

2014 UNU-FLORES
ANNUAL REPORT

ROOTING THE NEXUS



UNITED NATIONS
UNIVERSITY

UNU-FLORES

Institute for Integrated Management
of Material Fluxes and of Resources

ROOTING THE NEXUS

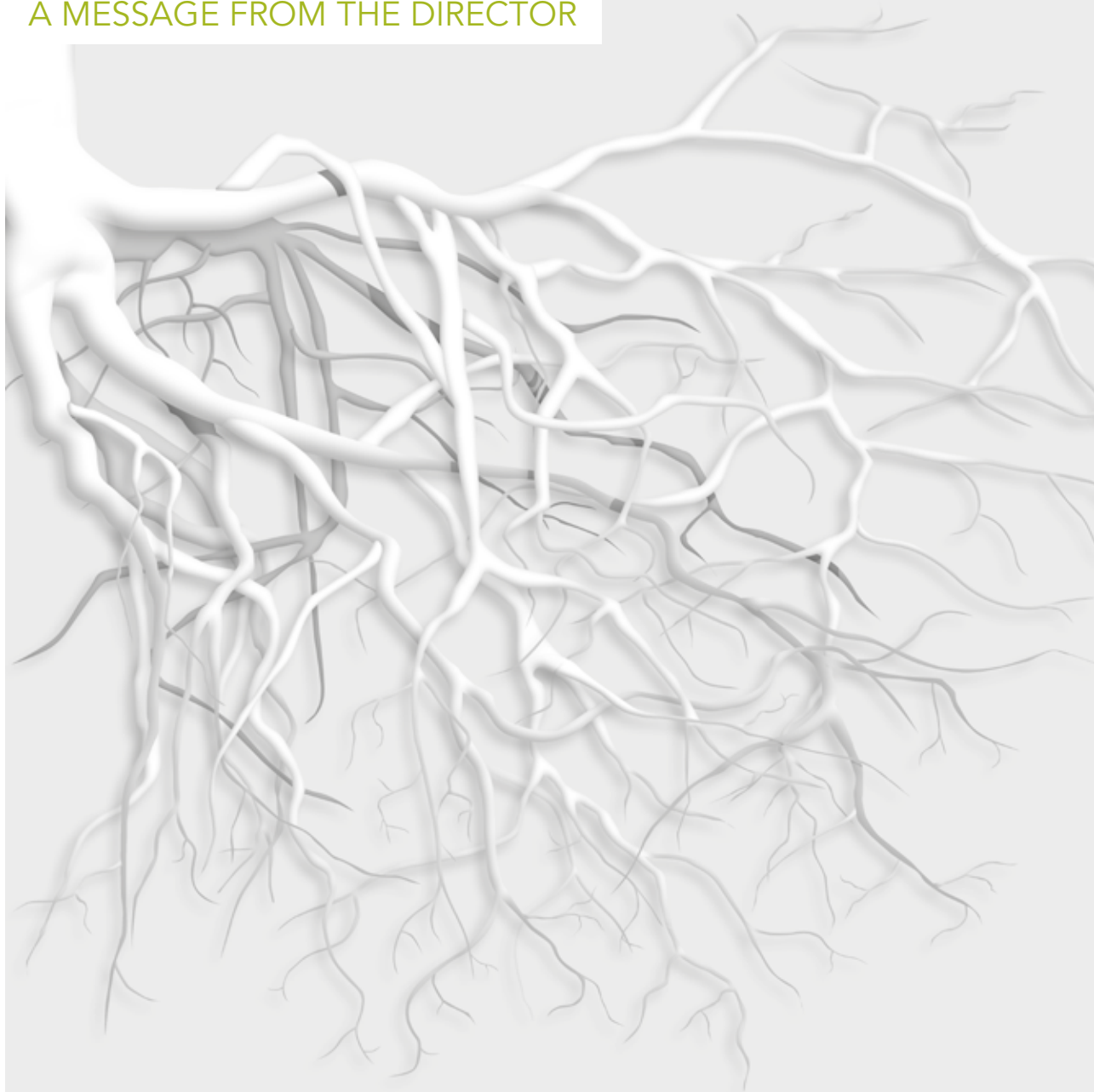
UNU-FLORES ANNUAL REPORT 2014

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ROOTED

A MESSAGE FROM THE DIRECTOR



In the previous years, the UNU Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES) focused on casting the seeds of a dynamic and productive institution. The year 2014 was about fostering the healthy roots that sprouted from these endeavours.

This year's annual report is titled "Rooting the Nexus", because roots represent the long-term structural mind-set that motivated UNU-FLORES' actions in 2014. Much like healthy roots build the foundation for flourishing trees, long-term strategizing is the foundation for a successful institution. Through various projects and activities, UNU-FLORES has rooted itself firmly both in its physical and intellectual environment, and developed and initiated long-term projects that will produce applicable results for years to come.

The structural roots of UNU-FLORES flourished in 2014: the staff doubled in size, the first meeting of the advisory committee was convened, long-term strategic goals were adopted, and a new funding agreement was signed. Complimenting these crucial institutional developments, considerable emphasis was placed on defining the Institute's long-term academic objectives. Individual units focused on further defining their role in contributing to the collective goal – advancing the Nexus Approach – and on advancing significant projects to this end. The rigorous efforts of UNU-FLORES staff enabled adventitious roots to sprout, and 2014 witnessed the beginning of numerous long-term ventures that have already begun producing valuable outcomes. The Joint Doctoral Degree Programme in Integrated Management of Water, Soil and Waste was launched; a capacity building and knowledge sharing tool – the Nexus Observatory – was established; the UN Day was celebrated in Dresden for the first time; and numerous collaborative research projects were commenced.

The following sections will shed light on each of these developments. "Memorable Moments in 2014" succinctly represents the main highlights in 2014 for UNU-FLORES. In "Advancing the Nexus Approach" the structure of the institute and the developments seen here in 2014 are explained. The collective strategy and individual roles of the scientific units is also the topic of this chapter. The cross-cutting nature of projects and activities at UNU-FLORES are a direct result of the application of the Nexus Approach to our operational and institutional structure; these are laid out in "Fostering the Nexus Approach".

The final section of this report is titled "Sharing the Harvest". The activities and achievements of 2014 have allowed UNU-FLORES to firmly root itself both in the local community as well as in the international academic discourse around the Nexus Approach; and the successful finalization of a new Memorandum of Understanding and Funding Agreement with its donors, will enable UNU-FLORES to continue to do so.

We look forward to harvesting the fruits of these activities in 2015, and sharing them with our community.



Reza Ardakanian

MEMORABLE MOMENTS IN 2014



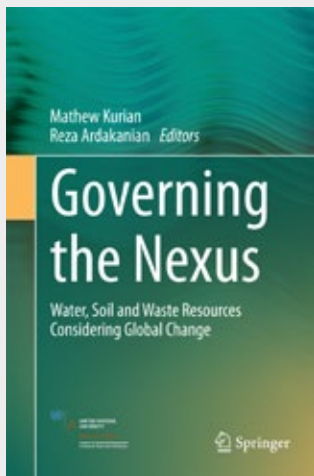
- › The commitment of the German Federal Government, the Saxon State Government, the Technische Universität Dresden and the United Nations University to securing the future of the Institute was reiterated in a new funding agreement, guaranteeing the continuation of UNU-FLORES for an additional three years.
- › UNU-FLORES entered into four cooperation agreements with leading institutions worldwide.



- › During 2014 UNU-FLORES personnel doubled in size, compiling a diverse group of people from 13 different nationalities and representing five continents.
- › The Institute organized 11 workshops on three different continents and in six different countries.



- › The inaugural meeting of the UNU-FLORES Advisory Committee took place on 10 July and Prof. Rattan Lal was elected to be its chair.



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- › UNU-FLORES published four books, two peer-reviewed articles, two conference proceedings, one working paper and The White Book on the Nexus Approach.
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- › A joint PhD programme on Integrated Management of Water, Soil and Waste was launched together with the Technische Universität Dresden.
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- › UNU-FLORES initiated the first ever UN Day celebration in Dresden and played a crucial role in its successful organization and execution, including inviting United Nations Deputy High Commissioner for Human Rights and Assistant Secretary-General of the UN, Dr. Flavia Pansieri, to give a keynote speech and attracting ten UN entities to participate in a public exhibition.
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OUR INSTITUTIONAL APPROACH



**UNITED NATIONS
UNIVERSITY**

UNU-FLORES

**Institute for Integrated Management
of Material Fluxes and of Resources**

A global think tank committed to researching the pressing global problems that are the concern of the United Nations, its People and Member States, the United Nations University (UNU) has conducted extensive research on sustainable development. In light of the dynamic conditions influencing resource management, methods that go beyond static input-output models and engage with the complexity of the interconnected Earth System are necessary to achieve truly sustainable resource management strategies.

The United Nations University recognized that vital environmental resources are strongly interconnected and require a unique perspective to manage them sustainably. One such method is the Nexus Approach. In December 2012 the UNU Institute for Integrated Management of Material Fluxes and of Resources was founded in Dresden, Germany.

Applying a holistic perspective to its mandate, UNU-FLORES advances the Nexus Approach on the one hand by engaging with the concept academically and on the other by implementing the concept directly in our institutional composition. The first section in this chapter elaborates on the structure and operational procedures that evolved from institutionalizing the Nexus Approach, as well as on the developments that emerged from the long-term perspective applied in 2014. The second section sheds light on the strategic framework we apply to our academic research and the contributions of UNU-FLORES to research on the Nexus Approach.



GUIDING PRINCIPLES

Mission

“Advancing the nexus approach to the sustainable management of environmental resources”

In line with the general mission of UNU to foster sustainable development, UNU-FLORES aims to contribute to the resolution of pressing challenges to the sustainable use and integrated management of environmental resources, such as water, soil and waste. UNU-FLORES strives to advance the development of integrated management strategies that take into consideration the impact of global change on the sustainable use of the environmental resources. To this end, the Institute engages in research, teaching, advanced training, capacity development and dissemination of knowledge.

Vision

UNU-FLORES acts at the forefront of initiatives promoting a nexus approach to the sustainable management of water, soil and waste. The Institute supports the overall mission of UNU as a think tank for the United Nations and its Member States, in particular addressing the needs of developing countries and emerging economies. In this role, UNU-FLORES aspires to become an internationally recognized hub and intellectual focal point promoting integrated management strategies.

Additionally, UNU-FLORES engages in policy-relevant research, postgraduate education and capacity development in a broad sense. The Institute attracts high-calibre students for postgraduate study and research programmes in cooperation with other research institutions. Furthermore, UNU-FLORES builds the capacity of future leaders in the area of environmental resources management and develops innovative concepts for target- and region-specific knowledge transfer.

The 2014–2018 Strategic Plan

The most pronounced result of UNU-FLORES's commitment to long-term planning in 2014 was the formulation of the *2014-2018 Strategic Plan*. Acting on the belief that developing concrete objectives early on is crucial to ensuring long-term success, the newly established institute identified four ambitious but tangible strategic goals. Considered complimentary to the overall strategic goals of UNU, all future activities of UNU-FLORES will be focused on achieving the following goals:

- › advancing the Nexus Approach on the sustainable management of the environmental resources water, soil and waste through research, postgraduate teaching, capacity development and transfer of knowledge to the UN system and Member States
- › contributing qualitatively to the development and strengthening of policy frameworks and management actions, particularly for developing and transitional countries
- › strengthening and developing partnerships and close cooperation within UNU, with UN agencies, international/national organizations, universities, Member States and donors
- › increasing awareness, impact, communication and outreach on the policy-relevant research and capacity development activities of the Institute

A monitoring mechanism was introduced to allow for the periodic evaluation of the Institute's success in achieving these goals.

ADVISORY COMMITTEE

Inaugural Advisory Committee Session

A further essential element in long-term planning for UNU-FLORES is the establishment of an international advisory committee to provide leadership and assistance in governing the activities of the Institute. UNU-FLORES is honoured to have renowned experts on the Nexus Approach from all regions of the world sitting on its advisory committee. The guidance they provide will be of great value to the long-term mission of the Institute.

On 10 July 2014, UNU-FLORES commenced its first advisory committee session. Present for the session was Rector of UNU, Dr. David M. Malone, along with Advisory Committee Members Karl-Heinz Feger (Germany), Prof. Rattan Lal (India/USA), Prof. Ana Mondjana (Mozambique) and Prof. Adelaide Cassia Nardocci (Brazil). During the two-day session, the strategic plan and work plan of the Institute were discussed in detail. The Advisory Committee elected Prof. Rattan Lal as chairman, and also met with donors from the Federal and State level who commended the progress of UNU-FLORES.



Advisory Comittee Meeting

Advisory Committee Members



Prof. Rattan Lal (Chair)



Rattan Lal is a Distinguished University Professor of Soil Science and Director of the Carbon Management & Sequestration Center at the Ohio State University. He held positions at the Rockefeller Foundation, New Delhi, India; the University of Sydney, Australia; the International Institute of Tropical Agriculture, Ibadan, Nigeria and the University of Iceland, Reykjavik. He is also a scientific advisor to Institute for Advanced Sustainability Studies in Potsdam, Germany. He served on various international bodies such as the International Committee on Tropical Deforestation and Land Management, Nigeria (Chair), the World Association of Soil and Water Conservation (President), International Soil Tillage Research Organization (President), and the Soil Science Society of America (President). He was lead author of the UN Millennium Ecosystem Assessment and Lead Author in various reports of the International Panel on Climate Change.



Prof. Karl-Heinz Feger



Karl-Heinz Feger serves as Dean of the Faculty of Environmental Sciences at TU Dresden. He is director of the Institute of Soil Science and Site Ecology of TU Dresden. He studied hydrology in Freiburg, Germany and Zurich, Switzerland. After his PhD and habilitation in forest soils and hydrology/biogeochemistry in Freiburg, he worked at Albert-Ludwig-University Freiburg, Ruhr University Bochum and Hohenheim University before becoming a full professor at TU Dresden in 2000. His research interests are soil-water-plant relations at various spatial scales.





Prof. Ana Mondjana



Ana Maria da Graça Mondjana is Vice-Rector for Academic Affairs since May 2011 and is Assistant Professor at the Faculty of Agronomy and Forestry Engineering (FAEF) at Eduardo Mondlane University (UEM). She holds a doctorate in plant pathology from the University of Wisconsin – Madison, USA. Mondjana has extensive experience in university administration, teaching at the graduate and post-graduate levels as well as in research and extension. Throughout her career she held various administrative positions, including Scientific Director of UEM (2006–2008), the Deputy Director for Research and Extension and President of the Scientific Committee of FAEF (2005–2006) and coordinator of MSc Programme in Rural Development in FAEF Plant Production (2004).



Prof. Adelaide Cassia Nardocci



Adelaide C. Nardocci is professor of environmental risk assessment and risk management in the Department of Environmental Health at the School of Public Health, University of São Paulo since 2001. Before joining the University, she worked at the Brazilian Institute of Environment and Renewable Natural Resources on the environmental licensing of the large enterprises. She is physicist and has a master's degree in Nuclear Engineering and PhD in Public Health. She is the leader of the Center for Research on Risk Assessment and is a member of the Center for Research on Disasters (CEPED) of the University of São Paulo. She is also a member of the Society for Risk Analysis and Latin America Society for Risk Analysis



Prof. Wim van Vierssen

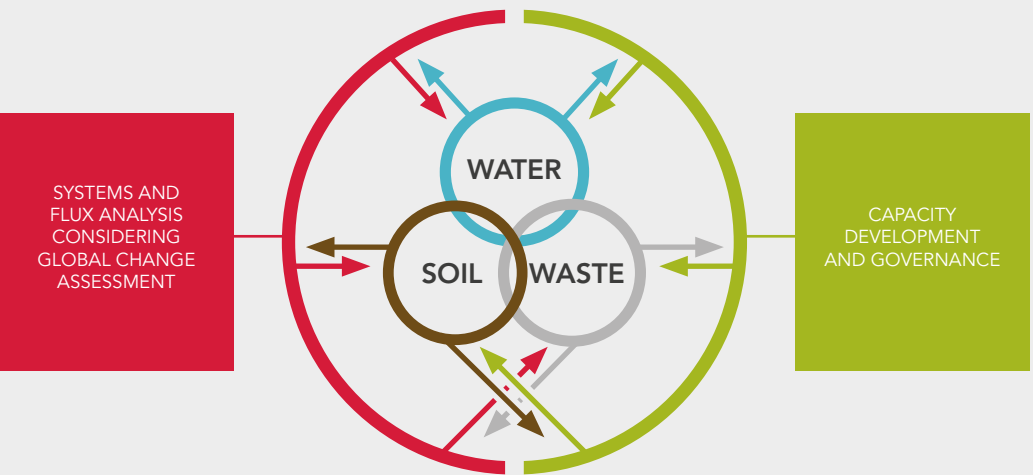


Wim van Vierssen is CEO of KWR Watercycle Research Institute, the research institute of the Dutch Drinking Water Utilities. He is Rathenau Professor at Delft University of Technology on Science System Assessment of Water-Related Research. Currently, he is a member of the High-Level Steering Group of the European Innovation Partnership on Water of the European Union. He also serves on several high-level boards nationally. He recently was appointed chair of the Sector Actors Group of the Water Futures and Solutions Initiative, an initiative of the International Institute of Applied Systems Analysis (IIASA) in Laxenburg, Austria. He has published more than 100 papers in peer-reviewed journals, proceedings and the popular press. Previously, van Vierssen also served as Rector of UNESCO-IHE and Director General of the Environmental Sciences Group at Wageningen University, the Netherlands. Van Vierssen obtained his PhD from the former Catholic University in Nijmegen (renamed Radboud University Nijmegen) in 1982.

ORGANIZATIONAL STRUCTURE

In developing its functional structure, UNU-FLORES has positioned itself well to consolidate the scientific foundation of the Nexus Approach. The institutional arrangement is a direct response to critical knowledge gaps relating to integrated management of the environmental resources water, soil and waste. The organization of UNU-FLORES into five academic units – three core scientific units (Water Resources Management (WRM), Waste Management (WM) and Soil and Land Use Management (SLM)) supported by two cross-cutting units (System Flux Analysis Considering Global Change Assessment (SFA) and Capacity Development and Governance (CDG)) – supports the think tank function of the Institute. All scientific units are supported by the operational support units, which consist of the Office of the Director, Finance and Administration, Communications and Advocacy, and Computing and ICT.

Functional Structure of Scientific Units



Functional Structure of Operational Support Units



OUR TEAM

The considerable growth and diversification of personnel in 2014 is indicative of UNU-FLORES' commitment to putting down roots for the long haul. Nearly every unit was able to recruit an additional team member, doubling personnel at the Institute in comparison to 2013. UNU-FLORES proudly employs personnel representing 13 different nationalities and five continents. The team is introduced below.

Director – Prof. Dr. Reza Ardakanian (Iran)

Academic Units

- › **Water Resources Management**
 - Dr. Mari Ito (Japan)
Academic Officer
- › **Soil and Land-use Management**
 - Dr. Kai Schwärzel (Germany)
Academic Officer
 - Ms. Lulu Zhang (China)
PhD Researcher
- › **Waste Management**
 - Dr. Hiroshan Hettiarachchi (Sri Lanka/USA)
Academic Officer
- › **Systems and Flux Analysis**
 - Dr. Stephan Hülsmann (Germany)
Academic Officer
 - Ms. Theresa Mannschatz (Germany)
Research Assistant
- › **Capacity Development and Governance**
 - Dr. Mathew Kurian (India)
Academic Officer
 - Ms. Kristin Meyer (Germany)
Research Assistant

Operational Support Units

- › **Office of the Director**
 - Mr. Benjamin Zhu (China)
Manager
 - Mr. Mohamad Haroun (Lebanon)
Security and Front Desk Attendant
 - Ms. Luisa Arndt (Germany)
Programme Support Assistant
 - Ms. Katharina Lange (Germany)
Programme Support Assistant
- › **Finance and Administration**
 - Mr. Rafael Hernández (Germany)
Finance and Administrative Officer
 - Ms. Nooraida Suriani Sabri (Malaysia)
Administrative Assistant
- › **Communications and Advocacy**
 - Mr. Trey Monts (USA)
Assistant
- › **Computing and ICT**
 - Mr. Tobias Wolf (Germany)
Associate

During 2014 UNU-FLORES was also supported by a team of motivated and competent interns, they are listed in alphabetical order below.

- Ms. Beatriz Bertani (Brazil)
- Mr. Stoyan Dimitrov (Bulgaria)
- Ms. Adrian Man (Canada)
- Ms. Jana Sallwey (Germany)
- Ms. Nurideen Osman Mohammed (Ghana)
- Mr. Jerome Baidoo Yamoah (Ghana)
- Mr. Rodolfo Silvia Martinez (Mexico)
- Ms. Thanh Thi Luong (Vietnam)

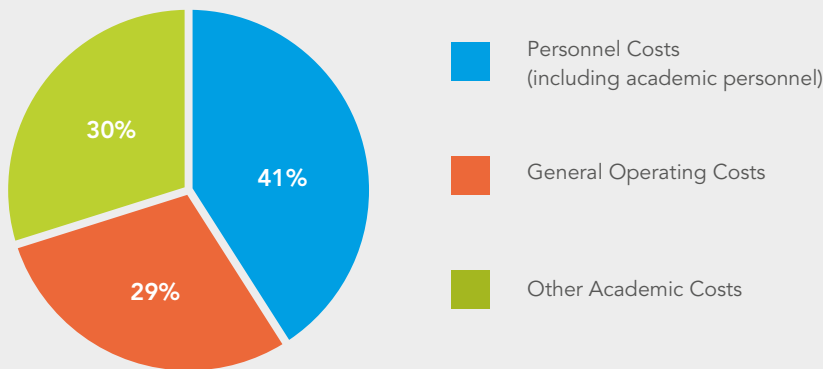
FINANCES

UNU-FLORES is financed by the Federal Republic of Germany, both by the Federal Ministry of Education and Research (BMBF) and the State Ministry for Higher Education, Research and the Arts (SWMK) of the Free State of Saxony. BMBF and SWMK committed EUR 1,051,000 per year each to the start-up phase of UNU-FLORES. BMBF contributed the full amount per year in-cash, while EUR 743,000 of SMWK's contribution was in-cash and the rest in-kind.

In 2014, BMBF and SWMK reiterated their commitment in a Memorandum of Understanding and a Funding Agreement with the United Nations University and the Technische Universität Dresden. UNU-FLORES was guaranteed three additional years of support under the same conditions. In addition, the Institute successfully secured both in-cash and in-kind contributions and counterpart funding from external sources this year.

The contributions received from donors are applied in the most effective manner for the fulfilment of the Institute's mandate. This consists of an effective allocation of funds for both institutional administrative development (personnel, IT, communication, etc.) and for the development of academic programmes. The distribution of these expenditures can be seen in the chart below. In 2014, our expenses were divided as follows: personnel costs 41%, general operating costs 29% and other academic costs 30%.

Distribution of Expenditures



UNU-FLORES implements the highest standard of transparency and integrity and strictly follows the financial and procurement rules and regulations of the United Nations. UNU-FLORES is also strives to attract and welcome external donors to support the implementation of its research activities globally.

OUR ACADEMIC APPROACH

RESEARCH FRAMEWORK

Advancing a Nexus Approach requires concerted action and cooperation on a global level and across sectors, to address the knowledge gaps via well-defined nexus research programmes. For a sustained follow-up to the nexus initiative resulting from the Bonn 2011 conference on “Water, Energy and Food Security Nexus”, a long-term commitment of leading actors and thus an institutional base is indispensable. The academic structure and objectives of UNU-FLORES are a direct response to this need.

Fragmentation and silo mentality are ingrained both in the management of environmental resources as well as in the procedures of the academic disciplines that research them. In an attempt to overcome this, UNU-FLORES focuses on improving the understanding of the nexus between water, soil and waste resources and its underlying interconnections, impacts on planning and management and subsequent trade-offs. Moving beyond the already substantially researched sectorial water-energy-food security nexus, the Institute chose to apply the aforementioned resource perspective to the Nexus Approach (Figure 1). Taking a resources perspective, while also considering forces of global change, enables a more complete and holistic depiction of science-policy relations. The policy-relevant research resulting from this approach will provide stakeholders, especially decision-makers and practitioners, with the necessary information and evidence-base to make choices that promote sustainable development.

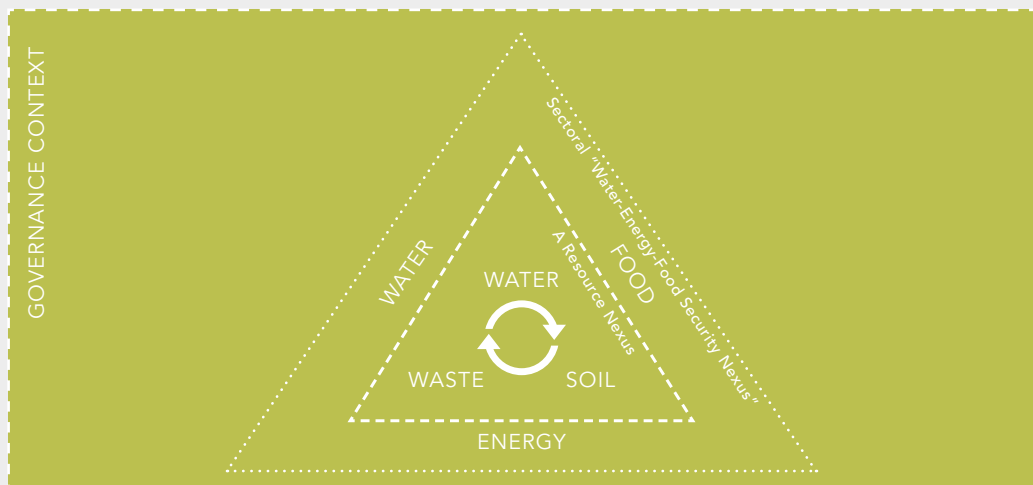


Figure 1: The Resource Perspective to the Nexus Approach

The concrete formulation of this approach inspired the organization of the academic units into three core scientific units – Water Resources Management (WRM), Waste Management (WM) and Soil and Land use Management (SLM)) – that are supported by two cross-cutting units, Systems and Flux Analysis considering global change assessment (SFA) and Capacity Development and Governance (CDG). The organizing logic of UNU-FLORES allows the three core scientific units to respond to input and feedback from SFA and CDG concerning the design of knowledge products, such as groundbreaking research papers or course curriculum. On the one hand, the core scientific units cooperate closely with SFA to develop a better theoretical understanding of the interactions between atmosphere, biosphere, hydrosphere, lithosphere and pedosphere. On the other hand, the CDG and the scientific units work together to respond to demand for knowledge products from UNU-FLORES's community. Furthermore, CDG identifies opportunities to field test new methodologies, facilitate cross-fertilization of ideas across regions based on institutional good practices and seeks to create partnerships for education, research and training that support a think tank function.

As outlined in this section, UNU-FLORES is not only committed to researching the Nexus Approach, but also to implementing it directly in its own institutional setting. The cross-cutting nature of projects and activities at UNU-FLORES are a direct result of the application of the Nexus Approach to the operational and institutional structure. Hence, to accurately present the work of UNU-FLORES, the concrete projects executed by our academic units are elaborated upon in the following chapter, "Fostering the Nexus Approach". First, however, the following sections offer a more detailed look at the aforementioned resource perspective applied to the Nexus Approach and at the unique insights and competencies each individual academic unit brings to the various projects they are involved in.

RESEARCH UNITS



Systems and Flux Analysis Considering Global Change Assessment

The Systems and Flux Analysis Considering Global Change Assessment Unit promotes interdisciplinary research on material fluxes and the cycling of the environmental resources water, soil and waste, an integral dimension of applying a Nexus Approach to the sustainable management of these resources. The integration of SFA into the overall research strategy of UNU-FLORES facilitates and fosters the implementation of research results into management plans and governance.



Soil and Land-Use Management

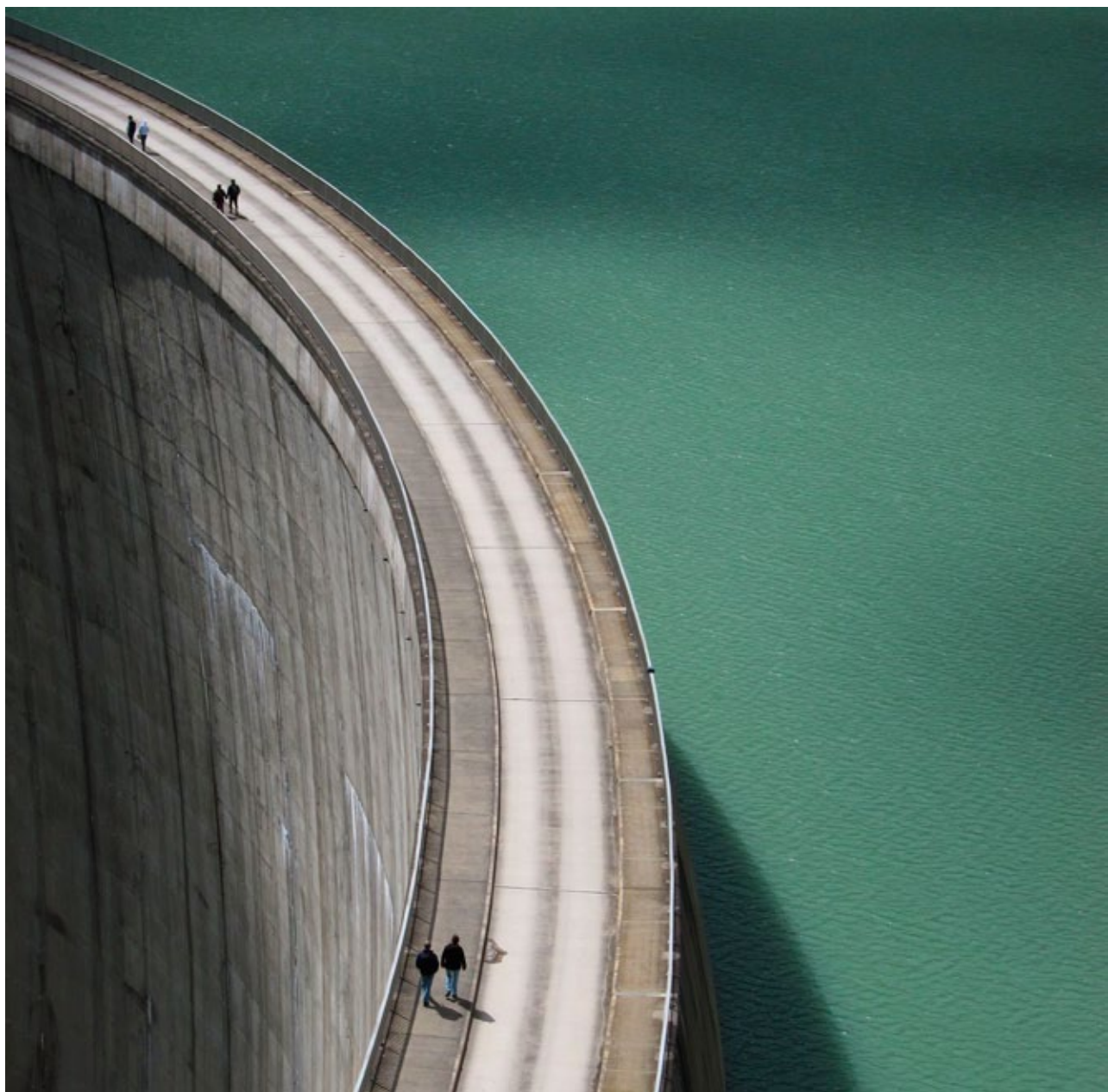
The Soil and Land-Use Management (SLM) Unit contributes to the mission of UNU-FLORES by promoting interdisciplinary and transdisciplinary research that applies the Nexus Approach to SLM and therefore advances an improved understanding of the Water-Soil-Waste Nexus. Acting on the assumption that a sound understanding of the interactions between atmosphere, biosphere, hydrosphere, lithosphere and pedosphere allows the development and successful implementation of management options, SLM is researching site and region-specific management options for soil and land use.



Waste Management

Aligned with the mission of UNU-FLORES, the Waste Management Unit (WM) is committed to advancing region-specific capacity development activities in sustainable waste management practices. To this end, WM strives to change public perception towards waste so the world community can see the value of waste and to advance nexus-oriented management strategies. WM addresses issues of preventing losses and closing cycles of resources by developing management strategies for the collection, processing and recycling of waste; promoting strategies for rehabilitation of contaminated sites; and developing management strategies for safe waste water use and waste water processing.





Water Resources Management

The Water Resources Management Unit (WRM) considers various linkages of water resources within themselves, with the environmental resources of particular concern to UNU-FLORES and with other natural resources. Based on a nexus approach that is sustainable and integrated with other environmental resources, WRM contributes to the formulation of management strategies for water resources at different scales (e.g., urban water, at basin scale, etc.), considering various activities at those levels, such as interactions with land-use, water-related ecosystem services etc.



Capacity Development and Governance

The research activities of UNU-FLORES have a strong applied and policy-oriented focus, in line with the general mission of the UNU. Translating research into practice and the question how to implement management strategies receives ample consideration. The Capacity Development and Governance Unit (CDG) at UNU-FLORES both assists the other units with the development of implementation concepts and management strategies and also conducts its own research on the governance of environmental resources and capacity development at the individual and institutional levels.

THE WATER-SOIL-WASTE NEXUS

An important step in rooting itself as an intellectual hub that brings together scholarship on the Nexus was to engage with the various – at times conflicting – definitions of the approach in use. UNU-FLORES has chosen the following compilation as a harmonized and practical general definition:

“The Nexus Approach to environmental resources’ management examines the inter-relatedness and interdependencies of environmental resources and their transitions and fluxes across spatial scales and between compartments. Instead of just looking at individual components, the functioning, productivity and management of a complex system is taken into consideration.”

As Barry Commoner states in his first law of ecology, everything is connected to everything else. The Nexus Approach applies this concept to resource management, and instead of simply looking at individual components, the function, productivity and management of a complex system are taken into consideration. In such complex systems there are trade-offs as well as facilitation and amplification between the different components.

Take, for example, the Water–Soil–Waste Nexus.

The resources water, soil and waste are interlinked much like a Gordian knot. Use and alterations of one of these resources may impact the others, as the following examples show:

- › soils regulate the partition of rainfall into surface (blue water) and subsurface water (green water)
- › water quality strongly depends on soil and waste management as well as on land-use
- › green water is needed to grow food, feed, fiber and wood
- › soil management and land-use generate organic waste
- › soil erosion leads to soil degradation and water pollution
- › waste-water management can provide possibilities for enhancing soil quality
- › re-use of water (gray and black) for irrigation can enhance biomass production

In this context, environmental quality can be satisfied only if soil, waste and water resources are managed in a sustainable and integrated manner – the Nexus Approach is necessary.

The complex relationship between demands, resource availability and quality, and financial and physical constraints can be addressed by knowledge-based policies and the reform of professional practise. The Nexus Approach recognizes the lack of blueprints for achieving sustainable development by applying this type of knowledge and implementing such reform to the management of environmental resources. Thus instead of a traditional input-output model, UNU-FLORES focuses on researching the consistent tracing (follow-up) and management of resources as fluxes (passage, flow, transport, transfer) and developing sustainable management models. A better understanding of how these three resources interact will help to solve the pressing global challenge of advancing sustainable development under the constraints of global change, a major objective of the UNU as a whole.



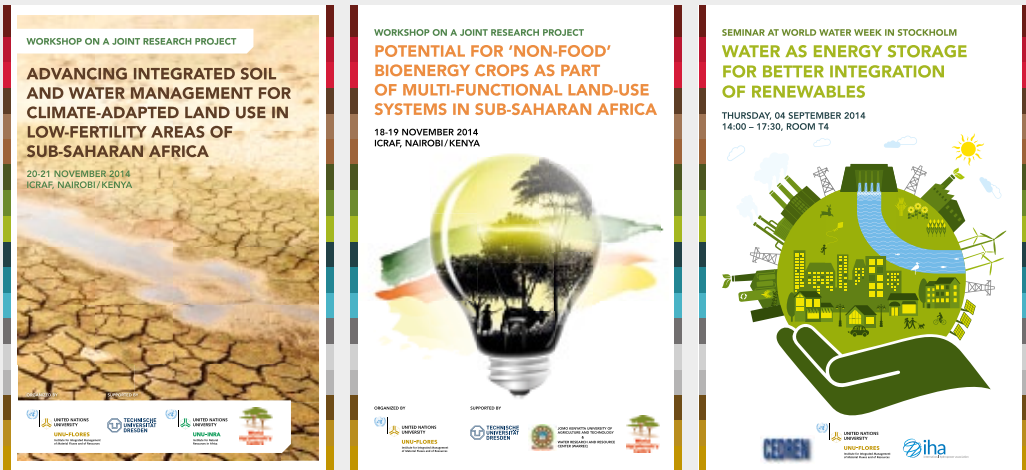
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A core dimension of the mission of UNU-FLORES is to promote the Nexus Approach through research, teaching, advanced training, capacity development and dissemination of knowledge. In 2014 the Institute initiated and further developed various activities of this sort. These activities and the achievements resulting thereof are highlighted in this chapter.

In the preceding chapters, it has been emphasized that UNU-FLORES is not only committed to research on the Nexus Approach, but also to applying it to its organizational practices. As a result, activities at the Institute are structured in an interdisciplinary and cross-cutting manner from the beginning. The activities and projects discussed in the following sections are collective in nature; two or more of the academic units as well as external partners from around the world contribute directly to them. The result of applying a Nexus Approach to the operational strategy of the Institute is a dynamic and diverse research and knowledge sharing landscape that brings together numerous stakeholders from academia, politics and civil society to further research on the Water-Soil-Waste Nexus.



THROUGH RESEARCH PROJECTS & INITIATIVES

A prime example of the collaborative research landscape that UNU-FLORES fosters are the various research projects and initiatives the Institute is involved in. Following the theme of 2014 – long-term planning – UNU-FLORES entered into and reaffirmed several cooperation agreements with research institutions concerning joint research projects. Information on the policy-relevant topics that these initiatives address as well as on the partners UNU-FLORES is working with can be found in the following section.

JOINT RESEARCH PLATFORMS IN AFRICA

UNU-FLORES has placed considerable emphasis on developing a strong working relationship with stakeholders in Africa. The efforts of the Institute go beyond collaborating on content to encompass the establishment of a regional hub directly in Africa on integrated resource management. A crucial step in laying the groundwork for such a hub has been the development of four joint research platforms (JRPs) with stakeholders from 19 universities and organizations from 14 different countries in the region. The objectives of these platforms are to review, synthesize and develop national and regional strategies to promote sustainable development in African countries.

After creation of the JRPs in the previous year, 2014 saw significant progress on this front. Respectively focusing on one fundamental dimension of the Water-Soil-Waste Nexus, each JRP is following the same harmonized strategy. This includes the following steps: First, partners undertake a situational analysis (mapping) of the strategies in particular countries and regions. Second, the initiatives seek to determine the gaps and to identify challenges and opportunities for progress. The final step is the development of project proposals on the basis of this information for external donor support. To this end, UNU-FLORES organized workshops with partners in 2014.

JRP1:

Productivity in Low-Fertility Areas and Climate Change

Workshop on Advancing Integrated Soil and Water Management for Climate-Adapted Land Use in Low-Fertility Areas of Sub-Saharan Africa

20–21 November 2014 – Nairobi, Kenya

Conveners:

UNU-FLORES in cooperation with UNU-INRA, TU Dresden and the World Agroforestry Centre

Outcome:

- › identification of research needs and opportunities concerning climate-adapted land use in sub-Saharan Africa
- › definition of specific objectives based on a needs analysis
- › elaboration on the project structure and work packages, potential case studies to be implemented and the task distribution among partners
- › agreement on a funding plan





JRP1 Workshop Group Photo (Nov. 2014)

Workshop on Water Point Mapping as a tool for advancement of the Nexus Approach to the management of environmental resources in Africa
(see p. 46 for details)

JRP2 Outcomes in 2014:

- › development of a multi-country PhD-level research project on the application of water point mapping for drought risk management in Africa by partners and the raising of funds for this programme
- › decision of a curriculum for a two-day training workshop on the use of indices for decision-making
- › arrangements were made for the joint delivery of an online course on multiple-use water services
- › discussion by partners to possibly establish an African Consortium on Drought Risk Management

To this end, a concept note outlining the possibilities of such a consortium is being developed from the data collected by the situational analysis (mapping). Suggestions include a technical proposal on data visualisation.

JRP2:

*Drought and Flood
Risk Management*

JRP3:

*Integrated Water
and Waste
Management*

**Workshop Concerning the Reuse of Wastewater
and Remaining Sludge in Africa**

11 June 2014 – Maputo, Mozambique

Conveners:

UNU-FLORES and Universidade Eduardo Mondlane (UEM)

Outcome:

- › analysis on the current proposed project, resulting in further project proposal development and a date for submission in 2015
- › agreements to focus efforts on sustainable solutions for the management of wastewater and remaining sludge in Africa

JRP 4:

*Soil Functioning and
Food Production*

**Workshop on Potential for 'Non-Food' Bioenergy Crops as Part of
Multi-Functional Land-Use Systems in Sub-Saharan Africa**

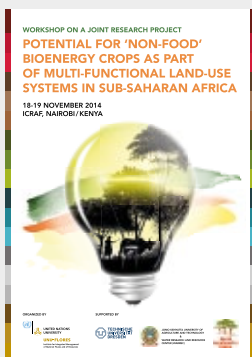
18–19 November 2014 – Nairobi, Kenya

Conveners:

Technische Universität Dresden (TU Dresden), Jomo Kenyatta University of Agriculture and Technology (JKUAT), Water Research and Resource Center (WARREC), and World Agroforestry Centre

Outcome:

- › congregation of project partners from Botswana, Ethiopia, Ghana, Kenya, Mauritius, Mozambique, Namibia and Nigeria in order to discuss the current stage of the proposal
- › organization of the project, including the intended activities, methods used and timeline.
- › agreement on what is needed for the final elements of the proposal in order to meet the submission deadline in 2015



JRP4 Group

GERMAN RESEARCH FOUNDATION (DFG) FUNDED PROJECT IN JINGHE BASIN, NORTHWEST CHINA

The availability of water is crucial for the sustainable development of China. In recent decades, vegetation restoration, notably afforestation, has been implemented as an effective way to conserve soil and water in degraded regions of the Yellow River Basin (semi-arid NW China). However, these achievements have been accompanied by a drastic reduction in water yield, which also affects water quality. Projected climate change will further worsen water supply security. Therefore, a novel approach of integrated water resources management that addresses terms of water, vegetation, and soil resources, with the considerations of changing environmental and socio-economic conditions, is urgently needed to mitigate and improve such an adverse situation.

In this context, UNU-FLORES in cooperation with the Chinese Academy of Forestry (CAF) and Technische Universität Dresden received funding from the German Research Foundation (DFG) to conduct a project in the Jinghe basin, Northwest China on these issues. In 2014, UNU-FLORES and partners evaluated land-management strategies with respect to water yield and soil/water conservation goals. Paying particular attention to the effects of climate change, and the potential consequences for hydrological processes, management strategies were assessed and modified.

The results of the project will be published in a paper titled "Impact of land-use changes on soil hydraulic properties of Calcaric Regosols on the Loess Plateau" in the *Journal of Plant Nutrition and Soil Science* in 2015. In addition, groundwork has been laid for a cooperation agreement between UNU-FLORES and CAR, to be signed in early 2015, outlining a book project to expand on the results of the project and identify research gaps.

Project Title:

Water yield
response to
changes in land-use
and climate in a
semi humid/-arid
transition region

SMALL-SCALE COLLABORATIVE INITIATIVES

Project on the Effects of Climate, Land use and Urbanization on Water Resources in the City of Beira, Mozambique

Workshop on the proposed project on the effects of climate, land use and urbanization on water resources

6-7 March 2014
Universidade Eduardo Mondlane
Maputo, Mozambique

Workshop to discuss project proposal

6-7 March 2014 – Maputo, Mozambique

Conveners:

UNU-FLORES, Universidade Eduardo Mondlane (UEM), the Mozambican Ministry of Science and Technology (MCT)-Water Research Institute and Universidade Católica de Moçambique (UCM) - CIG in Beira

The workshop was convened to discuss a project proposal on the effects of climate, land use and urbanization on water resources in the city of Beira, Mozambique. Representatives of UNDP also participated. The participants agreed on a proposal titled “The effects of biophysical and socioeconomic factors on water resources under challenging climate conditions in the city of Beira, Mozambique”. Stakeholders were able to agree on the coordination, structure and activities the joint project would encompass.

Workshop on the planned project in Beira, Mozambique

5 December 2014 – Beira, Mozambique

Conveners:

UNU-FLORES, UCM

After the dissemination of a document outlining the outcomes from the previous workshop was distributed, a workshop on the inclusion of the ecosystem services approach to the project was hosted by UCM. The event was attended by representatives from UCM, MCT-Water Research Institute, UEM, Leibniz Institute of Ecological Urban and Regional Development, the city of Beira and the GIZ-project office in Beira, Mozambique. The workshop revealed that the city of Beira, compared to some other cities in Africa (including the capital Maputo), is still trying to meet the provision of basic needs, such as safe water supply and proper sanitation, and the needs and appreciation for ecosystem services other than providing and supporting services may require some time. The conditions and effects are different among three areas within the city (urban, suburban or multifacial and relatively rural); for each area, factors influencing water resources were identified and their importance was discussed. It is planned to make a joint presentation at the DNC2015, utilizing in part the outcome of the workshop.

“Use of Phytocap Technology in Waste Containment”

29–30 May 2014 – Colombo, Sri Lanka

Conveners:

UNU-FLORES, the New Jersey Institute of Technology, the University of Melbourne, the Open University of Sri Lanka and the National Science Foundation of Sri Lanka

The management of solid waste remains a major problem among developing countries facing technical and financial constraints. In most cases uncontrolled dumpsites have resulted in surface and groundwater contamination as well as odor and greenhouse emissions. Phytocap technology has the potential to make a significant difference in the way developing countries are capping their waste sites. UNU-FLORES collaborated with the New Jersey Institute of Technology, the University of Melbourne, the Open University of Sri Lanka and the National Science Foundation of Sri Lanka to organize a workshop in early 2014. The workshop presented details of the Phytocap technology to the technical and policy leaders in selected developing countries in Asia, as well as explored incentives and barriers to successful implementation.

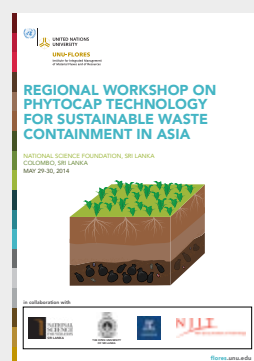
Preliminary Hydrological Assessment with a Focus on a Mining Area in Western Georgia

Partners:

The I. Javakhishvili Tbilisi State University Institute of Geophysics, Helmholtz Zentrum fuer Umweltforschung, (UFZ), and the Institute of Hydrology (SAS)

This project is a preliminary hydrological investigation focusing on a mining-affected area, with a general objective to examine effects of anthropogenic and natural factors on water resources. Drawing data from a mining affected area in western Georgia, the study aims to characterize river pollutions and their sources, using preliminary chemical flux analyses and other methods. The investigation was conducted in cooperation with the I. Javakhishvili Tbilisi State University Institute of Geophysics. The results of the preliminary study are being synthesized and summarized.

Regional Workshop
in Colombo,
Sri Lanka



Joint Research
Project in Western
Asia/Eastern Europe

THROUGH COMMUNITY NETWORKING

Building and sustaining strategic partnerships is fundamental for UNU-FLORES in its role both as a think-tank for the UN System and Member State. An active member of its community, the Institute has developed a vibrant and diverse network both locally and internationally that together covers all aspects of the nexus approach to managing water, soil and waste.

An academic hub for initiatives on the Nexus Approach, UNU-FLORES is committed to developing a platform for its community to network and building strategic partnerships around the Nexus Approach. This section highlights the various partnerships of UNU-FLORES and the vision of the Dresden Nexus Conference.

LOCAL PARTNERSHIPS

Technische Universität Dresden

The Technische Universität Dresden (TU Dresden) has been an important strategic partner since the establishment of UNU-FLORES, in 2014 the partnership was reinforced through the establishment of a doctoral degree programme on Integrated Management of Water, Soil and Waste. The joint doctoral degree programme provides students with access to the facilities and services of TU Dresden as well as the network of UNU institutes located around the world. In addition, UNU-FLORES is cooperating with the Faculty of Environmental Sciences on various joint research projects.

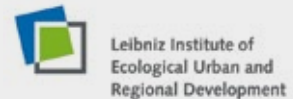


TU Dresden is one of the top universities in Germany and Europe: strong in research and considered first-rate with respect to the range and the quality of the academic programmes it offers. It is also closely interconnected with culture, business and society. As a modern comprehensive, multi-discipline university and with its 14 faculties, it has a broad and diverse scientific spectrum that only few other universities in Germany are able to match. It is Saxony's largest university. The large campus family of TU Dresden is comprised of 37,000 students and approximately 7,700 employees, about 4,300 of whom are budget-funded – among them 492 professors – and another roughly 3,400 who work as grant-supported employees.

IOER

The IOER is an institute of the Leibniz Association for theme-based research in urban and regional issues focusing on ecological aspects of sustainable development. The concern of the institute is the scientific basis for the sustainable development of cities and regions in the national and international context. The IOER investigates how cities and regions can be developed with reasonable effort to offer the population the greatest possible quality of environment and life and to provide nature with far-ranging scope for development, to ensure urban and regional resource efficiency, and prevent environmental risks.

Following the signing of a cooperation agreement in 2013, together UNU-FLORES and the Leibniz Institute of Ecological Urban and Regional Development (IOER) in Dresden are collaborating on research, education and knowledge transfer. Among the several on-going joint projects is the organization of the Dresden Nexus Conference together with TU Dresden, which will take place in March 2015.



United Nations Association in Germany (DGVN)

UNU-FLORES has collaborated both with the local and federal branches of DGVN. The association was a particularly valuable partner in the execution of the first UN Day in Dresden (see p. 51).



Landesverband
Sachsen, Sachsen-Anhalt
und Thüringen e.V.

The City of Dresden

The City of Dresden has been a gracious host and valuable partner for UNU-FLORES. In 2014 the Institute worked closely with the City of Dresden to organize the UN Day. In addition, the City of Dresden has participated in the preparations for DNC2015 and is a generous supporter.



OPERATING UNIT, MAPUTO, MOZAMBIQUE

To strengthen its role as a capacity builder for developing countries and its contribution to north-south research and teaching, UNU-FLORES is working to establish an Operating Unit in Africa. The to-be-established Operating Unit of UNU-FLORES as a regional hub and focal point for all its activities in Sub-Saharan Africa will engage in research, teaching, capacity development and dissemination of knowledge. The operating unit is planned to be located in Maputo, Mozambique. One of the most important developments in 2014 was the provision of commitment letters from both the government of Mozambique, represented by the Ministry of Science and Technology (now Ministry of Science, Technology, Higher, Technical and Professional Education) and the Eduardo Mondlane University, concerning in-kind and in-cash contributions.

While preparing for the final stage of the establishment, UNU-FLORES already commenced its research in the region. The Eduardo Mondlane University of Mozambique (UEM), strategic partner of UNU-FLORES on the Operating Unit, has been involved in various activities in 2014 such as the Joint Research Platforms in Africa (JRP), the Beira Initiative, the World Water Week, the research on renewable energy in Mozambique, as well as on Status of water, soil and waste management in Mozambique. The UEM is also a key partner for the preparation of the upcoming Dresden Nexus Conference in 2015.

DRESDEN NEXUS CONFERENCE



As a hub for initiatives on the Nexus Approach, UNU-FLORES is not only committed to strengthening its own network but also to providing an international platform to foster cooperation and networking amongst all actors working on or with the nexus approach to managing environmental resources. That platform is the Dresden Nexus Conference.

Building on the outcomes of the 2013 "International Kick-Off Workshop on Advancing a Nexus Approach to the Sustainable Management of Water, Soil and Waste", UNU-FLORES has devoted considerable resources to organizing the inaugural Dresden Nexus Conference (DNC). From 25 to 27 March 2015 representatives from academia, politics and civil society will assemble in Dresden under the theme "Global Change, Sustainable

Development Goals and Nexus Approach". Working together with co-organizers, TU Dresden and IOER, in 2014 UNU-FLORES solicited applications from numerous renowned academic institutions from around the world. Categorized under three key themes – climate change, urbanization and population growth – 18 sessions were selected for the first DNC. Compromising a comprehensive selection of the diverse initiatives on the Nexus Approach, sessions will be convened by UN entities, international research organizations, universities and non-governmental organizations. Besides these 18 sessions, the organizers have arranged for six keynote speeches and concluding talks by renowned scholars as well as panel discussions with senior officials from UN Member States. During the entire conference academic initiatives will be on display in the poster and exhibition halls.

The inaugural Dresden Nexus Conference 2015 will pave the way for the start of a new tradition. Every two years UNU-FLORES will organize a DNC, welcoming scholars, politicians, and practitioners from all regions of the world to meet and discuss the most recent and innovative initiatives on a Nexus Approach to the management of environmental resources.

DNC Conveners and Contributors



COOPERATION AGREEMENTS

In 2014 UNU-FLORES entered into the following cooperation agreements with leading institutions worldwide:

PARTNER	BRIEF DESCRIPTION
 <p>International Water Management Institute</p>	<p>The objective of this partnership is to collaborate on integrated management of water, soil and waste through joint activities including research capacity development and workshops, publications and awareness-building.</p>
 <p>International Hydropower Association</p>	<p>The Parties agreed to strengthen cooperation to build and share knowledge on the sustainable use of hydropower in the context of the water-energy nexus.</p>
 <p>Institute for Global Environmental Studies</p>	<p>Through the establishment of a regional consortium to strengthen capacity for environmental risk forecasting, monitoring and rapid response in Asia, the Parties agreed to cooperate in research, the promotion of young scientists, and knowledge transfer</p>
 <p>Helmholtz Centre for Environmental Research (UFZ)</p>	<p>The cooperation agreement covers collaborative possibilities in research, the promotion of young scientists, teaching, as well as transfer of knowledge and the application of results with a focus on integrated water resources management in the context of global change</p>

THROUGH CAPACITY DEVELOPMENT & OUTREACH

As academic arm of the United Nations, UNU bridges the academic world and the UN system. Therefore, besides generating knowledge its role is to enhance individual capacities, but also institutional capacities and functioning as a think tank for the UN system and the UN member states. In line with this general UNU strategy, capacity development and community outreach activities are an important dimension of UNU-FLORES' mandate. The Institute takes a client-perspective, asking what a Member State would hope to receive when aiming at managing its environmental resources in a sustainable way. The various efforts of UNU-FLORES to engage its community and provide capacity building support are outlined in this final section of this chapter.

THE NEXUS OBSERVATORY



The elaboration and expansion of the Nexus Observatory is one of most significant developments that arose from the focus on long-term strategizing at UNU-FLORES in 2014. Emerging as a direct response to the demands and requests expressed by the Institute's community, this project is a vibrant example of UNU-FLORES' commitment to translating the policy-relevant research emerging from the Institute into accessible capacity development and knowledge sharing tools.

The Nexus Observatory aims to advance data classification, strengthen monitoring frameworks and facilitate governance processes for evidence-based decision-making and knowledge transfer. The Nexus Observatory captures relevant scientific research, and serves as a platform for consolidating and translating science into applicable information and knowledge. This can then be applied to influence policy, natural resources management planning and implementation of a nexus approach, while at the same time creating integrated monitoring frameworks and tools for measuring nexus impacts. During 2014 UNU-FLORES advanced these objectives by organizing a capacity building workshops, creating a blended learning platform with online courses and developing an interactive Nexus Tools Platform for inter-model comparison of existing modelling tools to be launched in 2015.

Nexus Observatory Workshops



Water Point Mapping as a tool for advancement of the Nexus Approach to the management of environmental resources in Africa

25–26 February 2014 – Dar es Salaam, Tanzania

Conveners:

UNU-FLORES, Water Development Management Institute (WDMI) and the Ministry of Water of Tanzania

The workshop examined water point mapping as a tool for the advancement of a nexus approach to the management of environmental resources in Africa and assembled stakeholders to identify approaches that enhance the sustainability of water sources. Scientists and government functionaries from African countries such as South Africa, Mozambique, Ethiopia, Botswana, Zimbabwe and Malawi discussed issues of capacity building as well as how to update mechanisms and modalities by which validation and inquiry processes can be undertaken.



Proposal Writing Workshop on Water-Wastewater-Soil Nexus:
11–12 December 2014 - Tokyo, Japan

Conveners:

UNU-FLORES and the Institute for Global Environmental Studies (IGES)

The workshop was attended by participants from Japan, China, Philippines, Thailand, India, Vietnam, Portugal and Indonesia. The workshop aimed to develop short concept notes clarifying the water-soil-waste nexus in the context of urbanization in Asia, to identify stakeholders in relevant ministries/authorities to establish a regional hub on environmental resources management in Asia, to define the context (boundary and scale conditions) for project data that can be hosted on the Nexus Observatory server, to finalize the design of a policy round table at DNC2015 (Session 10) and to establish a plan regarding case studies that can be developed based on concept notes in the form of a chapter in a Springer Brief by June 2015.



During 2014, UNU-FLORES developed the following three online courses:

- › *Green Economy and the Life-Cycle Cost Approach*
- › *Rethinking Infrastructure Design for Multi-Use Water Services*
- › *Financing Public Services and Environmental Sustainability*

The courses are designed for decision-makers, practitioners, professionals and students who want to develop their knowledge in the planning and the management of environmental resources. The courses will be particularly useful for participants involved in or affected by policy-making planning processes and/or management of environmental resources. They are envisioned as a reoccurring service provided by the Nexus Observatory. Enrolment began in 2014 and the first round of courses will take place in the spring of 2015.

JOINT DOCTORAL DEGREE PROGRAMME IN INTEGRATED MANAGEMENT OF WATER, SOIL AND WASTE

Another example of UNU-FLORES's long-term planning in 2014, was partnering with Technische Universität Dresden (TUD) and launching a joint PhD programme, which focuses on the integrated management of water, soil and waste.

Background and Objectives

Together with the faculty of Environmental Sciences at TUD, this joint doctoral degree programme is the latest among the very few doctoral programmes UNU currently offers. The programme, set to start at the beginning of 2015, aims to create a new generation of environmental scientists, engineers and managers by providing students with detailed knowledge, critical understanding, strategies and tools to take an interdisciplinary and integrated approach towards the 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.

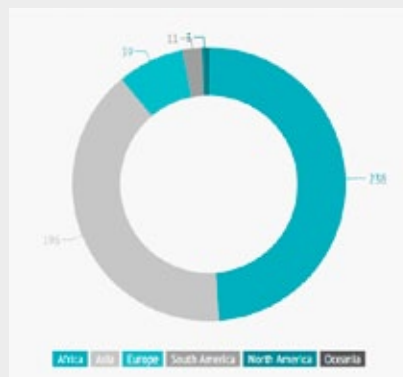
Curriculum

The programme spans over seven semesters and is comprised of 210 credits¹: 35 course credits and 175 dissertation credits. The first two semesters will focus on course work, specifically to introduce the basic concepts of the nexus of water, soil and waste, along with important aspects of governance and capacity development, and preparing a dissertation proposal. The students will spend the following 5 semesters concentrating on the completion of this dissertation.

Applications for the First Cohort

The launch of the programme was a huge success, with the selection committee receiving applications from 488 applicants across 83 countries representing all geographical regions: Africa 238, Asia 196, Europe 39, South America 11, North America 3, Oceania 1. The graphic depicts the application overview of the first cohort of the programme. Five successful candidates were chosen from the excellent selection applicants and will begin their first semester in February 2015.

¹ Credits are defined in terms of the European Credit Transfer System (ECTS).

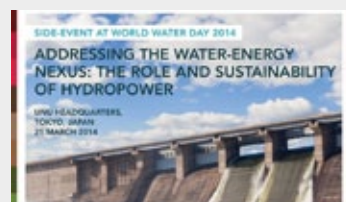


OUTREACH ACTIVITIES

Carrying out the goal of UNU to interact more effectively with policy- and decision-makers as well as the general public, UNU-FLORES engaged its community in various activities during 2014. A few key examples are highlighted below.

World Water Day 2014: Water and Energy

The water-energy nexus was the topic of the 2014 World Water Day, coordinated by the United Nations Industrial Development Organization (UNIDO) and UNU. Together with the UN Water Decade Programme for Capacity Development (UNW-DPC) and the International Hydropower Association (IHA), UNU-FLORES organized a side-event at the celebrations of World Water Day in Tokyo on “Addressing the Water-Energy Nexus: The role and sustainability of hydropower from freshwater reservoirs”.



UNU-FLORES Special Session at the “Sustainability in the Water-Energy-Food Nexus” Conference

The conference “Sustainability in the Water-Energy-Food Nexus – Synergies and Trade-offs: Governance and Tools at various Scales” was held on 19–20 May 2014 in Bonn, Germany. The conference addressed the linkages across key natural resource sectors with the aim to bring together available information, identify knowledge and action gaps, share lessons on viable instruments and approaches, facilitate networks, and improve consensus on priorities for appropriate investment and action by different actors and stakeholders in advancing the Water-Energy-Food Nexus. Approximately 200 participants attended the conference. UNU-FLORES played an active role in the conference by organizing a special session on “Sustainability in the Water-Energy-Food Nexus – An Environmental Resource Perspective”. During this session, the Academic Officers of UNU-FLORES presented on the Nexus of resources. They emphasized that taking a nexus approach may reduce trade-offs and increase synergies among stakeholders. The subsequent discussions were fruitful and constructive. It was acknowledged that the integrated management of water, soil and waste may play an important role in overcoming sectorial thinking.

Sustainability in the Water-Energy-Food Nexus
19-20 May 2014 in Bonn, Germany

SPECIAL SESSION ORGANIZED BY UNU-FLORES
SUSTAINABILITY IN THE WATER-ENERGY-FOOD NEXUS: AN ENVIRONMENTAL RESOURCES PERSPECTIVE

20 MAY 2014 11:00 – 12:30
PARALLEL SESSIONS | BLOCK D
FIRST FLOOR | ROOM SALON ARNDT

SESSION MODERATOR
Reza Airdakanian

1. Stephan Hagemann (UNU-FLORES, Dresden, Germany)
Nexus in practice – a systems analysis approach
2. Mari Ito (UNU-FLORES, Dresden, Germany)
Water resources management from a Nexus perspective, a case study in Africa
3. Kai Schwaier (UNU-FLORES, Dresden, Germany)
Neglecting the Soil-Water Nexus hampers the sustainable regional development in New China
4. Hirokazu Hattori (UNU-FLORES, Dresden, Germany)
Open Dump to Nexus approach: historical evolution of waste management
5. Matthew Kurler (UNU-FLORES, Dresden, Germany)
Institutional Arrangements: Co-Production as a Nexus Concept

UNITED NATIONS UNIVERSITY
UNU-FLORES
Institute for Integrated Management of Natural Resources and of Resilience

World Water Week 2014

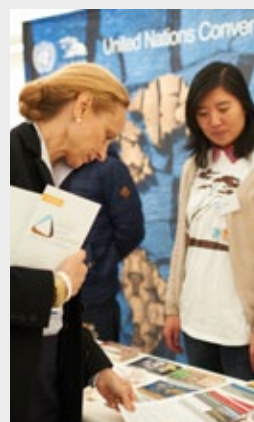
UNU-FLORES participated for the first time in the World Water Week in Stockholm via several activities. The institute co-organized a seminar together with the Centre for Environmental Design of Renewable Energy (CEDREN) and the International Hydropower Association (IHA) entitled “Water as Energy Storage for Better Integration of Renewables”. In addition, UNU-FLORES participated in the panel discussion convened by the World Health Organization (WHO), United Nations Environment Programme (UNEP) and UN-HABITAT on “New Approaches to Wastewater, Water Quality and Water Resources Management Monitoring in the Post- 2015 Era”. Finally, the Institute contributed to the organization of an open exhibition at the UN-Water Pavilion together with other UN agencies such as UNICEF, UNDP, UNESCO, WHO, UNW-DPC. The active participation of UNU-FLORES succeeded in promoting both the work of the Institute as well as the overall mission of UNU.



First UN Day Celebration in Dresden

Intent on rooting itself not only in the international scientific community but also in its host country and city, UNU-FLORES initiated the first UN Day celebration in the eastern region of Germany. On 24–25 October 2014, UNU-FLORES celebrated UN Day with the community of Dresden and surrounding regions to commemorate the anniversary of the signing of the UN Charter in 1945. As the first UN entity in Saxony, UNU-FLORES had the honour of organizing the two-day event together with the City of Dresden. The organizers received support from the Regional Branch of the United Nations Association of Germany (Landesverband der Deutschen Gesellschaft für die Vereinten Nationen e.V., DGVN), the Technische Universität Dresden and the City of Dresden.

The celebration included a special event at the Kulturrathaus featuring a keynote speech on “Peace, Development and Human Rights” by Dr. Flavia Pansieri, United Nations Deputy High Commissioner for Human Rights and Assistant Secretary-General of the UN, as well as a public exhibition near the historical Dresden city centre with ten UN agencies and offices (UNU, OHCHR, WFP, UNCCD, UNICEF, UNESCO, UNW-DPC, UNHCR, ILO, UN WOMEN), regional research institutions, universities and NGOs striving to support the mission of the UN. Over a thousand members of the interested public participated in activities over the course of the two days, and UNU-FLORES hopes to use this success to build a new tradition in the years to come.



INDEX OF ACTIVITIES & ACHIEVEMENTS IN 2014


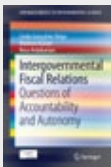
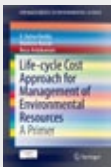


WORKSHOPS





TITLE	PLACE	DATE
Scientific Workshop with IOER	Dresden, Germany	19 Feb. 2014
Nexus Observatory Workshop on Water Point Mapping as a Tool for Advancement of the Nexus Approach to the Management of Environmental Resources in Africa	Dar es Salaam, Tanzania	25–26 Feb. 2014
Workshop on the Planned Project on the Effect of Climate, Land Use and Urbanization on Water Resources in the City of Beira	Maputo, Mozambique	6–7 Mar. 2014
Workshop on Use of Phytocap Technology in Waste Containment	Colombo, Sri Lanka	29–30 May 2014
Workshop on the Proposed Joint Research Platform Concerning the Reuse of Wastewater and Remaining Sludge in Africa	Maputo, Germany	11 June 2014
Workshop Towards Real Time Data Collection and Visualization for Water Management at the 5th Water Research Horizon Conference	Berlin, Germany	17–18 June 2014
Scientific Workshop with UFZ	Leipzig, Germany	23 June 2014
Workshop on the Potential for 'Non-Food' Bioenergy Crops as Part of Multi-Functional Land-Use Systems in Sub-Saharan Africa	Nairobi, Kenya	18–19 Nov. 2014
Workshop on Advancing Integrated Soil and Water Management for Climate-Adapted Land Use in Low-Fertility Areas of Sub-Saharan Africa	Nairobi, Kenya	20–21 Nov. 2014
Workshop on the Spatial Analysis of Effects of Biophysical and Socioeconomic Factors on Water Resources under Challenging Climate Conditions in Beira, Mozambique	Beira, Mozambique	5 Dec. 2014
Nexus Observatory Workshop	Tokyo, Japan	11–12 Dec. 2014

OTHER ACTIVITIES

TITLE	PLACE	DATE	ROLE OF UNU-FLORES
IFAT, UN-Water Seminar on "Water and Energy"	Munich, Germany	5–9 May 2014	Lecturer
5 th Water Research Horizon Conference, Open Space Workshop entitled "Towards Real Time Data Collection and Visualization for Water Management"	Berlin, Germany	17–18 June 2014	Contributor
World Water Week, Panel Discussion on "New Approaches to Wastewater, Water Quality and Water Resources Management Monitoring in the Post-2015 Era"	Stockholm, Sweden	1 Sept. 2014	Panellist
World Water Week, Seminar on "Water as Energy Storage for Better Integration of Renewables"	Stockholm, Sweden	4 Sept. 2014	Presenter
Tereno International Conference, Session on "Quantifying Water Scarcity under Data Scarcity"	Bonn, Germany	1–2 Oct. 2014	Presenter
First UN Day Celebration in Dresden	Dresden, Germany	24–25 Oct. 2014	Organizer

PUBLICATIONS

	TITLE	AUTHOR(S)	TYPE
	Governing the Nexus: Water, Soil and Waste Resources Considering Conditions of Global Change	Kurian, Mathew / Ardakanian, Reza	Book (Springer)
	Intergovernmental Fiscal Relations: Questions of Accountability and Autonomy	Veiga, Linda / Kurian, Mathew / Ardakanian, Reza	Book (Springer)
	Life-cycle Cost Approach for Management of Environmental Resources: A Primer	Reddy, V. Ratna / Kurian, Mathew / Ardakanian, Reza	Book (Springer)
	Rethinking Infrastructure Design for Multi-use Water Services	Maksimović, Čedo / Kurian, Mathew / Ardakanian, Reza	Book (Springer)
	UNU-FLORES Annual Report 2013	UNU-FLORES	Report

TITLE	AUTHOR(S)	TYPE
 <p>Advancing a Nexus Approach to the Sustainable Management of Water, Soil and Waste: Reference Material for the Dresden Nexus Conference 2015 (White Book)</p>	Hülsmann, Stephan / Ardakanian, Reza	Report
 <p>Working Paper No. 2 – Integrated Water Resources Management: A Practical Solution to Address Complexity by Employing the Nexus Approach</p>	Schreier, Hans / Kurian, Mathew	Working Paper
 <p>Proceedings of the Kick-off Workshop on Advancing a Nexus Approach on Sustainable Management of Environmental Resources</p>	UNU-FLORES	Proceedings
 <p>Proceedings of the Special Session at the Symposium of European Freshwater Sciences (SEFS 8): Societal Concerns and Capacity Development</p>	Hülsmann, Stephan / Ardakanian, Reza	Proceedings
"Uncertainties of LAI estimation from satellite imaging due to atmospheric correction" in Remote Sensing of Environment (153, 24-39)	Mannschatz, T., Pflug, B., Borg, E., Feger, K.-H and Dietrich, P.	Journal Article
"Separating the effects of changes in land cover and climate: a hydro-meteorological analysis of the past 60 yr in Saxony, Germany" in Hydrology and Earth System Sciences (18, 389-405)	Renner, M., Brust, K., Schwaerzel, K., Volk, M. and Bernhofer, C.	Journal Article

SHARING THE HARVEST

THE WAY FORWARD



In 2014 we have carefully nurtured and cultivated our institution and are convinced that the fruit of these endeavours will be bountiful in 2015.

In alignment with the overarching mission of the UNU – to contribute to efforts to resolve the pressing global problems of human survival, development and welfare that are the concern of United Nations, its People and Member States – UNU-FLORES will focus in 2015 on producing policy-relevant research capacity development tools. Specifically, emphasis will be placed on the effective dissemination and distribution of these outcomes in an accessible and inclusive manner. A few key activities to this end are highlighted below.

In 2015, UNU-FLORES will welcome the first cohort of students in its joint PhD programme to Dresden. The first semester will be devoted to learning the basic concepts of the nexus of water, soil and waste as well as important aspects of governance and capacity development. In addition, the PhD students will begin working on their research topics.

From 25 to 27 March 2015, the first biennial Dresden Nexus Conference (DNC) will assemble representatives from UN organizations, UNU institutes, Member States, German ministries, national and international organizations as well as individual researchers and NGOs from around the world under the theme “Global Change, Sustainable Development Goals and the Nexus Approach”.

The coming year will see developments in all four windows of the Nexus Observatory. Some highlights will be the first round of online courses hosted on the blended learning platform and the Nexus Tools Platform that will be launched on the Linked Databases window in the first half of 2015.

To further the function of UNU-FLORES as a think tank, all scientific units will also contribute to publications that provide a state of the art review of scientific debates on the Nexus Approach and institutional good practice. Taking the diversity of its community into consideration, UNU-FLORES will ensure the availability and accessibility of the knowledge emerging from the Institute by publishing outcomes in a wide range of formats from policy briefs, to reports, position papers, and lecture series.

These and many more activities at UNU-FLORES in 2015 will serve the overarching goal of extending and upscaling the concept of integrated resource management and providing decision-makers pragmatic tools for implementing region-specific strategies. We have sown our seeds, put down roots, now the harvest can begin.

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

Ammonstrasse 74, 01067 Dresden, Germany

Tel.: + 49-351 8921 9370

Fax: + 49-351 8921 9389

e-mail: flores@unu.edu

flores.unu.edu

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Editing: Rachel Shindelar, Trey Monts and Nicole Bustamante

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**Institute for Integrated Management
of Material Fluxes and of Resources**

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 13 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 soil, water 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 under: **flores.unu.edu**

ADVANCING A NEXUS APPROACH TO THE SUSTAINABLE MANAGEMENT OF ENVIRONMENTAL RESOURCES

UNITED NATIONS UNIVERSITY

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

Ammonstrasse 74
01067 Dresden
Germany

Tel.: +49 351 8921 9370
Fax.: +49 351 8921 9389
Email: flores@unu.edu

flores.unu.edu

