensified talks with a range of **UN agencies** and **Europe-wide initiatives**. Efforts to deepen cooperation and increase alignment with the **UN Environmental Management Group**, **UN Environment**, and the [Nexus Project Cluster](#) are envisioned.

Further to that, ensuring successful closure is also crucial. The MoU with **UN-Habitat** was successfully closed after UNU-FLORES's contribution towards the Synthesis Report for SDG 6.

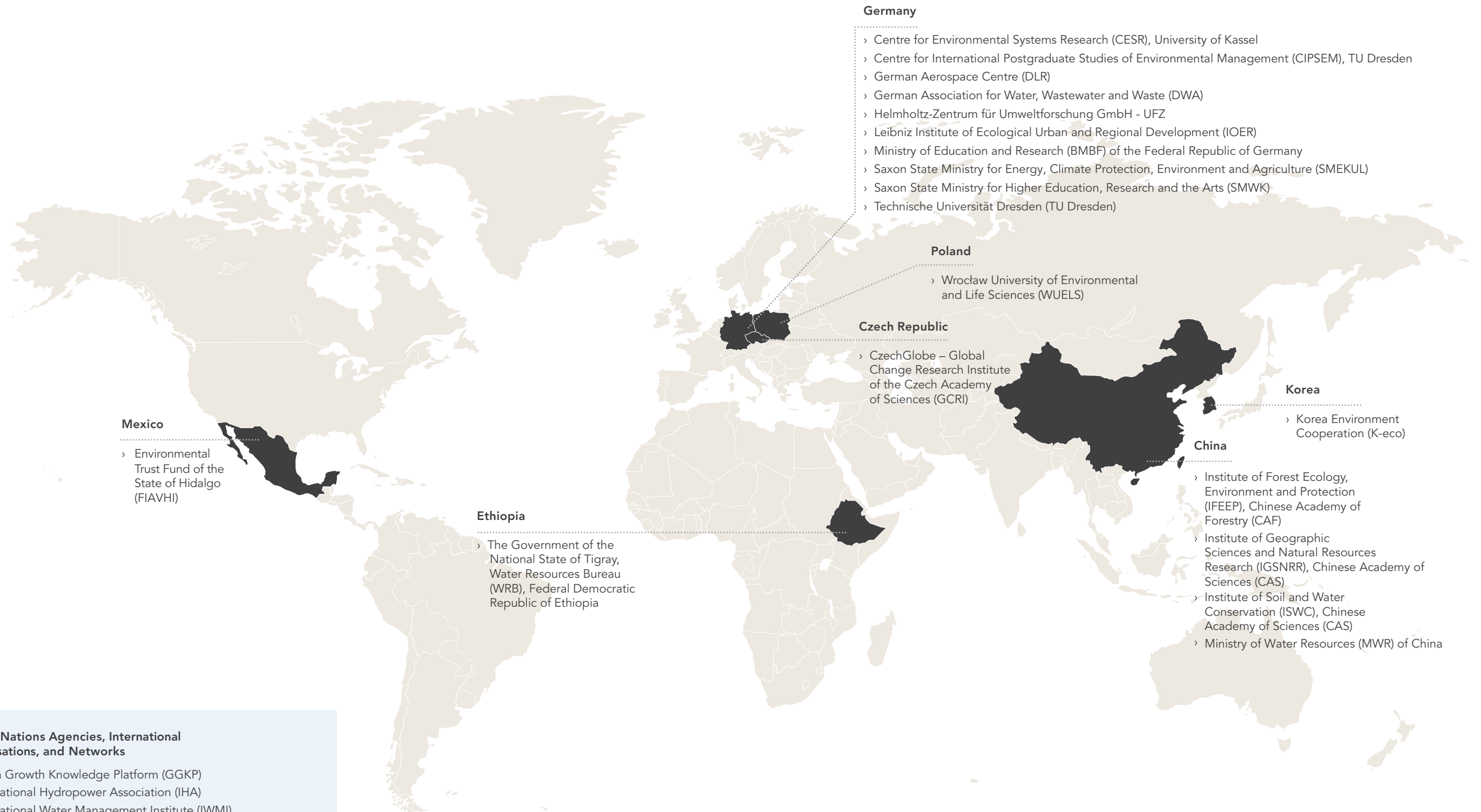


Dr Nora Adam, Partnerships & Liaison Officer

“Environmental problems are threatening life on Earth. The magnitude of this crisis requires partnerships and collaborations across sectors and levels. I aim at mobilising funds and fostering effective partnerships for achieving the SDGs.”

— [Dr Nora Adam](#), Partnerships & Liaison Officer

Working Together with Stakeholders Worldwide



United Nations Agencies, International Organisations, and Networks

- › Green Growth Knowledge Platform (GGKP)
- › International Hydropower Association (IHA)
- › International Water Management Institute (IWMI)
- › Nexus Project Cluster
- › UNESCO International Centre for Water Security & Sustainable Management (i-WSSM)
- › UN-Water
- › World Meteorological Organization (WMO)

RESOURCES

Budget & Finance

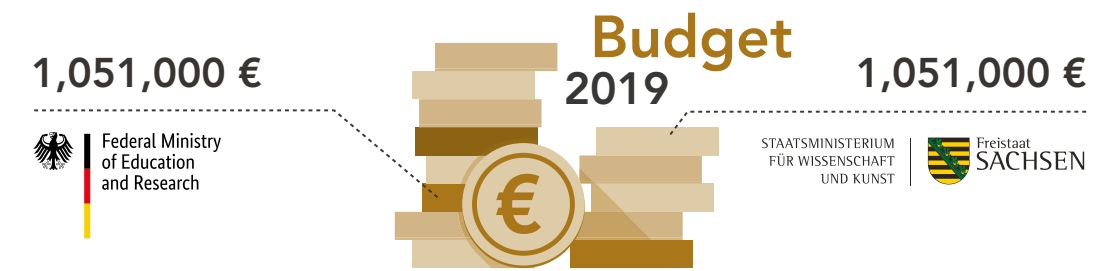
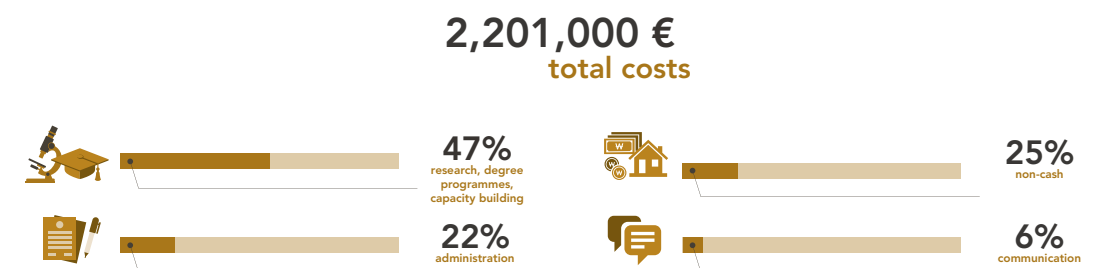
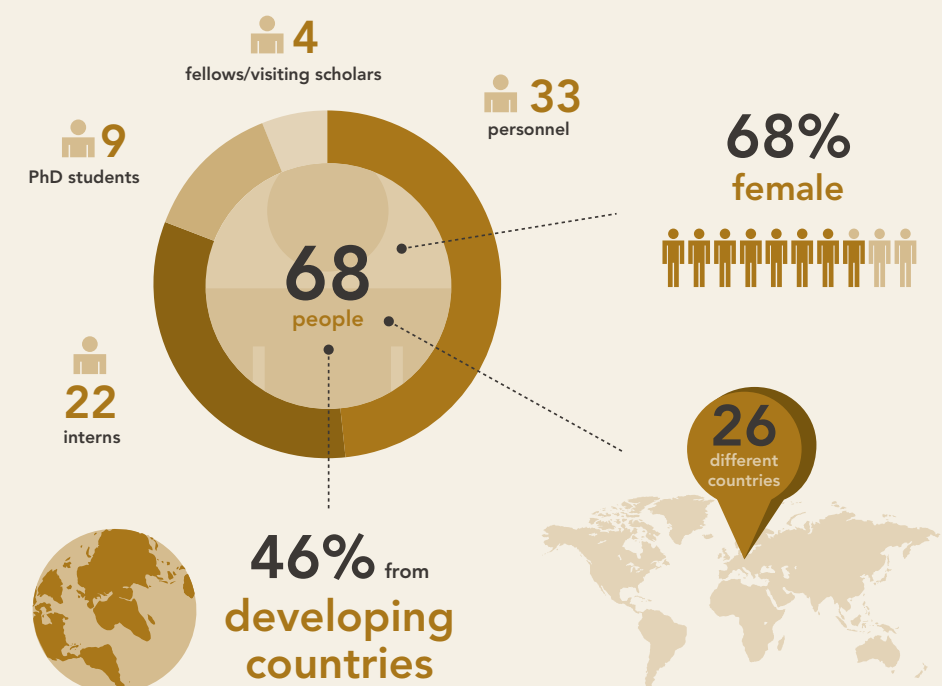
UNU-FLORES is financed, solely, by voluntary contributions from Governments, foundations, agencies, and other sources. The Institute does not receive any funds from the regular UN budget.

The Institute's core budget is financed by the **German Federal Ministry of Education and Research (BMBF)** and the **State Ministry for Higher Education, Research, and the Arts (SMWK)** of the Free State of Saxony. BMBF and SMWK committed EUR 1,051,000 each to the 2019 budget of UNU-FLORES through in-kind and cash contributions.

In 2019, UNU-FLORES held regular meetings with donor representatives from BMBF and SMWK, identified **third-party funding pathways** (e.g., Alexander von Humboldt Foundation, GIZ), and additionally diversified sources of funding by looking to partners in the **private sector** (e.g., BASF). In addition, in the last round of PhD recruitment, the decision was made to grant admission only to students with secured funding.

During the reporting period, the Institute succeeded in achieving funding from third parties amounting to approximately EUR 175,000, including around EUR 153,000 for research and capacity building projects and around EUR 22,000 for providing miscellaneous services, such as advisory, editorial, and IT hosting services. All income contributes to diverse academic and institutional activities, while the Institute aims to maximise academic activities and keep administrative costs within budget.

The total expenses in 2019 add up to approximately EUR 2,201,000. The majority of expenses incurred were from **research, degree programmes, and capacity building** with a share of about 61 per cent. Approximately 30 per cent of the costs are related to **administrative expenses**, such as office rent, utilities, and the administration of the Institute. Around 6 per cent of the total expenses relate to **communications**, promoting the Institute and its activities. The investment in **new equipment** as well as the investment in **training** of our own staff members add up to approximately 3 per cent.



Human Resources

To allow for scientific research to develop and expand, a strategic decision was taken to put in place **interdisciplinary research programmes**, replacing research units that were previously organised according to single thematic clusters. This transition is in part aimed at cultivating an innovative research culture at UNU-FLORES. Under the new strategic direction, the open topic research programmes will strengthen the Nexus Approach towards the integrated and sustainable management of environmental resources. This new strategy calls for a particular mix of skills and expertise within the research programmes, and accordingly, new researcher positions that focus less on single thematic issues.

Four Academic Officers reached the end of their six-year maximum fixed-term contracts. In total, eight colleagues separated to pursue new opportunities outside of the UNU. Additionally, three PhD students graduated from the Joint PhD Programme and are moving into their new careers.

We welcomed several **new colleagues** to the Institute to fill these newly created roles: Partnerships and Liaison Officer, Executive Assistant, Human Resources and Administrative Assistant, and Event Coordinator. Two Student Assistants were also recruited to support Communications and Advocacy. Furthermore, the excellent work of the academic team secured funding for five academic positions.

Recruitment for the following positions began in 2019: (core funded) Head of Nexus Research Programme on Integrated Resources Management (three positions), (third-party funded) Senior Research Associate (two positions), and a PhD Researcher (one position).

In 2019, an increase in the Institute’s salary budget saw the enhancement of staff on the **Personnel Service Agreement (PSA) pay scale**. A PSA pay scale working group, consisting of four staff volunteers, was created with a view to attract valuable candidates, allow all employees regardless of their contract types to grow and flourish in their personal and professional lives, and to encourage and preserve institutional knowledge. Based on a survey it conducted, the working group developed recommendations to further enhance the PSA pay scale.

In order to grow and develop the skills of our team members, UNU-FLORES implemented internal **training** sessions. This includes UN leadership dialogues, and professional development trainings specific to staff needs. Employees also have access to online trainings for both their personal and professional development.

A good work-life balance is of high importance. UNU-FLORES introduced **Flexible Working Arrangements (FWA)**, defining core working hours and allowing staff to manage their working hours in a more flexible way. They also have the flexibility to work remotely for up to two days a week. To foster creativity and productivity as well as better collaboration across teams through a new office space design, UNU-FLORES has embarked on developing a ‘floating office’ concept with the creation of the **Workspace Committee**. A range of **office automation tools** as well as digital tools boosting internal communication (Slack, Hot Desking) and project management (Trello) are also in place to complement a flexible working arrangement.

Besides structural changes and the adoption of FWA, efforts to strengthen team management have also taken the form of streamlining reporting duties and an enhanced meeting structure that includes jour fixes, all-staff meetings, and management meetings, as well as regular meetings with PhD researchers for discussing work progress and providing guidance.

› [View the Staff](#)

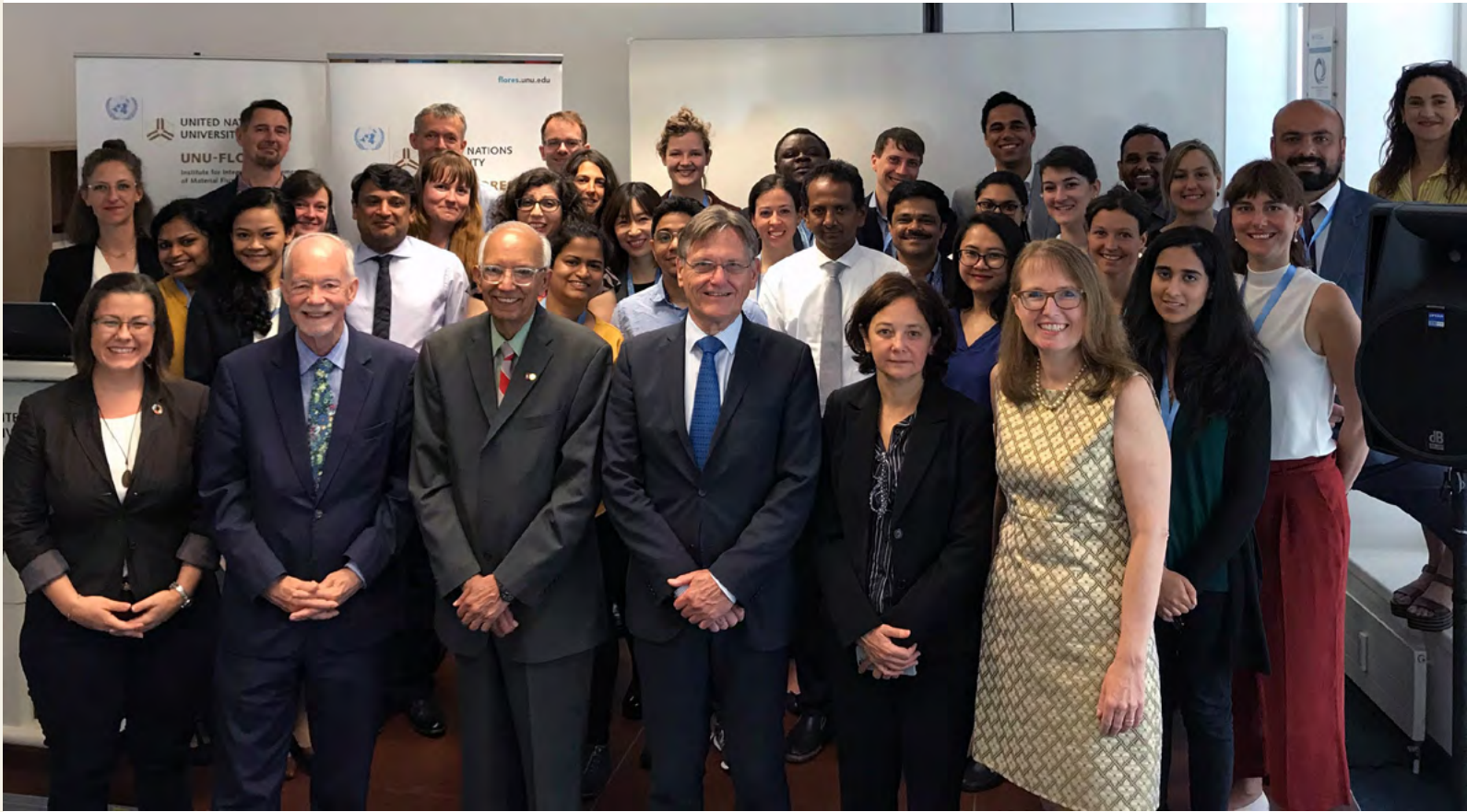
Advisory Committee

The international [Advisory Committee](#) of UNU-FLORES convenes once a year in Dresden to hear reports from the Director and the team on activities of the Institute and provide guidance and advice. In 2019, the Committee comprised a diverse group of five renowned scientists.

- Prof. Rattan Lal (Chair) (USA)
- Prof. Karl-Heinz Feger (Germany)
- Prof. Bancy Mati (Kenya)
- Prof. Adelaide C. Nardocci (Brazil)
- Prof. Wim van Vierssen (Netherlands)

Prof. Rattan Lal chaired the [sixth annual session](#) of the Advisory Committee (AC) from 11–12 June 2019, with the attendance of Prof. Adelaide Nardocci and Prof. Wim van Vierssen, as well as Dr David Malone (UNU Rector and Under-Secretary-General of the UN) and Prof. Edeltraud Guenther, who are ex officio members of the Committee.

› [View the Advisory Committee](#)



UNU-FLORES team at the sixth session of the Advisory Committee

LOOKING AHEAD

2019 has been a year of transition for UNU-FLORES. This presented the Institute with a timely opportunity to gear itself up for the important decade to come. With the launch of the **Decade of Action for delivering the Sustainable Development Goals** by the UN Secretary-General António Guterres in 2020, UNU-FLORES is set to embrace the year to come in alignment with a commitment to the Decade.

In research, efforts will be dedicated to defining the **new interdisciplinary research programmes** with the appointment of key personnel. Research activities will broaden the focus to include themes that advance the resource nexus beyond water, soil, and waste. Embedding interdisciplinarity within the research programmes ensures that the nexus orientation is second nature in all of the research produced. Going forward, the new open-topic structure of the programmes also helps ensure that UNU-FLORES's research remains relevant and responsive to global changes and research trends.

To increase **policy uptake** of UNU-FLORES's research, stronger partnerships with government ministries, other UN agencies, and various stakeholders will pave the way for establishing research projects in a participatory manner. Simultaneously, increased engagement with wider audiences will help get UNU-FLORES's work to the people who would benefit from it. Efforts will be intensified to present UNU-FLORES's work in both local events and international consortia on nexus-relevant research themes. The Institute seeks to showcase the benefits of nexus thinking to strengthen UNU-FLORES's branding around the resource nexus. The coupled strategy is conducive to our continued and strengthened engagement with the UN System and UN Member States in the frame of the resource nexus and SDGs.

The [Dresden Nexus Conference \(DNC\)](#) will be a central part of UNU-FLORES's work in the next year. Working closely with partners, UNU-FLORES will further expand the role of DNC as a platform for discussion on nexus-relevant research and implementation of nexus-oriented solutions. With the 2020 edition in store, UNU-FLORES looks forward to continuing serving as an incubator for research ideas and a facilitator of solutions.

With the committed efforts of the team throughout 2019, UNU-FLORES has developed numerous initiatives as highlighted in this report. UNU-FLORES now steps into an exciting new phase of consolidating the results of these initiatives, such as the expected completion of several PhD projects and a new office design that is responsive to the needs of the future workforce. Reflecting on lessons learnt, they serve as building blocks for the next era in advancing the Nexus Approach to environmental resource management.

Do you want to keep up with the latest on the Nexus Approach to the sustainable management of environmental resources? Stay abreast with the latest developments in UNU-FLORES's research and activities through our quarterly **electronic newsletter** [NexNews](#).



UNITED NATIONS
UNIVERSITY

UNU-FLORES

The United Nations University Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) was established in Dresden, Germany in 2012 with the support of the Federal Ministry of Education and Research (BMBF) and the Ministry for Higher Education, Research and the Arts (SMWK) of the Free State of Saxony, Germany. As part of the United Nations University (UNU), the Institute helps build a bridge between the academic world and the United Nations. UNU encompasses 14 research and training institutes and programmes located in 12 countries around the world. UNU as a whole aims to develop sustainable solutions for pressing global problems of human survival and development.

UNU-FLORES develops strategies to resolve pressing challenges in the area of sustainable use and integrated management of environmental resources such as water, soil, and waste. Focusing on the needs of the UN and its Member States, particularly developing countries and emerging economies, the Institute engages in research, capacity development, advanced teaching and training as well as dissemination of knowledge. In all activities, UNU-FLORES advances a Nexus Approach to the sustainable management of environmental resources.

Find more information at: flores.unu.edu

ADVANCING A NEXUS APPROACH TO THE SUSTAINABLE MANAGEMENT OF ENVIRONMENTAL RESOURCES

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