DRESDEN NEXUS CONFERENCE

DNC 2025 | The Future of Resources Resources for the Future

Conference Programme

27 March 2025

DNC Website

Table of Contents

This is a draft programme and subject to change. Please check for updates on the conference website.

1. Programme Overview

This is a draft programme and subject to change. Please check for updates on the conference website.

Time	Tuesday, 8 April 2025			
	Großer Saal	**Kleiner Saal**	**Hörsaal**	**Seminarraum**
Room	**Plenary Hall**	**Future Hall**	**Resources Hall**	**Nexus Hall**
08:00	*Registration (Early registration possible on 7 April afternoon)*			
08:30	**Session S1** - Plenary Hall: Conference Opening: The Future of Resources - Resources for the Future Opening Adresses Keynote - Prof. Dr. Dr. mult. Hans Joachim Schellnhuber, Director General, IIASA Calls to Action MoU signing: UNU and IIASA; UNU and LMBV; UNU and TU Dresden			
09:45	*Group picture 1*			
10:00	*Time for changing rooms*			
10:05	*Slot TU1* : **Combined Session A2/A4/C7/C8** - WEF & Resource Nexus: Advancing concept and application	*Slot TU2* : **Session F8** - Nexus Smart Water Governance	*Slot TU3* : **Session A6** - WEF Nexus and Planetary Health	*Slot TU4* : **Session A1** - Earth System Science Data
11:35	*Time for changing rooms*			
11:45	*Slot TU5* : **Session F5** - Arctic and subartic rivers under CC (60 min) **Session C1** - Groundwater in Central Asia (30 min)	*Slot TU6* : **Session G2** - Fertilizers in the Nexus	*Slot TU7* : **Session B3**.1 - Citizen Science	*Slot TU8* : **Session C6**.1 - WEF Modelling
13:15	*Lunch*			
14:10	**Session S 13 -** PRISMA Award Ceremony		**Session S2.1** Poster Session	
14:40				
15:10	*Time for changing rooms*			
15:20	*Slot TU9* : **Session E4/S3** - United Nations' Green Peacekeeping	Slot TU10: **Session B3**.2 - Citizen Science	*Slot TU11* : **Session D6** - Sustainability inside out	*Slot TU12* : **Session C6**.2 - WEF Modelling
16:50	*Departure for Resource Nexus Policy Dialogue*			
17:00	*Coffee Break* *Allocated timeslot for optional bilateral meetings / group meetings.*			
18:20	*De+B9:F19rture for Signature Event at Frauenkirche.* *Guided groups depart from conference venue DHMD at 18:20, 18:25, 18:30*			

Frauenkirche (Church of our Lady)	
17:15 to 18:45	**Session B7/S4 -** Resource Nexus Policy Dialogue
19:15 to 20:45	**Session S5 /Signature Event** - From Conflicts to Cooperation: The Resource Nexus as a Pathway to Peace and Prosperity in Africa

Time	Wednesday, 9 April 2025					
	Marta Fraenkel Saal	**Kleiner Saal**	**Hörsaal**	**Seminarraum**	**Seminarraum 2**	**Exhibition**
Room	**Marta Fraenkel Hall**	**Future Hall**	**Resources Hall**	**Nexus Hall**	**Seminar Hall**	
08:00	*Registration*					
08:15	*Slot WE1* : **Session S6/H4** - Sustainable Buildings and Construction	*Slot WE2* : **Session G1**.1 - Agroecological Futures	*Slot WE3* : **Session E1** - Nexus approaches to landslides and land subsidence [AID]	*Slot WE4* : **Session B1** - Resource Nexus with maps	*Slot WEX4* : **Session C5** - Theory of Change in WEF+ projects	Business Meets Science and other exhibitors
09:45	*Coffee Break*					
10:00	*Slot WE5* : **Session B5** - KARE Launch	*Slot WE6* : **Session G1**.2 - Agroecological Futures	*Slot WE7* : **Session D2**.1 - Resource Nexus for Post-Mining	*Slot WE8* : [Buffer]	*Slot WEX2* : **Session A3** - Demonstration of NEXOGENESIS - NEPAT	
11:30	*Lunch*					
12:50	*Slot WE9* : **Combined Session A2/A4/C7/C8** - WEF & Resource Nexus: Advancing concept and application	*Slot WE10:* **Session G1**.3 - Agroecological Futures	*Slot WE11* : **Session D2**.2 - Resource Nexus for Post-Mining	*Slot WE12* : **Session B4** - Resource Nexus Curriculum	*Slot WEX3* : **Session F3** - Nexus approaches for water and ecosystems	
14:20	*Time for changing rooms*					
14:30	**Session S7**: EU Research Collaboration (ZEUSS and REA)	15:00 MoU Signing with GeoSN [15:10 MoU Signing with UNIDO TBC‘	**Session S9**: GlobalABC Materials Hub	**Session F7** - Water-sensitive cities in Colombia		
15:20	*Time for changing rooms*					
15:30	*Slot WE13* : **Session D5**.1 - WEFE trajectories to support policy and decision-marking	*Slot WE14* : **Session D8**.1 - Industry, business and finance perspectives	*Slot WE15* : **Session D2**.3 - Resource Nexus for Post-Mining	*Slot WE16* : **Session B6** - Navigating uncertainty	*Slot WEX4* : **Session C9** - Building Nexus Resilience	
17:00	*Coffee Break*					
17:15	*Slot WE17* : **Session D5**.2 - WEFE trajectories to support policy and decision-marking	*Slot WE18* : **Session D8**.2 - Industry, business and finance perspectives	*Slot WE19:* **Session H3** - Soil in the Nexus	*Slot WE20:* **Session C10** - Best WEF+ practices	*Slot WEX5* : **Session E3** - DRR & the Nexus Energy-Food-Mobility	
19:00 to 22:00	**S14 -** Conference Reception (with food and drinks) Group Picture 2			20:00 to 20:30 **Session S2.2** - Poster Session		

Time/Date	Thursday, 10 April 2025			
	Großer Saal	**Kleiner Saal**	**Hörsaal**	**Seminarraum**
Room	**Plenary Hall**	**Future Hall**	**Resources Hall**	**Nexus Hall**
08:30	*Registration*			
08:45	8:45 - 9:45 **Session S10 - Keynote Session 2** Prof. Dr. Shin-Ichiro Takahashi, University of Tokyo, Japan Torsten Safarik, CEO, Lusatian and Central German Mining Administration Company, Senftenberg, Germany			
09:45	*Coffee Break*			
10:00	*Slot TH1* : **Session F6**.1 - Water in the Nexus	*Slot TH2* : **Session E2 -** Environmental Risks and Sustainable Urban Transformation	*Slot TH3* : **Session D7** - Economic prospects of Saxon postmining regions	*Slot TH4* : **Side Event SE4** - Resource Nexus in International Standards
11:30	*Lunch*			
12:30	*Slot TH5* :**Session F6**.2 - Water in the Nexus	*Slot TH6:* **Session F9** - Governing the Groundwater Nexus	*Slot TH7* : **Session D2**.4 - Resource Nexus for Post-Mining	*Slot TH8* : **Session C11** - Energy in the Nexus
14:00	*Change Rooms*			
14:05	**Session S11 - World Café**			
15:00	**Session S12 - Concluding DNC 2025 and Outlook** Call for commitments: H.E.Anaclaudía Rosbach, Prof. Peter Saling, Dr. Johannes Cullmann Key messages by scientific committee members The way ahead: From DNC to the Dresden Nexus Declaration			
16:00		Possibility to visit the DHMD Special Exhibition "The Air We Share"		
18:00 to 21:00	**Reden wir über Luft** [Event outside DNC, offered by DHMD and Dresden-concept]			

2. Special Sessions

S 1: Opening of DNC 2025. The future of resources – resources for the future

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 08 April 2025, 08:30 to 10:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Moderator: Ms. Sonja Hahn-Tomer

Start		*End*	*Activity and speaker*
08:30	-	08:33	**Welcome** Sonja Hahn-Tomer
08:33	-	08:38	**Introduction of the Scientific Committee** Prof. Daniel Karthe, UNU-FLORES
08:38	-	08:44	**Opening remarks** H.E. Prof. Dr. Tshilidzi Marwala, UNU Rector and UN Under-Secretary General
08:44	-	08:50	**Opening remarks** State Secretary Ulrich Menke, Saxon State Ministry of Environment and Agriculture
08:50	-	08:52	**Declaring DNC 2025 "open"** H.E. Prof. Dr. Ursula Staudinger, Rector, Dresden University of Technology; Prof. Dr. Edeltraud Günther, Director, UNU-FLORES; Prof. Dr. Marc Wolfram, Director, Leibniz Institute of Ecological Urban and Regional Development (IOER)
08:52	-	08:56	**Signing of Agreement: UNU Hub on Climate Resilience and Sustainable Technologies (CREST) at TUD | Dresden University of Technology** H.E. Prof. Dr. Ursula Staudinger, Rector, Dresden University of Technology & H.E. Prof. Dr. Tshilidzi Marwala
08:56	-	09:16	**Keynote speech** **Land Use and Construction in the Anthropocene** H.E. Prof. Dr. Hans-Joachim Schellnhuber, Director General, International Institute for Applied Systems Analysis (IIASA)
09:16	-	09:20	**Signing of MoU: UNU and IIASA** and press photo H.E. Prof. Dr. Hans-Joachim Schellnhuber & H.E. Prof. Dr. Tshilidzi Marwala
09:20	-	09:27	**Call for Action** H.R.H. Princess Dr. h.c. Abze Djigma, Co-Chair of the UNFCCC Paris Committee on Capacity-Building

09:27 - 09:34 **Call for Action**
Ms. Anne Jüpner, Director, UNDP – Seoul Policy Centre

09:34 - 09:38 **Signing of MoU: UNU and LMBV** and press photo
Bernd Sablotny, Technical Director and Torsten Safarik, CEO, Lusatian and Central German Mining Company (LMBV) & H.E. Prof. Dr. Tshilidzi Marwala

09:38 - 09:45 **Logistical information**
Group photo, room plan, lunch and coffee breaks, evening programme (Dresden International Forum, Conference Reception)
Prof. Daniel Karthe, Head of Programme, UNU-FLORES

09:45 - 10:00 **Group picture**

S2: Poster Session

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 14:10 to 15:10;and 9 April 2025, 20:00 to 20:30

Overview of Posters and Authors:

Examining the impact of forest farmers organisations on the small-scale tree grower's livelihoods: The Role of Tree Growers' Associations (TGAs) in Njombe district, Tanzania.	Solomon Elimeleck	Mhavile	TUD Dresden University of Technology	Dresden, Germany
Mapping Cross-Sectoral Synergies: A Bibliometric Review of the Water- Food-Energy Nexus in India's Sustainable Urban Transitions	Ateeeb	Hamdan	Global Water and Climate Adaptation Centre, IIT Madras	Chennai, India
Bridging Policy Silos: Governance Challenges and Opportunities in the WEFE Nexus of non-EU PRIMA Partner Countries	Wubneshe Dessalegn	Biru	Universität der Bundeswehr München	Munich, Germany
Valorization of Agricultural Waste and Underutilized Tree Leaves (Cork Oak Leaves) for Water Treatment: A Sustainable Approach to Strengthen the Water-Energy-Food-Ecosystem (WEFE) Nexus"	Said	Meftah	University Hassan I, Faculty of Sciences & Techniques	Settat, Morocco
Assessing policy framework of WEF Nexus Technology in the agricultural sector	Louise Claire	Ngatchoup	University of Corse Pascal Paoli	Corte, France
Sustainable Futures after Mining: Leveraging the Resource Nexus for Transition	James	Maradza	Richard Lyons	Gaborone, Botswana
Ecosystem services in transition: Insights from the coal-phase out in Germany and Indonesia	Paulina	Tjandraputri	TUD Dresden University of Technology	Dresden, Germany
The Future of Coal in India: Navigating Just Energy Transition Through the Resource Nexus	Rajeev	Ranjan	UNU - FLORES/IOER/TUD	Dresden, Germany

Advancing Sustainable Design Through Life Cycle Assessment and Machine Learning: A Case Study on Fiber-Reinforced Protective Layers	Isabela	De Paula Salgado	UNU-FLORES	Dresden, Germany
How Microplastics Cross the Buoyancy Barrier	Thomas	Witzmann	Leibniz-Institut für Polymerforschung	Dresden, Germany
Advanced Monitoring of Power Infrastructure Deformation Using TerraSAR-X and Chinese SAR Data	Sijie	Ma	Wuhan University	Wuhan, Hubei, China
Integrated Regional Resource Assessment of the Water-Energy-Food-Ecosystem Nexus in Sardinia, Italy	Muhammad Faizan	Aslam	CMCC Foundation - Euro-Mediterranean Center on Climate Change / National Biodiversity Future Center S.c.a.r.l., (NBFC)	Sassari, Italy
Investigation of the structural and physicochemical characteristics of newly synthesized compounds based on menthol-derived amino acids.	Lolakhon	Ettibaeva	Gulistan State University	Gulistan, Uzbekistan
From community-supported agriculture (CSA) to a community-supported economy (CSE): a socioterritorial movement perspective to amplifying Solidarische Landwirtschaft (SoLawi) in Germany	William	Ying	Leibniz-Institut für ökologische Raumentwicklung (IÖR)	Dresden, Germany
Regulating Food Waste in Manufactured and Processed Food Sector in Bangladesh: Application of Varying Theories in the Light of the US & EU Regulations	Abu Noman Mohammad Atahar	Ali	North South University	Dhaka, Bangladesh
Assessing to act: A water-energy-food-ecosystem (WEFE) nexus governance assessment for the Inkomati-Usuthu river basin in South Africa	Hueesker	Frank	Helmholtz-Zentrum für Umweltforschung GmbH – UFZ	Leipzig, Germany
Integrated Governance of the WEFE Nexus in Jordan: A Path Towards a Sustainable Development.	Salam	Aababneh	Ministry of Water and Irrigation	Amman, Jordan

Nexus Governance Roadmaps as Tools for Mapping 'Whole-of-Society' Pathways for Change: South African Experience	Sabina J.	Khan	Helmholtz-Zentrum für Umweltforschung GmbH – UFZ	Leipzig, Germany

S3 (=E4): United Nations' Green Peacekeeping: Energy Revolution amidst Safeguarding Global Peace and Security

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 15:20 to 16:50

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Dominik Steiger, Academic Director, Centre for International Studies, TU Dresden, Germany

Description

The global climate catastrophe is one of the greatest challenges of the still young 21st century. At present, the effects of climate change are most evident in developing countries, as these are particularly vulnerable to the adverse impacts. At the same time, countries most affected by climate change also experience disproportionately high levels of civil unrest and armed conflicts. The effects of climate change and societal conflicts are deeply interconnected, often exacerbating one another and limiting the ability of affected countries to implement effective coping strategies and peacefully resolve disputes. Thus, the international community has committed to addressing these issues appropriately.

The United Nations' efforts to both mitigate the effects of the climate catastrophe and to promote peace and security were recently reaffirmed in the final document adopted at the Summit of the Future. In addressing climate change, the emphasis is on accelerating the implementation of the Sustainable Development Goals and the Paris Agreement, while ensuring a just transition from fossil fuels to sustainable energy sources. The roadmap aims to "triple renewable energy capacity globally and double the global average annual rate of energy efficiency improvements by 2030". The Pact for the Future also emphasizes a peaceful future free from the scourge of war and violent conflicts for upcoming generations. In the pursuit of peace and security, the international community continues to rely on UN peacekeeping, a traditional and still the most effective tool of the UN available.

However, the UN obstructs its own goals. Given the impacts of climate change, especially on countries in the Global South and host nations of peace operations, it is paradoxical that the UN's most effective tool for securing peace and security contributes the most to the carbon footprint of all UN Secretariat activities, and often in the host countries themselves. Thus, the increasingly prolonged and complex missions significantly contribute to environmental pollution.

To address this contradiction, the UN and various member states have focused on integrating new energy production processes into peacekeeping in recent years, aiming to significantly reduce the carbon footprint of the Secretariat in host countries. Incorporating renewable energy into peace operations amidst safeguarding peace and security has become essential for addressing the

inconsistency of UN's different approaches to different challenges. This interconnecting approach may be termed as the United Nations' Green Peacekeeping initiative.

As early as 2021, the IRENA panel established that by 2030, 80% of peacekeeping power sources should come from renewable energy and greenhouse gas emissions should be reduced by 45%. At the 13th IRENA Assembly in 2023, the Energy Compact on Renewable Energy for Peacekeeping was adopted, not only reaffirming this goal but also providing a detailed roadmap. These strategies also align with the Sustainable Development Goal No. 7, "Affordable and Clean Energy", and together they form a comprehensive plan for the future of peacekeeping.

The fact that this initiative is not just wishful thinking for the future, but is already being implemented in practice, is evidenced by the significant progress made in MONUSCO, the UN peace operation in the Democratic Republic of the Congo. MONUSCO currently uses the highest share of renewable energy among all UN peace operations, particularly by leveraging local hydropower networks. This shift has resulted in a noticeable reduction in diesel consumption since 2018, also leading to cost savings. This demonstrates that MONUSCO is already making a significant contribution to lower the carbon emissions of peacekeeping operation. That means, integrating renewable energy into peace operations is now a reality and has become indispensable.

But improving the environmental footprint is only one of many significant advantages of utilizing new energy sources in UN peace operations. Switching to renewable energy can also enhance the effectiveness of peacekeeping, thereby contributing to the primary goal of peacekeeping: increasing security and promoting political transformation. Specifically, two areas particularly benefit from the energy revolution in peacekeeping:

First, it enhances the protection of peacekeepers. Peace operations become safer through the use of renewable energy, as fuel no longer needs to be transported along dangerous routes. The reduced reliance on resources also makes missions easier to plan, as essential infrastructure can operate without fuel deliveries and dependencies. This simultaneously increases the defensive capabilities of peacekeeping personnel and enhances operational resilience.

Second, the use of renewable energy can itself be part of peacekeeping mandates. This can help ensure basic services for the population in remote or economically weak regions, e.g., through community-based renewable energy projects. This can foster long-term social and economic transformation. Establishing long-term projects also demonstrably improves the relationship between the host country's population and UN personnel. Francesco La Camera, Director-General of IRENA, aptly named the added value of renewable energy in UN peacekeeping at the UN Energy Summit 2021 "a vital building block for creating local markets and a contribution to long-term sustainable development." Consequently, sustainable development – a key goal of multidimensional peace operations, in addition to stabilizing host countries – can also benefit from this approach.

The integration of renewable energy into peacekeeping can thus lead to multidimensional positive outcomes in the nexus of peace, security, and climate protection. However, this path is not only complex in its multifaceted impacts but also in achieving and implementing the stated goals comprehensively. Successfully integrating renewable energy as a power source in UN peace

operations requires not only political will and promises but also the cooperation of various stakeholders across multiple levels of cooperation.

On one hand, technical expertise and professional resource diplomacy are essential for successful collaboration. Creative and efficient resources management before and during peace operations is key to success and simultaneously one of the greatest challenges, requiring the integration of various political, scientific, and technical perspectives. Equipping peace operations with green energy thus demands a high level of interdisciplinarity, as reflected in Sustainable Development Goal No. 7, "Affordable and Clean Energy". Moreover, coordination among troop-contributing countries is crucial to achieving synergies in development and implementation. However, the challenges are not limited to technical and scientific aspects. The sensitivity of sharing key technology-know-how among UN member states and establishing highly technological contingents for the deployment in peacekeeping operations poses significant difficulties.

This dual challenge – revolutionizing peace operations to solve future problems while fostering state cooperation in a highly sensitive area to achieve interoperability – creates a unique area of tension. There is a need for collaboration across borders and institutions, while maintaining the primary purpose of peacekeeping operations. Effective diplomacy and cooperation between scientists, practitioners and states require an integrated approach to overcome implementation obstacles and finally to realize the vision of Green Peacekeeping.

In the Panel on "United Nations' Green Peacekeeping: Energy Revolution amidst Safeguarding Global Peace and Security" we will therefore discuss together the potential of transitioning from fossil fuels to renewable energy in UN peace operations and explore the diverse opportunities hidden behind the neologism Green Peacekeeping. What specific expectations are associated with these ideas by various stakeholders, *inter alia*, the UN, troop-contributing countries, and host nations? Considering best practices already in place, we will examine how renewable energy can contribute to improving mission performance and enhancing the effectiveness of mandate implementation. To what extent can a reimagined climate protection-peace and security nexus lead to sustainable development?

The second major discussion block will focus on the complexity of the undertaking and explain which disciplines are necessary, as well as the technical and political obstacles involved. On the other hand, we will look at the approaches and ambitions of the UN and individual member states. What role does Germany, or the European Union play in implementing the transformation toward Green Peacekeeping? How do approaches differ between countries, e.g., between the global north and south, and what are potential forms for the improvement of private-sector and university cooperation? How can science diplomacy help overcome existing hurdles in key technology transfer, for instance, through research under the UN umbrella or specific knowledge-sharing platforms?

Speakers:

Johannes Hainzinger
Deputy Branch Head for United Nations, Directorate-General for Security and Defence Policy, Federal Ministry of Defence of Germany

Dr. Kira Vinke
Head of the Center for Climate and Foreign Policy, German Council on Foreign Relations

Karen Grajeda
Chief of Operations, IRENA Innovation and Technology Centre

Moderation:

Prof. Dr. Dominik Steiger
Director of the Center for International Studies, TU Dresden

S4: A Resource Nexus dialogue for the future
Connecting doctoral researchers with policy and decision makers

Venue: Frauenkirche (Church of Our Lady), Neumarkt, 01067 Dresden

Date and Time: 08 April 2025, 17:15 to 18:45

Session Registration: Open to conference participants and by invitation

Moderators: Prof. Dr. Serena Coetzee, Head of Programme – Education, UNU-FLORES; Dr. Alexey Alekseenko, Head of Laboratory – Resource Nexus for Post-Mining Inclusive Transition (REPOINT), UNU-FLORES; Mr. Thato Masire, Advocacy and Public Affairs Officer, UNU-FLORES

The degradation of natural resources represents one of the most critical environmental megatrends worldwide and is of great concern to the United Nations and its Member States. Through their inter- and transdisciplinary research, UNU-FLORES doctoral researchers contribute to an improved understanding of how environmental resources are connected to each other, and how resource usage can be optimized. Translating these research findings into actionable recommendations for policy and decision makers is essential for achieving impact and transitioning towards a more sustainable future.

Join us for a conversation between our doctoral researchers and policy and decision makers. Three panels will engage in a discussion about scientific findings by doctoral researchers and their implications in policy and practice, focusing on the following topics:

- Water and food in cities of the Global South
- Resilient agri-food and forest systems
- Material, water and energy in a circular economy

Session Programme

17:15 **Welcome and introduction to the policy dialogue**

H.E. Prof. Dr. Tshilidzi Marwala, Rector of UNU and UN Under-Secretary General

17:25 **Water and food in cities of the Global South**

Moderator: Thato Masire (Botswana)
Doctoral researchers: Atiqah Binte Md Salleh (Singapore); Jairo Guzman (Colombia)
Panelists: TBD

17:50 **Resilient agri-food and forest systems**

Moderator: Prof. Serena Coetzee (South Africa)
Doctoral researchers: Ramoudane Orou Sanou (Benin); Aishwarya Raja (India)
Panelists: TBD

18:15 **Material, water and energy in a circular economy**

Moderator: Dr. Alexey Alekseenko (Russia, Israel)
Doctoral researchers: Luisa Ferolla Spyer Prates (Brazil); Isabela de Paula Salgado (Brazil)
Panelists: TBD

18:40 **Closing**
Prof. Dr. Edeltraud Günther, Director, UNU-FLORES

S5: Dresden International Forum. From Conflicts to Cooperation: The Resource Nexus as a Pathway to Peace and Prosperity in Africa

Venue: Frauenkirche (Church of Our Lady), Neumarkt, 01067 Dresden

Date and Time: 08 April 2025, 19:15 to 20:45

No registration needed

Detailed information about this special session can be found at the event website of Development and Peace Foundation (SEF).

This event is co-organized by:

S7: EU Research Collaboration

Venue: Marta Frankel Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 14:30 to 15:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Daniel Karthe & Vera Greschner Farkavcova, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Programme

14:30	Welcome by the session chairs, brief outline of the session
14:32	**EU Research Funding: Relevant Opportunities for the WEF and Resource Nexus Community** Mr. Carsten Glück (Head), Dr. Gretel Wittenburg (Deputy Head) and Mr. Alexander Hesse (EU Funding Advisor, EU Service Saxony (ZEUSS)
14:55	Q & A
15:00	**EU Research Collaboration on the WEF and Resource Nexus: Lessons Learnt and Future Needs** Dr. Giulio Pattanaro, Research Programme Manager, Unit Biodiversity, Circular Economy and Environment at the European Research Executive Agency (REA)
15:12	Q & A
15:17	**Session Conclusions**

Description

This session aims to introduce 1) insights into and lessons learnt from EU Research collaboration related to environmental nexus approaches, and 2) partnership and funding potentials.

Depending on the interest of the participants, the presentation by Mr. Glück and colleagues may include the following aspects.

- Individual Mobility and Research Project Opportunities in Pillar I
    - MSCA-Postdoctoral Fellowships: European Fellowships (with hosts from Germany/Saxony) + Global Fellowships (with host institutions from Africa, South America, Oceania, Asia etc.)
    - Funding for Researchers at Risk via MSCA Ukraine
    - Funding for Researchers at Risk via SAFE Project - Researchers – SAFE

- Pillar II Collaboration Opportunities in Joint Research Project Consortia
    - Rules concerning Member states and Associated States with a special focus on Status of Morocco and Tunisia as well as Low-and-Middle-Income-Countries eligible for funding list-3rd-country-participation_horizon-euratom_en.pdf
    - Upcoming Cluster 5+6 Calls, especially those that encourage collaboration with third countries / international cooperation
- COST Collaboration Opportunities for young researchers in large scientific networks with a view to target countries COST Members | COST
- LEAP-RE Call 2025 European Union – African Union

For aspects not covered in the presentation due to time limitations, there will be an opportunity to meet the ZEUSS team in the exhibition area.

Key points to be introduced by Dr. Pattanaro include

- Lessons-learnt from monitoring H2020 projects dealing with nexus R&I,
    - case-study selection
    - stakeholder involvement
    - data collection
- Based also on these lessons-learnt, providing guidance for relevant and impactful future proposals

S9: GlobalABC Materials Hub - Life Cycle and circularity approaches to the Built Environment

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 14:30 to 15:20

Moderator: Mona Abdulghani Naji Mohammed, Programme Management Officer, UNEP and Global Alliance of Buildings and Construction

Opening Remarks:

The transition to a near-zero emission buildings and construction sector requires a wholistic, life cycle approach that addresses both embodied and operational emissions. Integrating circular economy principles is essential to minimizing waste, reducing emissions, and ensuring a more energy- and resource-efficient built environment.
This session will provide a comprehensive overview of circular and life cycle approaches in the built environment, emphasizing data-driven decision-making, policy action, and material innovation. The session will begin with an introduction to the whole life cycle approach for the built environment and the 10 Whole Life Cycle Recommendations for the Buildings Breakthrough, highlighting how life cycle and circular strategies can drive sustainable construction practices. It will also present practical tools and strategies developed through global partnerships and collaboration with a strong network of stakeholders, coordinated by UNEP and partner organizations.

Experts will share insights and launch key initiatives, including:

- The Global Framework for Action to harness circular and sustainable public procurement in driving demand for near-zero emission and resilient buildings.
- Circular economy strategies and tools for the built environment.
- The importance of life cycle data in decision-making and existing tools to support its application.
- The launch of the Bio-based Materials Compendium.

This session will offer valuable perspectives for policymakers, practitioners, and researchers, equipping them with actionable insights to accelerate circularity and sustainability in the built environment.

S10: Keynote Session 2

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 08:45 to 09:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Daniel Karthe, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Programme

08:45	Welcome by the session chair, introduction of the keynote speakers
08:47	**Healthy Food – Healthy Planet: the most important Nexus of all** Prof. Shin-Ichiro Takahashi, Graduate School of Agricultural and Life Sciences, The University of Tokyo, Japan. Initiator of the One Earth Guardians programme.
09:07	Questions and Discussion
09:15	**The Future Nexus: What Comes after the Coal Exit in Lusatia?** **[Der Nexus der Zukunft: Was folgt auf den Kohleausstieg in der Lausitz]** Torsten Safarik, CEO, Lusatian and Central German Mining Administration Company (LMBV), Senftenberg, Germany With German ↔ English translation
09:35	Questions and Discussion
09:42	Closing Remarks

Background information

One Earth Guardians Development Programme

The Guardians are a network of scientists who take actions aimed at securing the future of the Earth as a place where all living beings, including humans, coexist in harmony. Population growth and increasing wealth have led to unsustainable levels of environmental resource use. Humanity's pursuit of ever-growing GDPs and industrial output will irreversibly damage our planet if they continue as they did in the past. If we do not act now, the planet may not be able to sustain our lives in the near future. But problems are closely interconnected, and require integrated solution strategies. This is why we need Nexus approaches, and this is where the One Earth Guardians programme sets in.

The One Earth Guardians Development Programme is an initiative that had its roots at one of Asia's leading research institutions: The University of Tokyo in Japan. It is open for partnerships worldwide.

ONE EARTH GUARDIANS
地球は2つない。

There is only one Earth.

Advancing the Nexus of Post-Mining: How LMBV drives the sustainable transformation of Lusatia

Lignite remediation in eastern Germany is a success story. A landscape once dominated by open pit mining and related industries now stands at the forefront of environmental rehabilitation and regional transformation. Building on the heritage and legacies of more than a century of lignite mining, Lusatia and the Central German Lignite Region are in a process of profound environmental and structural change – and the Lusatian and Central German Mining Administration Company (LMBV) are a key driver in this process. LMBV implements, manages and oversees a wide range of post-mining rehabilitation measures: restoring soil health, revitalizing forests and vegetation, identifying and remediating pollution legacies, and recreating wildlife habitats. And most notably of all: establishing Europe's largest lake district. A detailed overview about restoration efforts in Lusatia is documented in the brochure Preparing the Ground for the Future.

The outset: Restoration of soil cover

The outcome: Forest on a rehabilitated tailing dump, Lusatia

S11: World Café: The Future of Resources – Resources for the Future

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden
Some topical discussions will be held in other rooms; please see programme below.

Date and Time: 10 April 2025, 14:05 to 15:00

Session Registration: Required. Details will follow.

Chair(s)/Moderator(s): Dr. Saroj Chapagain, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany

World Café Program [Detailed plan]

1. Pre-Registration

- **Purpose**: Ensure participation and help attendees organize their schedules in advance.
- **Method**: Mentioned in the program and provided a QR code to register.
- **Additional**: Include pre-idea collection as part of the registration process or separately with MS forms (*discussed but it is not considered for inclusion, as we have predefined theme and guiding questions*)

2. Table Setup

- **Number of Tables**: 6 tables, divided into **3 themes** (2 tables per theme).
- **Themes**:
    - **Research and Innovation**
    - **Education and Capacity Development**
    - **Advocacy and Communication** (with a focus on roles in relation to UN activities)

These **three themes**—Research and Innovation, Education and Capacity Development, and Advocacy and Communication—are chosen from the **Institute's five key pillars**. The discussions and outputs of the World Café will directly contribute to the Institute's key focus areas, helping to advance these pillars.

3. Discussion Format

All themes will be discussed with the background of the Nexus community, focusing on how the community prioritizes and looks forward to these aspects.

- **Movement**: Attendees will move once between tables.
- **Sub-Themes**: Each theme will have 2 sub-themes (guiding questions).

The guiding questions are designed to be forward-looking, encouraging participants to **envision** the future of **each theme by 2050 (**where applicable**).** They aim to explore how the Nexus community can position itself and **what strategies** should be implemented to achieve these visions

These guiding questions will facilitate meaningful discussions and generate outputs that contribute to the Institute's implementation plans.

Theme 1: Research and Innovation

Guiding Questions:

i. How should Nexus Research evolve to address emerging global challenges and opportunities by 2050

ii. What strategic actions are needed to achieve the long-term vision for Nexus Research and Innovation?

Theme 2: Education and Capacity Development

Guiding Questions:

i. How should educational programs and capacity-building initiatives evolve to address emerging global challenges and opportunities by 2050
(How can the Nexus community prioritize and enhance education and capacity development to prepare future leaders in resource management?)

ii. What strategies can be implemented to integrate Nexus thinking into educational curricula and training programme ?

Theme 3: Advocacy and Communication (linked to UN conference)

Guiding Questions:

i. What is the long-term vision for the Nexus community's role in advocating for integrated resource management at UN conferences
ii. What strategic actions are needed to effectively advocate for integrated resource management (Nexus thinking) at UN conferences such as the UN Water Conference, UN Biodiversity Conference and so on?
(What partnerships and collaborations can the Nexus community leverage to amplify its advocacy efforts)

4. Table Assignments

- **Research and Innovation**:
  - Table 1: Chaired by Dr. Alexey Alekseenko (UNU-FLORES), Confirmed
  - Table 2: Chaired by Prof. Juergen Stamm (TU Dresden); Confirmed
- **Education and Capacity Development**:
  - Table 3: Chaired by Prof. Serena Martha Coetzee (UNU-FLORES), Confirmed
  - Table 4: Chaired by Prof. Shin-Ichiro Takahashi (Tokyo University)
- **Advocacy and Communication**:
  - Table 5: Chaired by Dr. Johannes Cullmann (UNU-FLORES), Tentatively Confirmed
  - Table 6: Chaired by Ms. Anacláudia Rosbach (UN-Habitat)
  -

Table	Room	Theme	Table convenor
Table 1	Plenary Hall	Research and Innovation	Dr. Alexey Alekseenko
Table 2	Plenary Hall	Education and Capacity Development	Prof. Serena Martha Coetzee
Table 3	Future Hall	Advocacy and Communication	Dr. Johannes Cullmann
Table 4	Future Hall	Research and Innovation	Prof. Juergen Stamm
Table 5	Resources Hall	Education and Capacity Development	Prof. Shin-Ichiro Takahashi
Table 6	Resources Hall	Advocacy and Communication	Ms. Anacláudia Rosbach

5. Structured Presentations

- **Framework**: All discussions will be framed within a pre-developed structure.

- **Support**: One of our researchers will support each table chair.
- **Presentation**: Insights and key points will be presented later.

6. Expected Participation

- **Participants**: Around 200 participants are expected on that day (10 April)

  As there is no other event parallel to the World Café, everyone present can join. However, pre-registration will ensure how many will join and also help us to prepare

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Detailed Schedule

1. **Introduction (5 minutes)**
   - Welcome participants and explain the World Café process.
   - Introduce the three main themes and table assignments.
2. **First Round of Discussions (15 minutes)**
   - Participants discuss the assigned sub-theme (Guiding question 1) at their table.
   - Table chairs facilitate discussion and supporting the researcher will help to take notes on key points.
3. **Movement (5 minutes)**
   - Participants move to a new table (new theme), except for the table chairs.
   -
4. **Second Round of Discussions (15 minutes)**
   - Table chairs summarize the previous discussion for the new participants.
   - Discuss the theme-second guiding question
   -
5. **Final Harvest Session (10 minutes)**
   - Each table chair presents the main insights from their discussions.

Time allocation

14:05	Welcome by the session chair; introduction to the World Café Format
14:10	All participants move to their first table (6 tables)
14:10	Group Discussion (first round)
14:25	All participants move to their second table
14:30	Group Discussion (second round)
14:45	All participants return to Plenary Hall
14:50	Each table chair presents main insights
15:00	Conclusions by the session Chair
15:00	End of World Café

S12: From DNC 2025 to the Dresden Nexus Declaration

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 10:00 to 10:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair: Prof. Dr. Edeltraud Günther, Director, UNU-FLORES, Dresden, Germany

Moderator: Ms. Sonja Hahn-Tomer, Executive and Liaison Officer, UNU-FLORES, Dresden, Germany

Start		*End*	*Activity and speaker*
15:00	-	15:05	**Roadmap: From DNC 2025 to the Dresden Nexus Declaration** Prof. Dr. Daniel Karthe
15:05	-	15:20	**Final impulse** *Sustainable Civil Engineering: Unlocking the Future of Resources* Prof. Dr. Marzia Traverso, Director, Institute of Sustainability in Civil Engineering, RWTH Aachen, Germany (TBC)
15:20	-	15:35	**Key messages** by the scientific committee members (30 seconds each) • Prof. Dr. Edeltraud Günther, Director, UNU-FLORES, Dresden, Germany • Prof. Dr. Mohsin Hafeez, Director of Water, Food and Ecosystems, International Water Management Institute, Lahore, Pakistan • Prof. Dr. Chrysi Laspidou, Vice-Rector of Innovation, University of Thessaly, Greece • Prof. Dr. Tafadzwanashe Mabhaudi, Professor of Climate Change, Food Systems and Health at London School of Hygiene and Tropical Medicine, London, UK; Lead, Water – Energy – Food Environment Nexus, United Nations University – Institute for Water, Environment and Health (UNU-INWEH), Richmond Hill, ON, Canada; and Honorary Research Fellow, University of KwaZulu-Natal, Pietermaritzburg, South Africa • Dr. Claudia Ringler, Director, Consultative Group on International Agricultural Research - International Food Policy Research Institute (CGIAR-IFPRI), Washington, DC, USA • Prof. Dr. Jochen Schanze, Head of Knowledge Integration Hub, Leibniz Institute for Ecological Urban and Regional Development (IOER) and Chair of Environmental Development and Risk Management, TU Dresden, Germany • Prof. Dr. Dominik Steiger, Academic Director, Centre for International Studies, TU Dresden, Germany

- Prof. Dr.-Ing. Marc Wolfram, Director, Leibniz Institute for Ecological Urban and Regional Development (IOER) and Chair of Spatial Development and Transformation, TU Dresden, Germany

- ⏭ H.E. Dr. Seleshi Bekele, Former ambassador of the Federal Democratic Republic of Ethiopia to the United States of America, and former Minister of Water Resources, Federal Democratic Republic of Ethiopia
- ⏭ Prof. Dr. Floor Brouwer, Adjunct Professor, UNU-FLORES, Dresden, Germany
- ⏭ Prof. Dr. Kaveh Madani, Director, United Nations University – Institute for Water, Environment and Health (UNU-INWEH), Richmond Hill, ON, Canada
- ⏭ Prof. Dr. Rabi Mohtar, Lead Scientist, WEF Nexus Research Group, Texas A&M University, College Station, TX, USA
- ⏭ Prof. Dr. Golam Rasul, Director, Department of Economics, International University of Business Agriculture and Technology (IUBAT), Dhaka, Bangladesh

15:35 - 15:51 **Call for commitments**

H.E. Anacláudia Rosbach, Executive Director of UN-Habitat and UN Under-Secretary General (TBC)

Prof. Peter Saling, Director Sustainability Methods, BASF SE

Virpi Stucki, Chief, Fair Production, Sustainability and Trade Division, UNIDO or Stefan Kratzsch, Head, Sustainable Investments and Responsible Business Unit, UNIDO (TBC)

H.R.H. Princess Dr. h.c. Abze Djigma, Co-Chair of the UNFCCC Paris Committee on Capacity-Building

15:51 - 15:55 **Next steps: Preparing the Dresden Nexus Declaration**
Prof. Dr. Daniel Karthe

15:55 - 16:00 **Farewell and declaring DNC 2025 closed**
Scientific Committee of DNC 2025

⏭ indicates a recorded message.

S13: PRISMA Award Ceremony

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 08 April 2025, 14:10 to 14:40

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chairs: PRISMA Board members Prof. Edeltraud Guenther, Prof. Katharina Kleinschrot, Prof. Peter Saling, Prof. Jochen Schanze

Description

The award aims to honour scientists for outstanding research presented in a peer-reviewed publication that advances the field of sustainability assessment, particularly in the context of integrated ("nexus") approaches to resource management. The award includes a certificate of excellence and a grant of 2000 Euro for the winning authors.

Programme

14:10	Opening Award Ceremony Prof. Edeltraud Guenter
14:15	Laudatio for Award Winner(s) tbc
14:20	Presentation Award Winner(s) tbc
14:30	Closing Award Ceremony Prof. Edeltraud Guenter

S14: Conference Reception

Venue: Reception Hall and Inner Yard
German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 19:00 to 22:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Moderator: Sonja Hahn-Tomer, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Description

The conference reception is mostly a time for exchanging, networking and enjoying the unique atmosphere of our conference venue. There will also be a small number of short interventions.

Programme

19:00 **Opening of the Reception**

DNC 2025 – Scientific Committee

19:05 - 19:10 **Intervention 1**
Transforming Chemistry – A Key Enabler for Resource Sustainability

Susanne Ebitsch, Head of Science Transfer, Centre for the Transformation of Chemistry (CTC), Delitzsch & Merseburg, Germany

19:10 - 19:25 **Intervention 2**
Synergy drivers: Nexus thinking for accelerating the SDGs
Prof. Dr. Joe Alcamo, School of Global Studies, University of Sussex, Brighton, United Kingdom, and former Chief Scientist, United Nations Environment Programme, Nairobi, Kenya

19:25 - 19:35 **Group picture 2**



20:00 - 20:30 **Poster Session**
Chair: Dr. Saroj Chapagain, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany



21:50 **End of the reception**
The conference venue will close at 22:00.

3. Regular Sessions

This is a draft programme and subject to change. Please check for updates on the conference website.

A1: Integrated Earth System Science Data for Integrated Management of Resources

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 10:05 to 11:35

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Jörg Seegert, Coordinator NFDI4Earth, TU Dresden, Germany; Prof. Serena Coetzee, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany

Description

The session will showcase examples of data integrated from heterogenous sources to answer questions related to the Resource Nexus, e.g. where are the linkages between environmental resources, such as water, energy, soil or waste, and what are the dependencies between them? Based on the data, what are potential synergies and trade-offs?

The Sustainability Nexus Analytics, Informatics, and Data (AID) Programme, established by the United Nations University (UNU), integrates advanced analytics, informatics, and data management to address critical challenges in sustainable development.

NFDI4Earth addresses the digital needs in research data management for the Earth System Sciences within the National Research Data Infrastructure (NDFI) in Germany.

Earth System Science data is essential for addressing many of today's critical challenges. Hence, providing means of collecting, analysing, visualizing, publishing and archiving these datasets is needed for informed decision-making. This session will serve as a platform for exchanging best practices and discussing open challenges on the road towards integrated Earth System Science data for integrated resource management. Lightning talks will showcase key themes - Datasets, Services, Education & Training, Community Solutions – highlighting ongoing work in the NFDI as well as UNU-AID. The participants will also have the opportunity to share their experiences within their respective disciplines. The session will be concluded by a discussion of possible synergies and collaboration opportunities between both initiatives and beyond.

Programme

10:05	Welcome by the session chairs; session overview and scope
10:13	**From sensor to service - providing FAIR data of fluxes between ecosystems and atmosphere** Prof Matthias Mauder, TUD Dresden University of Technology
10:25	Direct questions and short discussion
10:28	**NFDI4Earth-developed services and how they support the Earth System Sciences community in Research Data Management** Tom Niers, TUD Dresden University of Technology
10:40	Direct questions and short discussion
10:43	**NFDI4Earth community innovations and solutions – strengthening Earth System Sciences collaboration** Kolja Nenoff, Leipzig University
10:55	Direct questions and short discussion
10:58	**Planted Time Bombs: The Delayed Threat of Invasive Plants** Dr. Mohsen B. Mesgaran, University of California, Davis, Department of Plant Sciences, U.S.A.
11:10	Direct questions and short discussion
11:13	**Integrated Earth System Analytics: Advancing Sustainable Development through the AID Programme** Dr. Mir Matin, United Nations University Institute for Water, Environment and Health (UNU-INWEH), Canada
11:25	Direct questions and short discussion
11:28	Conclusions of the session

Combined session

A2/A4/C7/C8: WEF & Resource Nexus: Advancing concept and application

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 10:05 to 11:35; 9 April 2025, 12:50 to 14:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chairs: Prof. Dr. Ali Rhouma, PRIMA Foundation, Barcelona, Spain; Dr. Emmanuel Ambe Cheo (United Nations University - Institute for Environment and Human Security, Bonn, Germany); Prof. Dr. Floor Brouwer (United Nations University – Institute for Integrated Management of Material Fluxes and of Resources, Dresden, Germany)

Description

Discussing the Water-Energy-Food-Ecosystem Nexus and Resource Nexus applications among practitioners and knowledge partners is important. Such an effort aims to establish a more robust definition of the Nexus. The 2011 Bonn Conference offered a definition of the Nexus for 'Integrated management and governance of the resources across sectors and scales'. There have been different views on the definition of the Nexus since 2011. Arguments are presented in the Session as to why we seek an agreed definition of the Nexus, which currently does not exist. The session seeks abstracts that focus on a definition of the nexus and also outline criteria for connections with the WEFE Nexus and Resource Nexus. A selection of contributions will be shared with a panel of experts, and there will be interactive voting among participants on the possible definitions.

This combined session integrates the following original session proposal:

Session A2: A robust definition of the Nexus – Learning from Resource Nexus and Water-Energy-Food-Ecosystem Nexus applications

Session A4: The Next 100 Questions for the Water-Energy-Food Nexus Research and Policy

Session C7: WEF Nexus for Climate Action in Global South

Session C8: Leveraging Innovative WEF Nexus technologies and approaches for Climate Action

Programme 8 April 2025, 10:05 to 11:35

10:05	Welcome by the session chairs;
10:10	**Water, Energy and Food Situation in Sub-Saharan Africa and Nexus Outcomes at Various Spatial Scales**

H.E. Dr. Seleshi Bekele, Former Minister of Water, Irrigation and Energy and Former Ambassador of Ethiopia to the USA

10:20 Questions and Discussion

10:25 **Demonstration of the WEFE-Nexus approach to create evidence base for the acceleration of climate action and mainstreaming**
Dr. Pascal Finkbeiner, TU München, Munich, Germany

10:35 Questions and Discussion

10:40 **The Cassandra Local Climate Forums: Lessons for the WEFE Nexus from a socio-political approach to climate change**
Dr. Richard Elelman, Eurecat - Centro Tecnológico de Catalunya, Barcelona, Spain

10:50 Questions and Discussion

10:55 **The WEF & Resource Nexus Community Survey: Introduction**
Prof. Dr. Ali Rhouma, PRIMA Foundation, Barcelona, Spain; Prof. Dr. Floor Brouwer & Prof. Dr. Daniel Karthe, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources

11:00 **Community Survey – Part 1: Defining the Nexus**
Prof. Dr. Ali Rhouma, PRIMA Foundation, Barcelona, Spain

11:10 **Community Survey – Part 2: Nexus concepts and challenges**
Prof. Dr. Daniel Karthe, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources, Dresden, Germany

11:20 Moderated discussion and outlook to second part of the session

11:33 Call for participating in the WEF & Resource Nexus Community Survey

Programme 9 April 2025, 12:50 to 14:20

12:50	Welcome by the session chairs;
12:55	**The Water-Energy-Food Nexus** Dr. Gareth Simpson, National Executive – Mine Closure, WSP, Newcastle, NSW, Australia
13:05	Questions and Discussion
13:10	**SureNexus Project : An innovative methodology for technology selection utilizing Artificial Intelligence within the WEFE Nexus framework** Prof. Dr. Jordi Morato, UNESCO Chair on Sustainability, Universitat Politècnica de Catalunya · Barcelona Tech, Barcelona, Spain
13:20	Questions and Discussion
13:25	**WEFE nexus analysis for climate change adaptation: The EcoFuture approach for the Jordan Valley** Prof. Dr. Nikolaos Nikolaidis, Technical University of Crete, Chania, Greece
13:35	Questions and Discussion
13:40	**A Decision-Analytic Framework for Water-Energy-Food-Ecosystem Management in the Nile Basin** Veronica Piuri, Politecnico di Milano
13:50	Questions and Discussion
13:55	**Community Survey – Part 3: Updates; Transdisciplinary Perspectives** Prof. Dr. Ali Rhouma, PRIMA Foundation, Barcelona, Spain; Prof. Dr. Floor Brouwer & Prof. Dr. Daniel Karthe, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources
14:05	Moderated discussion
14:15	Looking forward: The Next 100 Questions for WEF & Nexus Research and Policy?

A3: Hands-on demonstration of the NEXOGENESIS Nexus Policy Assessment Tool (NEPAT)

Venue: Seminar Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 10:00 to 11:30

Session Registration: Not required. This session can be accessed by all participants of DNC 2025.

Chairs: Prof. Lluís Echeverria, Universitat Autònoma de Barcelona, Spain and EURECAT Technology Centre, Barcelona, Spain; Prof. Janez Susnik, IHE Delft, The Netherlands

Description

In this session the NEXOGENESIS Horizon2020 project will showcase the Nexus Policy Assessment Tool (NEPAT - https://nepat-dev.nexogenesis.eu/), which combines policies and policy goals, system dynamics modelling of the water-energy-food-ecosystems (WEFE) nexus, machine learning, and a web-based interface to support policy discussion around WEFE nexus/integrated resources management. Five case studies are explorable in the NEPAT from across Europe and South Africa. The interactive session will introduce the NEPAT and give participants the chance to explore the tool in a workshop setting.

Important note: Participants of this workshop are requested to bring their own laptops.

A6: Broadening the dimensions of the WEF nexus: a focus on planetary health

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 10:05 to 11:35

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chairs: Prof. Dr. Tafadzwanashe Mabhaudi (London School of Hygiene and Tropical Medicine, London, UK; United Nations University – Institute for Water, Environment and Health (UNU-INWEH), Richmond Hill, ON, Canada; University of KwaZulu-Natal, Pietermaritzburg, South Africa);
Prof. Dr. Graham Jewitt (Vice-Rector Academic Affairs, IHE Delft, The Netherlands)

Description

The water-energy-food (WEF) nexus has largely focused on the security and sustainability of WEF resources. Critics argue that the resource-centric input approach has reduced its relevance in a world focussing on sustainability and human and environmental well-being outcomes. This session will discuss how focusing on planetary health could help broaden and re-focus the WEF nexus on outcomes linked to gender, human, and environmental well-being and dignified access to WEF resources for all.

Programme

10:05	Welcome by the session chairs; goals and scope of the session
10:10	**Nexus of climate and health indicators** Dr. Ali Shaukat, Research Fellow, The Hospital for Sick Children, Toronto, Canada
10:25	Questions and Discussion
10:30	**The water-energy-food nexus, its relationship with ecosystems, and its role in supporting society** Prof. Dr. Janez Susnik, IHE Delft, The Netherlands
10:45	Questions and Discussion
10:50	**Ecosystem Services: the missing piece in the Water-Energy-Food Nexus discourse** Dr. Anna Sperotto, Ca' Foscari University, Venice, Italy
11:05	Questions and Discussion

11:10 **Incompatibilities in the WEFE-Tourism Nexus: Identifying Sustainability Challenges in Tourism Sector**
Katerina-Shelagh Boucoyannis, University of Padova, Italy [online]

11:25 Questions and Discussion

11:30 Summary and conclusions by the session chairs

B1: Telling the Resource Nexus story with maps

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 08:15 to 09:45

Session Registration: Required? What is the maximum number of participants?

Chairs: Prof. Dr. Petr Kubíček, Head, Department of Geography, Masaryk University, Czech Republic and co-chair of International Cartographic Commission on Cognitive Issues in Geographic Information Visualization; Prof. Dr. Serena Coetzee, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany; Dr. Dajana Snopkova, Department of Geography, Masaryk University, Czech Republic

Description

Join our session to learn about the power of maps in a fun way. Our workshop will commence with an online presentation by Prof Britta Ricker about map design principles, based on the open access book Mapping for a Sustainable World, which she co-authored and is a joint publication with the United Nations and the International Cartographic Association. Subsequently, participants will engage in interactive group work, facilitated by Prof Petr Kubíček, Dr Dajana Snopkova and Prof Serena Coetzee. The groups will then discuss and debate how best to convey Resource Nexus stories on the maps, considering the map design principles presented at the start of the workshop. You will be able to confirm your knowledge about map design principles with a Kahoot quiz.

B3: Nexus Thinking in Action: How Citizen Science Shapes Sustainability

Venue: Resources Hall / Future Hall,
German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 11:45 to 13:15 and 15:20 to 16:50

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Convenors:

Taha Loghmani, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany; TU Dresden, Dresden, Germany: Prof. Dr. Mohammad Gharesifard, University of Groningen, The Netherlands; Dr. Inian Moorthy, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria;
Dr. Anna Berti Suman, LUISS School of Law, Rome, Italy; Margaret Gold, Leiden University, The Netherlands; Dr. Robert Hecht, Leibniz Institute for Ecological Urban and Regional Development (IOER), Dresden, Germany; Polly Hudson, Allan Turing Institute, London, UK

Description

The session will present and expand upon the critical role of citizen-gathered data and societal participation in informing evidence-based policy-making for sustainable development. It will also provide state-of-the-art examples of Citizen Science approaches and their outcomes and impacts. Finally, attendees are invited to take part in breakout sessions to discuss critical topics related to the path ahead for citizen science.

Programme Session B3.1 / Resources Hall / 8 April 2025, 11:45-13:15

11:45	**Welcome by the session chairs; session overview and scope: "Citizen science and the nexus approach: unlocking synergies for sustainable development"** Dr. Mohammad Gharesifard, University of Groningen, The Netherlands Margaret Gold, Leiden University, The Netherlands
11:55	**Keynote (15min) + Q&A (5min): Prof. Dr. Steffen Fritz** Program Director and Principal Research Scholar (Strategic Initiatives Program); Principal Research Scholar (Novel Data Ecosystems for Sustainability Research Group) Advancing Systems Analysis Program International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

12:15	**Talk (8 min) + Q&A (2 min): Citizen-driven actions against water scarcity from a multistakeholder perspective** Dr. Katerina Zourou, Director, Web2Learn, Thessaloniki, Greece
12:25	**Talk (8 min) + Q&A (2 min): Urban ReLeaf: Citizen science for data-informed, resilient cities** Dr. Inian Moorthy, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria
12:35	**Talk (8 min) + Q&A (2 min): Activating the 'Fifth Façade': A Participatory Approach to Climate-Responsive Blue-Green Roofs** Prof. Alcestis Rodi, University of Patras, Greece
12:45	**Talk (8 min) + Q&A (2 min): Co-evaluating and refining citizen engagement methods using citizen science to enhance participation in climate adaptation in Dresden and beyond** Dr. François Jost, European Citizen Science Association (ECSA) and TU Dresden, Germany
12:55	**Talk (8 min) + Q&A (2 min): Methodological Coupling of Citizen Science & Nature-based Solutions (CS-NbS): The Case of the Evapotranspiration Tank (TEvap)** Taha Loghmani, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany; TU Dresden, Dresden, Germany
13:05	**Open Discussion**
13:15	**End of Session B3.1 and invitation to Session B3.2**

Programme Session B3.2 / Future Hall / 8 April 2025, 15:20-16:50

This slot is dedicated to three breakout sessions (tentative), discussing the state-of-the-art discourse on citizen science, covering the most critical themes in relation to adopting and upscaling citizen science in terms of the potential role of the United Nations and its University, scaling up citizen science initiatives, as well as a role-play simulation game to tackle the issue of sustainable finance in citizen science projects. Each breakout starts with a 10-15 minute presentation, followed by a participatory discussion with 5-10 participants per breakout.

15:20	Welcome by the session chairs; session overview and scope

15:25 **Breakout Discussion 1: Breaking the Silos: How to institutionalize and mainstream citizen science at the United Nations. What role can UNU play?**

Dr. Inian Moorthy, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

Dr. Anna Berti Suman, LUISS School of Law, Rome

Taha Loghmani, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany; TU Dresden, Dresden, Germany

15:25 **Breakout Discussion 2: Breaking the Barriers: Scaling up Citizen Science. How can Citizen Science initiatives expand?**

Dr. Robert Hecht, Leibniz Institute for Ecological Urban and Regional Development (IOER), Dresden, Germany

Margaret Gold, Leiden University, The Netherlands

15:25 **Breakout Discussion 3: Nexus of stakeholders to scale sustainable remedies**

Daria Markova, Open affiliation

Dr. Mohammad Gharesifard

16:20 Breakouts debrief and conclusions of the session

16:50 **End of Session B3.2: Thank you and Goodbye**

Session B4: Advancing a Curriculum of the Resource Nexus

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 12:50 to 14:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Private Lecturer Dr. Inéz Labucay (UNU-FLORES, Dresden, Germany), Prof. Floor Brouwer (UNU-FLORES, Dresden, Germany)

Description

The session will feature best practice examples of how the Resource Nexus can be integrated in Higher Education. This includes a variety of approaches such as case studies, systems approaches and other well-proven methods in teaching based on the Resource Nexus Approach which foster students' appreciation of interdisciplinarity and its practical applications. Another focus is the engagement of practitioners, capacity-building and the application of practical tools. The session will showcase examples of how the Resource Nexus can be integrated in MSc degree programs and postgraduate programs throughout the education system, including in the Global South. The session will be concluded by a panel of experts providing an opportunity for exchange and discussion.

Programme

12:50 **Welcome and introduction**
Private Lecturer Dr. Inéz Labucay

12:55 **Training Systems Thinkers of the Future: The Power of Project-Based Interdisciplinary Learning**
Dr. Bassel Daher, Assistant Director for Sustainable Development
Texas A&M Energy Institute, Texas A&M University

13:15 **Resource Nexus for Impact: Strengthening Competencies in Postgraduate Environmental Training**
Dr. Anna Görner, Course Director Centre for International Postgraduate Studies of Environmental Management (CIPSEM), TU Dresden

Dr. Patrícia Gallo, Course Coordinator CIPSEM, TU Dresden

13:35 **Capacity development as a way to accelerate the achievement of Sustainable Development Goals in the Global South**
Professor Janez Susnik, Associate Professor of Water Resources Management, IHE Delft Institute for Water Education

13:55 **Panel discussion**

Aforementioned Speakers:

Professor Bassel Daher, Texas A&M University

Professor Janez Susnik, IHE Delft Institute for Water Education

Dr. Anna Görner, CIPSEM, TU Dresden

Further panelists:

M.Sc. Dominique Schmachtel, Course Coordinator, CIPSEM, TU Dresden

Professor Mirela Sertić Perić, Associate Professor, Department of Biology, University of Zagreb

Professor Serena Coetzee, Head of Resource Nexus Programme (Education) UNU-FLORES

M.A. Christian P. Schneider, Doctoral Researcher, UNU-FLORES and TU Dresden

Private Lecturer Dr. Inéz Labucay, Senior Expert in Education for Sustainable Development UNU-FLORES, Guest Researcher TU Dresden

B5: Launch – Knowledge Academy of the Resource Nexus

Venue: Marta Fraenkel Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 10:00 to 11:30

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Serena Coetzee, Ms. Asha Verma, Ms. Inéz Labucay, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Description

Join us for the launch of the Knowledge Academy for the Resource Nexus (KARE).

10:00 The future of e-learning at the United Nations University
Dr Sabine Becker-Thierry, Executive Office, Secretary of the UNU Council

10:10 The KARE vision
Professor Edel Guenther, Director of UNU-FLORES

10:20 e-learning opportunities for KARE
Professor Daniel Burgos, UNU-FLORES

10:40 KARE plans for the next years
Professor Serena Coetzee, UNU-FLORES Head of Resource Nexus Programme (Education)

10:50 KARE - linkages to education and training by WaterHarmony
Professor Harsha Ratnaweera, UNU-FLORES

11:00 The three Resource Nexus courses
Dr Inez Labucay, UNU-FLORES

11:15 The Rector declares KARE to be launched
Professor Tshilidzi Marwala, Rector of the United Nations University, Under-Secretary General of the United Nations

11:20 Live demo of the Resource Nexus I course
Ms Asha Verma, UNU-FLORES

11:30 Session ends

B6: Navigating Uncertainty: Catalyzing the implementation of Nexus approaches in research and practice through inclusive dialogue and collaboration

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 15:30 to 17:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Ralph Wollmann, Presidential Office, Federal Environment Agency (UBA), Dessau, Germany; Dr. Anna Görner, Centre for International Postgraduate Studies on Environmental Management, TUD Dresden University of Technology, Germany, Dominique Schmachtel, Centre for International Postgraduate Studies on Environmental Management, TUD Dresden University of Technology, Germany, Dr. Patrícia Gallo, Centre for International Postgraduate Studies on Environmental Management, TUD Dresden University of Technology, Germany

Description

The session will use an interactive format to explore the context of implementation of Nexus approaches from an actor's perspective and to identify barriers to inclusive dialogue and cooperation. We will use a combination of two dialogue-oriented tools: Pinakarri and a World Café format. The Pinakarri tool will be used to set the context and facilitate deep listening, while the World Café format will involve participants in a collaborative dialogue to develop and refine a dialogue model and explore use cases.

During the session, participants will have the opportunity to engage in a World Café discussion in one of at least three topics:

- What are barriers to inclusive dialogue and how to overcome them?
- What do engaged actors, willing to meet a sustainability challenge, need to take action?
- What do (unwilling) but relevant actors need to get motivated for new alliances?

The session will also include a presentation of a low-barrier dialogue model and its core principles, as well as an overview of real cases from the previous working process and two examples presented by sustainability actors from the Global South.

By using these two tools, we aim to uncover new leverage points for action and co-create innovative, non-traditional solutions to drive changes toward a sustainable and equitable future.

C1 - Water–energy–food nexus approaches in the context of groundwater management in Central Asia

Note: This is a shared session slot. It is preceded by ***Session F5: Arctic and subarctic rivers under climate change and mining impacts*** in the same slot.

Venue: Plenary, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 12:40 to 13:15

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Dr. Ulan Kasymov, International Institute Zittau, TU Dresden, Germany; Dr. Ahmad Hamidov, Leibniz Centre for Agricultural Landscape Research (ZALF), Müncheberg, Germany

Description

The concept of the water–energy–food (WEF) nexus promotes the balanced governance of the highly interconnected sectors and resources. In Central Asia, water and energy play an important role in producing food. Groundwater, in particular, is a vital source of water for people for various purposes, including irrigation, domestic, and industrial use. Water availability and quality differ between Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan), depending on several factors – geology, precipitation, and human activities. However, groundwater overexploitation and contamination negatively impact on the environment and local communities. As water availability is limited in the region, it is important to monitor and protect groundwater as an alternative source of water. The availability of groundwater allows for greater regional adaptive capacity against water shortages or droughts. In this session, we explore the interdependence between groundwater, energy, and food systems, acknowledging their critical interconnections and the implications for sustainable development in this region.

Programme

12:40 Welcome by the session chairs; session overview and scope

12:42 **Impact of Soil Surface Temperature on Changes in the Groundwater Level**
Javlonbek Ishchanov, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, Uzbekistan

12:50 Questions and Discussion

12:53 **Analysing Groundwater Governance in Uzbekistan through the Lenses of Social-Ecological Systems and Informational Governance**
Dr. Ulan Kasymov, International Institute Zittau, TU Dresden, Germany

13:01 Questions and Discussion

13:04 **Enhancing transboundary water cooperation in Central Asia through the Water-Energy-Food Nexus Approach: opportunities and challenges**
Dr. Bunyod Holmatov, International Water Management Institute, Colombo, Sri Lanka

13:12 Questions and Discussion

13:15 Conclusions of the session

C5: Using a Theory of Change to foster impact of WEF+ Nexus projects: practical insights

Venue: Seminar Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 08:15 to 09:45

Session Registration: Please register for this session: https://go.unu.edu/x9pbe

Chair(s)/Moderator(s): Dr. Stefania Munaretto, KWR Water Research Institute, Nieuwegein, The Netherlands; Caro Moreen, Copernicus Institute, Utrecht University, The Netherlands and KWR Water Research Institute, Nieuwegein, The Netherlands; Sabina Khan, Helmholtz Centre for Environmental Research (UFZ), Leipzig, Germany

Description

Concept: In the growing field of Water-Energy-Food (WEF) Nexus research, a Theory of Change (ToC) approach offers a systematic way to clarify pathways to impact and to map out how various interventions can achieve intended goals. However, applying this approach to the WEF+ Nexus context—where issues are highly complex, interlinked, and transdisciplinary—requires careful consideration of the unique characteristics and needs of nexus research and stakeholder engagement therein. This workshop will explore how a Theory of Change (ToC) can be utilized to help researchers and stakeholders identify, track, and measure key project components like activities, outputs, outcomes, and pathways to impact while remaining accountable to funders. Participants will reflect on how to use a ToC approach, sharing experiences and insights specific to WEF+ Nexus projects.

Objectives

1. **Clarify the Role of Theory of Change**: Understand how a ToC can be applied in WEF+ Nexus projects to define and align activities, outputs, and outcomes with impact objectives while remaining accountable to funders.
2. **Highlight Opportunities and Constraints**: Discuss, using practical examples, opportunities and limitations of using a ToC in complex, multi-stakeholder WEF+ nexus projects.
3. **Create Actionable Insights**: Synthesize findings from discussions into an action guide that project leaders can use to better define and track project outcomes and impact pathways with the research team and relevant stakeholders.

Workshop Format

1. **Setting the scene: Theory of Change and its application to WEF+ projects (15 mins)**

- **Description**: A presentation: 1) introducing ToC, distinctions between activities, outputs, outcomes and impacts and its relevance for WEF+ Nexus projects; 2) setting the scene for breakout discussion about how researchers and stakeholders can use a ToC to co-design and implement WEF+ Nexus projects that have realistic outcomes and impacts while remaining accountable to funding agencies.
- **Objectives**: This session aims to set a common understanding among participants and build the foundation of the subsequent breakout discussion.

2. **Interactive Breakout Sessions (50 mins)**

- **Description**: In breakout groups (max 3-4 individuals per group) participants will: 1) exchange on their own experiences and challenges to deliver outcomes and impact in Nexus projects (15 min); 2) reflect on how applying a ToC could/would help overcome those challenges (15 min); and 3) sketch a draft ToC with realistic outcomes and impact for a chosen project example (20 min).
- **Documentation**: Each group will document their discussions and key insights, contributing to a shared document of takeaways.
- **Outcome**: Generate a list of practical challenges and proposed solutions associated with implementing a ToC to better define and track outcomes and impact in Nexus projects.

3. **Plenary reflection and closing (20 min)**

- **Description**: One participant per group will present the main points from the breakout sessions, capturing key takeaways. Participants will have a chance to reflect on and refine these insights collectively.
- **Outcome**: The breakout groups and plenary notes will be consolidated in one document that will be used to develop an action guide that Nexus project leaders can use to integrate ToC effectively in their work.

Workshop Deliverables

- **Action Guide.** The findings of the workshop along with expert insights from members of the EU COST Action NexusNET will be used to develop an action guide summarizing key insights, strategies, and best practices for using Theory of Change in WEF+ Nexus projects. This will include recommendations for designing a WEF+ project with a ToC, engaging stakeholders to align project outputs with long-term outcomes and impact and addressing the unique challenges of using ToC in Nexus contexts.

Expected outcome: Attendees will leave with a clearer understanding of the ToC approach and how it can be applied in WEF+ Nexus projects to promote impact.

Target audience: This workshop is ideal for Nexus project leaders, stakeholders, researchers, and PhD students eager to refine their impact strategies and learn how a ToC can facilitate transformative change within WEF+ Nexus projects.

C6: Water-energy-food nexus and systems modelling to secure a sustainable and maximizing resource self-sufficiency at the local scale

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 11:45 to 13:15, 15:20 to 16:50

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Luís Miguel Pereira Dias (NOVA School of Science and Technology, Lisboa, Portugal)

Description

The integrated perspective of Water-Energy-Food (WEF) nexus framework require adequate tools and methodologies that capture all WEF systems dynamics and interdependencies. In the context of progressive intensification of multilevel challenges such as urbanization, population growth, climate change and resource scarcity, there's a necessity of tools that support solutions for sustainable resource management and the support for policy decision making.

This session explores various WEF nexus modeling approaches and decision-support frameworks that to enhance sustainability and resource security at the local and national level. Speakers will present case studies of diverse tools applied at various geographical scales. The studies cover approach's that optimize synergies and mitigate trade-offs across sectors and WEF systems, such as machine learning, participatory simulation models, and integrated risk-resilience frameworks. The session also will highlight results from the pratical applications of WEF systems modeling, including scenario-based planning and transboundary cooperation strategies. Discussions will focus on enhancing WEF local resilience through optimal policy interventions, technological adoption, and stakeholder engagement.

Programme Session C6.1: 11:45 to 13:15

11:45 - 12:00	WEF systems modelling at the local scale - Context and relevance - Session introduction Luís Pereira Dias
12:00 - 12:15	Synergies and trade-offs in the water-energy-food (WEF) security nexus: Implications for household livelihood resilience in South Africa Thulani Ningi

12:15 - 12:30	Interrelationships between landuse changes, climate-induced disasters and community livelihoods: A case of Wayanad, India SK Pramada
12:30 - 12:45	Promoting Climate Resilience and Sustainability through Integrated Water-Energy-Food Ecosystem Approaches in South Asia Mohsin Hafeez
12:45 - 13:00	Operationalising the WEFE Nexus in agriculture-intensive transboundary river basins: using a co-created simulation model to explore long-term policy interventions for the Lielupe River Basin (Lithuania and Latvia) Henry Amorocho-Daza
13:00 - 13:15	Session discussion

Programme Session C6.2: 15:20 to 16:50

15:20 - 15:35	An open-source water-energy system simulator accessible online Julien Harou
15:35 - 15:50	Integrated Risk-Resilience (IRR) Models and Strategies for Water Hazards: Lessons and Experiences from India Anil Kumar Gipta
15:50 - 16:05	A Machine Learning tool to assess climate and land use change implications for water quality: a nexus perspective Anna Sperotto
16:05 - 16:20	The Nexus of Food-Land-Biodiversity Development Targets in Ethiopia: A Modeling Approach Yonas Getaneh Sahile
16:20 - 16:35	Cross-sectional analysis of relationships between the water-energy-food security nexus trade-offs and synergies: a network analysis approach Thulani Ningi
16:35 - 16:50	Session discussion and closing remarks

C9: Building Nexus Resilience: Addressing Migration and Conflicts in Water-Energy-Food Systems

Venue: Seminar Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 15:30 to 17:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Dr. Bassel Daher, Assistant Director for Sustainable Development, Texas A&M Energy Institute, Texas A&M University, College Station, TX, USA; Prof. Dr. Floor Brouwer, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Description

The session will explore key open questions and case studies at the intersection of human mobility and water, energy, and food systems, emphasizing the interdependence of their interdependence in contexts of forced and climate-induced migration.

C10: Best practices in WEF+ Nexus: Showcasing impactful projects

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 09 April 2025, 17:15 to 18:45

Session Registration: Open to all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Mirela Sertić Perić (University of Zagreb, Croatia); Prof. Edyta Hewelke (Warsaw University of Life Science, Poland), Juliana Gomes Chediek (University of Coimbra)

Description

This 90-minute session combines a scientific panel discussion and an interactive workshop to explore best practices in assessing the impact of WEF+ Nexus projects. It will feature brief presentations on exemplary WEF+ Nexus projects, followed by a workshop where participants will validate recommendations for impact assessment. A panel discussion will capture diverse perspectives, and participants will share insights on lessons learned and the applicability of proposed methodologies (recommendations). The session aims to refine strategies for evaluating Nexus project impacts and contribute to policy recommendations.

The session is prepared by the NexusNet COST Action (CA20138) members: Mirela Sertić Perić, Edyta Hewelke, Hai-Ying Liu, Janez Sušnik, Floor Brouwer, Ivar Zekker, Barbora Duží, Dimitros Kofinas, Stefania Munaretto, Giannis Adamos, Chrysi Laspidou

Details

This session will combine a **Scientific Panel Discussion** with a **Workshop** format, structured in three distinct parts to facilitate both expert insights and interactive participant engagement.

Part 1: Introduction and presentations (20 minutes)

- **Objective**: Set the stage by introducing key questions around assessing impact of the WEF+ Nexus projects
- **Format**:
- Brief overview of **exemplary WEF+ Nexus projects**:
- **NEXOGENESIS Project**
- **NEXUSNET Cost Action**
- **Sustainable Aquaculture Practices in Norway**
- Focus on **best practices** from each project in **defining and achieving outputs, outcomes, and impacts**.
- **Panel Discussion (10 minutes)**: The panelists will briefly discuss the key findings, emphasizing how these projects assess their impacts and the methods they use.

- **Recommendations for assessing project impacts**: Introduction of a **list of proposed recommendations** for evaluating the impact of Nexus projects, developed based on the case studies presented.

Part 2: Workshop – Testing and validating recommendations (40 minutes)

- **Objective**: Engage participants in evaluating and testing the effectiveness of the proposed recommendations for assessing Nexus project impacts.
- **Format**:
- Using the conclusions from Part 1, participants will work in small groups to **validate a list of recommendations**.
- Each group will focus on testing the practicality, applicability, and relevance of the recommendations based on the case studies presented.
- **Facilitated group work**: Groups will discuss how to assess the real impact of Nexus projects, identifying strengths and gaps in the proposed methodologies.
- Each group will present their findings and feedback (briefly) at the end of the workshop part.

Part 3: Panel-led discussion and reflection (30 minutes)

- **Objective**: Capture diverse perspectives on WEF+ Nexus project impacts and refine the recommendations.
- **Format**:
- **Panel discussion (15 minutes)**: Led by the panelists, this segment will draw out insights from the workshop findings and reflect on the applicability of the proposed recommendations for real-world Nexus projects.
- The panel will facilitate a discussion on **lessons learned**, exploring how the tested methodologies might be adapted or refined for broader application.
- **Open floor (15 minutes)**: Participants will be invited to share their findings and personal experiences from the workshop. The floor will be open for **questions, feedback, and further discussion**, allowing for a wide range of perspectives on defining and assessing impacts in Nexus projects.

Outcome

- **Objective**: Validate and refine the recommendations for assessing the impact of Nexus projects.
- **Deliverables**:
  - **Insights for refining the recommendations**: Based on the workshop and panel discussion, participants will help fine-tune realistic strategies for assessing project impact.
  - **Policy brief recommendations**: Formulate recommendations for integrating the findings into a policy brief, leveraging insights from the session to inform future strategies for Nexus project impact assessment.

Key takeaways

- **Practical recommendations** for assessing project impacts.
- Diverse perspectives from both experts and participants on the effectiveness of Nexus impact assessment methodologies.
- **Actionable insights** for incorporating the findings into ongoing and future Nexus initiatives.

C11: Energy in the Resource Nexus

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 12:30 to 14:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s): Prof. Dr. Dominik Möst, Dresden University of Technology – TU Dresden, Germany

Programme

12:30-12:40	Welcome by the session chair; session overview and scope
12:40-12:50	**Economic feasibility and political risk of an e-methanol trade route between Côte d'Ivoire and Germany** Marcel Kottrup, RWTH Aachen University, Aachen, Germany
12:50-12:55	Questions and Discussion
12:55-13:05	**Land Use Trade-offs of Energy Transition Pathways across Global North and South** Thuc Han Tran, Leibniz Institute of Ecological Urban and Regional Development (IOER), Dresden, Germany
13:05-13:10	Questions and Discussion
13:10-13:20	**The transition to electric mobility: a Resource Nexus dilemma?** Daniel Karthe, UNU-FLORES, Dresden, Germany
13:20-13:25	Questions and Discussion
13:25-13:35	**Yunnan (PR China) and the water-resource nexus. How the WIHDR (World Index on Hydropower, Dams and Reservoirs) enriches the framing of water-resources nexus using Yunnan as case study** Thomas Hennig, Philipps-University Marburg, Marburg, Germany
13:35-13:40	Questions and Discussion
13:40-13:50	**The Water-Energy Nexus in Afghanistan: Challenges and Opportunities for Sustainable Energy Development**

	Ahmad Ansari, Helmand University, Lashkar Gah, Afghanistan; Philipps-University Marburg, Marburg, Germany
13:50-13:55	Questions and Discussion
13:55-14:00	Conclusions of the session

D2: Sustainable Futures after Mining: Leveraging the Resource Nexus for Transition

*This session integrates the proposed session **B2: Stakeholder Engagement in Post-Mining Land Restoration and Land Use.***

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time:
9 April 2025, 10:00 to 11:30 /12:50 to 14:20 / 15:30 to 17:00
10 April 2025, 12:30 to 14:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chairs:
Dr. Alexey Alekseenko (UNU-FLORES, Dresden, Germany);
Dr. Gareth Simpson (WSP, Newcastle, Australia);
Mr. Dennis Pulimittathu (G20 GLI, UNCCD, Bonn, Germany);
Ms. Vera Braun (TU Dresden, Germany);
Ms. Ghada Amin (UNU-FLORES, Dresden, Germany).

Description

The session brings together more than 20 experts from **Africa, Asia, Australia, Europe, and South America** to explore innovative and exnovative approaches to post-mining sustainability.

Case studies will **present solutions** ranging from **phosphate mining residue optimization** and **zinc recovery from mine drainage** to **nature-based restoration practices** and **biodiversity development**.

Cutting-edge technologies, such as **spectral sensing for circular economy applications** and **bioprospecting of microalgae for heavy metal tolerance**, will also be **explored**.

Socio-economic and governance aspects will be examined through perspectives on **just transition**, **economic models for post-mining land use**, and **stakeholder engagement strategies for land restoration**.

By integrating insights on resource recovery, ecosystem services, climate resilience, and sustainable land-use planning, this session aims to shape a holistic Resource Nexus vision for post-mining regions worldwide.

The session consists of two thematic parts:
From Saxony to the World (Slots 1 and 4) and ***Global Perspectives (Slots 2 and 3)***.

Programme

Slot 1: Wednesday 9 April 2025, 10:00 to 11:30 ▪ ***From Saxony to the World***

10:00-10:10	Introduction
Pres.: 10:10-10:20 **Q&A:** 10:20-10:25	Post-mining landscapes: Opportunities for biodiversity development and sustainable land use under challenging water, soil, and geo-conditions Prof. Dr. **Arne Cierjacks** University of Applied Sciences (HTW) Dresden, Germany
Pres.: 10:25-10:35 **Q&A:** 10:35-10:40	LaNDER3: A Regional Bioeconomy Network - Challenges and Solutions in the Lusatian Area Prof. Dr. **Jens Weber**; Dr. Matthias Kinne Hochschule Zittau / Görlitz, Germany
Pres.: 10:40-10:50 **Q&A:** 10:50-10:55	Impulse: Scenario Planning for Stakeholder Engagement in Envisioning Post-Mining Land Restoration and Regeneration **Stefanie Kast** Hochschule Zittau / Görlitz, Germany
Pres.: 10:55-11:05 **Q&A:** 11:05-11:10	Considerations, Methods and Examples for Reducing Planning Risks for Water Tourism Facilities on Mining Pit Lakes Dr. **Torsten Heyer** Dresden University of Technology (TUD), Germany
Pres.: 11:10-11:15 **Q&A:** 11:15-11:20	After-use-oriented mining rehabilitation as an example of sustainable development opportunities; The use of Iron-Hydroxide-Sludge for soil improvement **Jörg Schlenstedt** Lusatian and Central German Mining Administration Company (LMBV), Germany
11:20-11:30	Free discussion

Slot 2: Wednesday 9 April 2025, 12:50 to 14:20 ▪ ***Global Perspectives***

Pres.: 12:50-13:00 **Q&A:** 13:00-13:05	Integrating the Sustainable Development Goals and Water-Energy-Food Nexus into Post-Mining Land Use Selection Dr. **Gareth Simpson**[1]; Kim Ferguson[2]; Dr. Neeltje Slingerland[2]; Raina Hattingh[3]; Prof. Dr. Graham Jewitt[4]; Zoe Simpson[5] [1] WSP Australia; [2] WSP Canada; [3] Whitehaven Coal; [4] IHE Delft Institute for Water Education; [5] Department of Social Services, Australia
Pres.: 13:05-13:15 **Q&A:** 13:15-13:20	Climate Change and Mining Induced Subsidence - Anthropogenic Perpetual Burdens Gain Value (An Ideas Sketch) Dr. **Bodo Bernsdorf**; Prof. Dr. Tobias Rudolph; Marcin Pawlik Georg Agricola University of Applied Sciences (THGA), Germany
Pres.: 13:20-13:30 **Q&A:** 13:30-13:35	Advancing Mining Education for a Sustainable Future Dr. **Maria Mamelkina**; Prof. Dr. Ritva Tuunila LUT Unviersity, Finland
Pres.: 13:35-13:45 **Q&A:** 13:45-13:50	A regenerative integrated crop and livestock model as a post mining land use for socio-economic and environmental benefits Prof. Dr. **Wayne Frederick Truter**; Dr. Emmanuel Cele Green Futures Hub; University of the Free State, South Africa
Pres.: 13:50-14:00 **Q&A:** 14:00-14:05	Destroying nature to protect the planet? Impacts of decarbonisation on water and energy consumption of mining energy transition minerals Prof. Dr. **Frank Winde** Wismut GmbH, Germany; North-West University, South Africa
14:05-14:20	Free discussion

Slot 3: Wednesday 9 April 2025, 15:30 to 17:00 ▪ ***Global Perspectives***

Pres.: 15:30-15:40 **Q&A:** 15:40-15:45	Are nature-based solutions the key to sustainable landscape restoration and rehabilitation practices in Southern Africa? Prof. Dr. Wayne Truter[1]; **Philip Ayres**[2] [1] Green Futures Hub, University of the Free State; [2] Green Futures Hub, University of the Free State & Life Green Group Pty Ltd, South Africa
Pres.: 15:45-15:55 **Q&A:** 15:55-16:00	The eternal task of water - a key to a sustainable future in the Ruhr area? **Prof. Sebastian Westermann** Georg Agricola University of Applied Sciences (THGA), Germany
Pres.: 16:00-16:10 **Q&A:** 16:10-16:15	Ida-Viru Just Transition: Progress and Challenges in Post-Mining Regional Development **Meelis Kuusk** Association of Local Authorities of Ida-Viru County, Estonia
Pres.: 16:15-16:25 **Q&A:** 16:25-16:30	Advancing Social Life Cycle Assessment (SLCA) for Sustainable Artisanal Gold Mining: Addressing Organized Crime and Ecosystem Impact in Nangaritza, Ecuador **Albert Martin Baena Regel** Dresden University of Technology (TUD), IHI Zittau, Germany
Pres.: 16:30-16:40 **Q&A:** 16:40-16:45	Optimizing Blue Panicgrass Performance on Phosphate Mining Residues Dr. **Anass Bourazza**; Prof. Dr. Abdelaziz Hirich; Jamal Ben Abbas Mohammed VI Polytechnic University (UM6P), Morocco
16:45-17:00	Free discussion

Slot 4: Thursday 10 April 2025, 12:30 to 14:00 ▪ ***From Saxony to the World***

Pres.: 12:30-12:40 **Q&A:** 12:40-12:45	Economic Perspectives of Post-Mining Land Use: A Resource Nexus Approach for Sustainable Transitions Dr. **Matthias Walz** UN University, Germany
Pres.: 12:45-12:55 **Q&A:** 12:55-13:00	recomine – Innovative technologies for holistic mine waste treatment concepts **Philipp Büttner**[1,2]; Dr. Jonathan Engelhardt [1] [1] Helmholtz-Zentrum Dresden-Rossendorf (HZDR); [2] Helmholtz Institute Freiberg for Resource Technology (HIF), Germany
Pres.: 13:00-13:10 **Q&A:** 13:15-13:20	Spectral Sensing for a Circular Economy: Transitioning Mine Waste into Resources **Hernan Flores** Georg Agricola University of Applied Sciences (THGA), Germany
Pres.: 13:20-13:30 **Q&A:** 13:30-13:35	Zinc Recovery from Abandoned Mine Drainage: Insights from the Freiberg Mining Region, Germany **Janith Abeywickrama**; Dr. Nils Hoth Freiberg University of Mining and Technology (TU BAF), Germany
Pres.: 13:35-13:45 **Q&A:** 13:45-13:50	Harnessing Technology for Sustainable Food Production: Resource Management through Controlled Environment Agriculture Dr. **Felix Krujatz**[1]; Prof. Dr. Stefan Streif[2] [1] Chemnitz University of Technology / biotopa gGmbH, Germany; [2] Chemnitz University of Technology, Germany
Pres.: 13:50-14:00 **Q&A:** 14:00-14:05	Bioprospecting of microalgae tolerant to heavy metals, cadmium, chromium, and copper, from old mining areas in Saxony **Khongorzul Mungunkhuyag**[1]; Dr. Juliane Steingroewer[1]; Prof. Dr. Thomas Walther [1]; Dr. Felix Krujatz[2] [1] Dresden University of Technology (TUD), Germany; [2] Chemnitz University of Technology, Germany

D5: Exploring trajectories in the water-energy-food-ecosystems nexus to support policy and decision-making

Venue: Marta Fraenkel Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 15:30 to 17:00, 17:15 to 18:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof Janez Susnik (IHE Delft, The Netherlands), Dr. Chrysaida-Aliki Papadopoulou (National Technical University of Athens, Greece)

Description

In this session the aim is to showcase projects and initiatives that explore trajectories and pathways in the WEFE nexus from an integrated modelling perspective. A particular focus is on complementing models and machine learning technologies to yield new information for policy and decision support. Such developments represent the very latest in WEFE nexus research with a policy-facing angle, making nexus science increasingly actionable. Cases from the Global South are encouraged to submit presentations, as are cases representing a diverse set of issues and concerns related to sustainable integrated natural resources management. Papers should be predominantly quantitative in focus, but illustrate the utility for policy and decision support.

Programme

15:30 System dynamics modelling to explore policy impact trajectories to 2050 in the water-energy-food-ecosystems nexus in the Inkomati-Usuthu Water Management Area, South Africa
Janez Sušnik

15:45 A methodological framework for assessing the coherence of Water-Energy-Food-Ecosystem nexus policies: illustration and application in practice
Caro Mooren

16:00 Integrating the Resource Nexus into UN Policy: A Systems Approach to Sustainable Resource Governance

Matthias Walz

16:15	Monitoring the resource footprint of Germany to support policy-making *Philip Nuss*
16:30	Integrating Social-Ecological System and Nexus approaches to understand water scarcity in a mountain catchment in Northern Italy *Enrico Lucca*
17:00-17:15	Session break
17:15	Energy and water sharing trajectories for East Africa *Julien Harou*
17:30	A System Dynamic Model for policy impact assessment within the WEFE nexus in the Jiu River basin, in Romania *Sara Masia*
17:45	Development and application of the Water-Energy-Food-Ecosystems Footprint *Blaine Haupt*
18:00	Tailored empowerment program for sustainable urban transformation: exploring transformative impact from sustainability and community empowerment perspectives *Olga Ivlieva*
18:15	Nexus Governance Roadmaps as Tools for Mapping 'Whole-of-Society' Pathways for Change: South African Experience *Sabina Khan*

D6: Sustainability inside out – challenges and best practice

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 15:20 to 16:50

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Rune Bjerke & Prof. Dr. Arne Nygaard, Kritiana University College, Oslo, Norway

Description

In this session, Sustainability Inside Out, we explore the challenges and practices of sustainability through real-life projects and case studies.

Programme

15:20	Welcome by the session chairs; session overview and scope
15:25	**Sustainability Leadership in Practice: Juggling External and Internal Sustainability in a Norwegian Football Club** Prof. Dr. Irmelin Drake, Kritiana University College, Oslo, Norway
15:35	Questions and Discussion
15:38	**The "Floating Office" Concept: Transforming Institutional Practices through the Sustainability Nexus** Atiqah Fairuz Binte Md Salleh, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources
15:48	Questions and Discussion
15:51	**Opening the black box: the organizational fit of partnerships for sustainable development** Montserrat Koloffon Rosas, Vrije Universiteit Amsterdam, The Netherlands
16:01	Questions and Discussion
16:04	**How We Make Saxony Greener – A Generational Project** Anna-Karina Kemper, Landgut Kemper & Schlomski, Liebstadt, Germany
16:14	Questions and Discussion
16:17	**Implementing the Water, Energy, Food, Transport and Health Nexus approach to enhance Biodiversity resilience and achieve climate**

	neutrality at European level Alexandra Ioannou, University of Thessaly, Greece
16:27	Questions and Discussion
16:31	**WEFE Bridging Framework - The experience of Nexus planning in the BONEX project** Rafael Casielles, Bioazul, Málaga, Spain
16:41	Questions and Discussion
16:44	Conclusions of the session

D7: Economic Prospects of Saxon Post-Mining Regions

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 10:00 to 11:30

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair: Dr. Matthias Walz

Description

How can former mining regions transition into thriving hubs of innovation and economic growth? This high-level panel brings together experts from politics, finance, and industry to explore bold strategies for turning post-mining landscapes into engines of sustainable development. From innovative financing models to new business opportunities, the discussion will reveal how Saxony's expertise can set a global precedent for successful economic transformation. Join us to discover how policy, investment, and entrepreneurial vision can reshape the future of mining regions.

Programme (preliminary)

10:00	**Introduction** Dr. Matthias Walz, UNU-FLORES
10:15	**Presentation on Post-Mining Measures, Works and Services** Dr. Alexey Alekseenko, UNU-FLORES
10:30	**Panel Discussion on Development of Post-Mining LandUse Services in Saxony** Mr. Thomas Brandenburg, LEAG Clean Power GmbH Mr. Jörg Huntemann, Saxon State Ministry of Infrastructure and Regional Development Mr. Daniel Näser, Sächsische Aufbaubank-Förderbank (SAB)
11:00	Questions and Discussion with audience, Conclusions

D8: Industry, business and finance perspectives on the Resource Nexus

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, Slot 1 – from 15:30 to 17:00, Slot 2 – from 17:15 to 18:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Dr. Matthias Walz, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany

Description

This session explores the intersection of finance, sustainability, and resource management in agriculture and industry, highlighting diverse strategies for sustainable business models, green investments, and innovative financial mechanisms. Experts from across the globe will present case studies and analyses on sustainable economic transitions and business opportunities in Africa, Asia and Europe, providing valuable insights into the role of innovation, as well as finance and policy instruments.

Programme Slot 1 – 15:30 to 17:00

15:30-15:40	Welcome by the session chair; session overview and scope
15:40-15:55	**Doing Sustainable Business in Africa - Two Case Studies** Christoph Schmitt, State Chancellery of the Free State of Saxony, Dresden, Germany
15:55-16:00	Questions and Discussion
16:00-16:10	**Role of agriculture subsidies in climate change: Transition towards sustainable agrifood system in Pakistan** Muhammad Afaq, UNU-IAS, Tokyo, Japan
16:10-16:15	Questions and Discussion
16:15-16:25	**How do Financial Instruments affect agricultural sustainability in India: A Resource Nexus Perspective** Vaibhav Aggarwal, UNU-FLORES, Dresden, Germany
16:25-16:30	Questions and Discussion

16:30-16:40	**A Plastic Credit based Approach to Financing Plastic Pollution Collection and Abatement: A case study approach from Nairobi Kenya** Raghuvir Raghav Das, Alexander von Humboldt Foundation, Bonn, Germany
16:40-16:45	Questions and Discussion
16:45-17:00	Overall discussion

Programme Slot 1 – 17:15 to 18:45

17:15-17:20	Welcome by the session chairs
17:20-17:30	**Systematic Literature Review on Green Investment in Industrial Parks: An Extended Framework and Embedded Resource Nexus Strategies** Prashant Kumar, UNU-FLORES, Dresden, Germany
17:30-17:35	Questions and Discussion
17:35-17:45	**Sustainable Heat Supply for Greenhouses with Heat Pumps in Remote Areas of Uzbekistan - Initial Economic Analysis** Bahtiyor Eshchanov, New Uzbekistan University, Tashkent, Uzbekistan
17:45-17:50	Questions and Discussion
17:50-18:00	**Exploring the Duality of Formal and Informal Controls in Driving Eco-Innovations** Thomas Guenther, Dresden University of Technology, Dresden, Germany
18:00-18:05	Questions and Discussion
18:05-18:15	**Bio-based cleaning agents for industrial cleaning** Celin Richter, intelligent fluids, Leipzig, Germany
18:15-18:20	Questions and Discussion
18:20-18:40	Overall discussion
18:40 – 18:45	Conclusions of the session

E1: Leveraging New Technologies and the Nexus Approach for Landslides and Land Subsidence Risk Mitigation: Challenges, Opportunities, and Integrated Solutions [AID]

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 8:15 to 9:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chairs:

Dr. Fatma Canaslan Çomut, AFAD - Disaster & Emergency Authority, Ankara, Türkiye
Prof. Alok Bhardwaj, Indian Institute of Technology (IIT), Roorkee, India
Prof. Mahdi Motagh, Leibniz University Hannover, Germany
Prof. Kaveh Madani, UNU-INWEH, Richmond Hill, Ontario, Canada

Description

This session focuses on cutting-edge methodologies for monitoring, mapping, and managing landslides and ground movements using advanced geospatial technologies. Presentations will explore high-precision monitoring techniques, integrated disaster management systems, and regional case studies from China, India, Türkiye, and Iran.

Programme

8:15-8:25	Welcome by the session chairs; session overview and scope
8:25-8:35	**Study on High-Precision Landslide Monitoring Employing Dihedral Corner Reflector Arrays** Jie Liu, Wuhan University, Wuhan, Hubei, China
8:35-8:40	Questions and Discussion
8:40-8:50	**Leveraging Geospatial Technology for Landslide Studies in Indian Himalayas** Alok Bhardwaj, Indian institute of Technology Roorkee, Roorkee, Uttarakhand, India
8:50-8:55	Questions and Discussion

8:55-9:05	**Monitoring and Mapping Disaster-Induced Ground Movements in Türkiye with an Integrated Disaster Management System** Fatma Canaslan Çomut, Disaster and Emergency Management Presidency (AFAD), Denizli, Türkiye
9:05-9:10	Questions and Discussion
9:10-9:20	**Land subsidence in Iran: Current Status and Challenges** Mahdi Motagh, Leibniz University Hannover, Germany
9:20-9:25	Questions and Discussion
9:25-9:45	Conclusions of the session

E2: Nexus Between Environmental Risks and Resources for Sustainable Urban Transformation

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 10:00 to 11:30

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s):

Dr.-Ing. Georg Schiller, Leibniz Institute of Ecological Urban and Regional Development, Dresden, Germany

Dr.-Ing. Riyan Habeeb, Leibniz Institute of Ecological Urban and Regional Development, Dresden, Germany

Description

In the global urban and environmental context, the nexus between environmental risks and resource management is crucial for sustainable urban transformation. Circular economy and resilience are key drivers in this process. Rapid urbanization has increased pressure on natural resources for building construction and increased environmental risks, including climate extremes. For example, resource-intensive urbanization has exacerbated the urban heat island effect and contributed to urban flooding through land sealing. Therefore, the integration of environmental risk management and efficient resource use is essential for a sustainable urban environment.

Sustainable Development Goal 11 targets more resilient and sustainable cities. However, despite awareness of urbanization trends and environmental risks, current policies and practices often fall short of creating synergies between resilience and resource efficiency. A significant challenge lies in aligning timeframes for short- and long-term goals related to resilience and resource efficiency, as well as the circular economy.

Resilience addresses both short-term adaptation to immediate crises, like disaster recovery, and long-term adaptation to climate risks. However, resilience efforts often focus on immediate recovery, whereas circularity aims for long-term sustainability by optimizing resource life cycles to minimize environmental impacts. Circularity's long-term benefits, such as waste reduction and resource conservation, support resilience by fostering adaptive systems. However, short-term crisis responses, such as using non-circular materials, can conflict with circularity's goals. Sustainable urban transformation prioritizes long-term systemic change, requiring alignment between resilience and circularity, especially in short-term adaptations.

This session aims to explore the nexus between resilience and circularity, with a focus on the built environment. It considers various fields and thematic areas, such as flooding, drought, heat, and

circular construction. The central question is how to harmonize both approaches, particularly in terms of their temporal dimensions. It will address key areas of tension, often researched separately in industrial ecology, especially within sustainable urban systems and socio-economic metabolism section. The session is based on a comprehensive literature analysis that is being currently developed into a forum paper.

Programme

10:00 – 10:10	Welcome by the session chairs; session overview and scope
10:10-10:18	**Exploring the Temporal Nexus between Climate Risks and Circularity for Sustainable Built Environment: A Resource Perspective** Riyan Habeeb, IOER, Dresden, Germany
10:18-10:23	Questions and Discussion
10:23-10:31	**Can the Resource Nexus guide improvements in Urban Planetary Health?** Rayyan Sulieman, UNU-FLORES, Dresden, Germany
10:31-10:36	Questions and Discussion
10:36-10:44	**NewCityConcepts: A Participatory Approach to the Resource Nexus in Sustainable Urban Transformation** Juliane Dziumla, UNU-FLORES, Dresden, Germany
10:44-10:49	Questions and Discussion
10:49-10:57	**An Integrated Approach to the Nexus of Flood Resilience and Resource Efficiency Using the Example of a Single-Family House** Regine Ortlepp, IOER, Dresden, Germany
10:57-11:02	Questions and Discussion
11:02-11:10	**Uneven Green, Uneven Heat: A Spatial Justice Analysis of Urban Green Space Distribution and Heat Islands in Delhi** Ravindra Singh, Jawaharlal Nehru University, New Delhi, India
11:10-11:15	Questions and Discussion
11:15-11:23	**Wooden construction in buildings: Trade-off between circular building materials and indoor summer heat resilience** Christoph Schünemann

11:23-11:28	Questions and Discussion
11:28-11:30	Conclusions of the session

E3: A Systems Approach for Disaster Risk Reduction: Exploring the Nexus of Energy, Food, and Human Mobility

Venue: Seminar Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 17:15 to 18:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Dr. Konstantinos Pappas, Associate Director, Texas A&M Energy Institute, Texas A&M University, College Station, TX, USA; Prof. Silva Hamie, Department of International Affairs, Texas A&M University, College Station, TX, USA

Description

This session will be a panel discussion with the following experts:

Joining in person:

- Abdullah Konak, Distinguished Professor of Information Sciences and Technology at Pennsylvania State University, USA

Joining online:

- Alberto Ibanez, global lead of the Solar Energy + Wash program at the International Organization for Migration
- Animesh Kumar, Head of UNDRR's Bonn Office, or a representative from the UNDRR Bonn Office.
- Iqbal Mujtaba, Professor of Computational Process Engineering at the University of Bradford, UK
- Alessandro Pagano, Assistant Professor of Hydraulic Systems at the Polytechnic University of Bari.

F3: Environmental Resource Nexus Approaches for Sustainable Water and Ecosystem Management

Note: This session integrates the session proposals F1 - Nexus Approach for Coastal Climate Resilience Building Against Sea Level Rise, F4 - Water & Energy Resources in MENA Area Under Rising Climatic and Geopolitical Uncertainties, and H1 - Biological invasions in an era of global environmental change.

Venue: Seminar Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 12:50 to 14:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025. [Change if needed]

Chair(s)/Moderator(s): Prof. Timothy Dube, Institute for Water Studies, University of the Western Cape, Cape Town, South Africa; Prof. Dr. A.K.M. Saiful Islam, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh; Dr. Essam Heggy, University of Southern California / NASA Jet Propulsion Laboratory, Los Angeles, CA, USA; Prof. Dr. Mohsen Mesgaran, University of California, Davis, CA, USA; Prof. Dr. Mark van Kleunen, University of Constance, Germany

Programme

12:50	Welcome by the session chairs; session overview and scope
12:55	**Building Climate-Resilient Infrastructures in Coastal Bangladesh through Nature-Based Solutions** Prof. Dr. A.K.M. Saiful Islam, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
13:05	Questions and Discussion
13:08	**Planning climate-resilient urban neighbourhoods with local water cycles in Leipzig** Dr. Ganbaatar Khurelbaatar, Helmholtz Centre for Environmental Research, Leipzig, Germany
13:18	Questions and Discussion
13:21	**Bridging participatory co-design with bio-economic modeling: a methodological framework from the DIONYSUS project** Dr. Veronica Bonomelli, Mediterranean Agronomic Institute of Montpellier (CIHEAM IAMM), France
13:31	Questions and Discussion

13:34	**Googling Weeds Along the Roads** Prof. Dr. Mohsen Mesgaran, University of California, Davis, CA, USA
13:44	Questions and Discussion
13:47	**Global environmental change as a driver of plant invasions** Prof. Dr. Mark van Kleunen, University of Constance, Germany
13:57	Questions and Discussion
14:00	**Opportunities for Leveraging Artificial Intelligence to Connect Policy, Research and Management in Biological Invasions** Philipp Rohbeck, University of Melbourne, Australia
14:10	Questions and Discussion
14:13	Conclusions of the session

F5: Arctic and subarctic rivers under climate change and mining impacts

Note: This is a shared session slot. Session ***C1 - Water–energy–food nexus approaches in the context of groundwater management in Central Asia*** follows in the same slot.

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 11:45 to 12:40

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Michal Habel, Kazimierz Wielki University, Bydgoszcz, Poland

Description

In the arctic and subarctic areas of North of Eurasia and America, climate change and degraded permafrost introduce a pronounced specificity in terms of the hydrological system development. The fast and profound nature of this hydrological change consists of altered runoff, intensified sediment transport, biogeochemical processes, and river ecosystems.

This session addresses questions of polar hydrology, hydrogeochemistry, water resources management and their interactions. We expect to discuss outputs of long-term observational datasets, ongoing research field campaigns, as well as the global, regional and local models to implement Nexus approach for arctic and subarctic rivers.

Programme

11:45	Welcome by the session chair; session overview and scope
11:48	**Hydrodynamic and Sediment Transport Interactions in Ice-Dominated Arctic Estuaries** Prof. Dr. Michal Habel, Kazimierz Wielki University, Bydgoszcz, Poland
11:56	Questions and Discussion
12:00	**Understanding Water-River Connectivity in Arctic Deltas: Testing Remote Sensing Sediment Indices** Wojtek Bober, Kazimierz Wielki University, Bydgoszcz, Poland
12:08	Questions and Discussion
12:12	**Estuarine Sediment Dynamics Assessment of an Arctic Flow Regime: Case Study of Tana River Estuary** Rituparna Acharyya, Kazimierz Wielki University, Bydgoszcz, Poland
12:20	Questions and Discussion

12:24 **The impacts of mining on subarctic river systems under climate change: a Resource Nexus perspective**
Prof. Dr. Daniel Karthe, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources

12:32 Questions and Discussion

12:36 Conclusions of the session

F6: Managing Water at the Core of the Resource Nexus

Venue: Plenary Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 10:00 to 11:30 and 12:30 to 14:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Taha Loghmani, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany; Dr. Taher Kalil, Dr. Bárbara Willaarts and Amanda Palazzo, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

Description

Recognizing water as a fundamental connector within the Resource Nexus framework and the growing emphasis on integrated approaches to resource management, this session aims to showcase innovative research, including modeling, governance assessments, or integrated approaches combining hard and soft methods regarding the critical role of water in shaping science-based policies featuring nexus issues from regions facing different types of challenges for sustainable management and planning of the Resource Nexus.

Programme Slot 1: 10 April 2025, 10:00 to 11:30

10:00	Welcome by the session chairs; session overview and scope
10:05	**Water Resilience and Climate Adaptation: A Global Challenge** Prof. Dr. Jürgen Stamm, TU Dresden, Germany; Prof. Dr. Mukand Singh Babel, Asian Institute of Technology, Asian Institute of Technology (AIT), Bangkok, Thailand
10:15	Questions and Discussion
10:20	**The Cost of Wetland Loss in terms of Human Lives** Prof. Dr. Marinus L. Otte, North Dakota State University, Fargo, ND, USA
10:30	Questions and Discussion
10:35	**"Laying the Groundwork: A Biophysical Baseline Assessment for Water Security in the Face of Climate Change"** Polao Ishmael Moepi, National University of Lesotho
10:45	Questions and Discussion

10:50 **Towards a universal metric to evaluate the true cost of water across spatial and temporal scales.**
Quirina Rode-Gutzmer, Friedrich-Schiller University, Jena

11:00 Questions and Discussion

11:05 **Impact assessment of climate and land use change on the water-energy-food nexus: An application to the Ping River Basin, Thailand**
Kaushal Chapagain, Asian Institute of Technology (AIT), Bangkok, Thailand

11:15 Questions and Discussion

11:20 Conclusions of the session

Programme Slot 2: 10 April 2025, 12:30 to 14:00

12:30 Welcome by the session chairs; session overview and scope

12:35 **Analyzing the Interactions of Water Scarcity Driving Factors Using a Simultaneous Equations Model through Water-Energy-Food-Ecosystems (WEFE) Nexus approach: A Case Study from Mahi Basin, India**
Nagashree Gowdajjagala Ekanthappa, Indian Institute of Technology Roorkee, India

12:45 Questions and Discussion

12:50 **Bayesian Network Modeling of Water-Energy-Food Nexus: The Case of Peace River Basin, Canada**
Dr. Lina Wu, University of Sasketchewan, Canada

13:00 Questions and Discussion

13:05 **Are water-related Nature-based Solutions (NbS) assessed to their full multi-benefit potential? A Resource Nexus perspective review.**
Taha Loghmani, United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Dresden, Germany

13:15 Questions and Discussion

13:20 **Assessing Contaminant Accumulation and Transport Beneath Railway Embankments: Supporting Future Herbicide Regulations in Germany**
Lúcia Pedrosa, TU Bergakademie Freiberg, Germany

13:30 Questions and Discussion

13:35 **Citizen-driven actions against water scarcity from a multistakeholder perspective**
Dr. Katherina Zourou, Web2Learn, Thessaloniki, Greece

13:45 Questions and Discussion

13:50 Conclusions of the session

F7: Water sensitive cities in Colombia: Adaptation of public spaces to climate change with Nature-Based Solutions (NBS)

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 14:30 to 15:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025. [Change if needed]

Chair(s)/Moderator(s): Prof. Dr. Raul Marino, University of El Rosario, Bogotá, Colombia; Alejandra Riveros, Urban Mapping Agency, Bogotá, Colombia

Description

This session will present and discuss the recently published report on Water-Sensitive Cities in Colombia, published by the University of El Rosario (Colombia), Urban Management and Development program of the Faculty of International, Political and Urban Studies, and Urban Mapping Agency.

Adapting cities and public spaces to climate change is crucial, especially in regions like Colombia, where the El Niño/Niña climate oscillations are altering rainfall patterns, causing constants droughts and floods. This will increase the vulnerability of both urban and rural populations to flooding, landslides, sea-level rise, droughts, water shortages, and wildfires. Cities need to interact more harmoniously with their environment, particularly regarding water systems and the urban water cycle, and transition towards a better relationship with its urban ecosystems. Currently, public space design standards in Colombia do not include Nature-Based Solutions (NBS) such as rainwater capture, treatment for reuse in buildings and irrigation of green spaces, leading to the waste of valuable potable water and severe water rationing measures. Integrating NBS into public space design can also help reduce urban temperatures, particularly in dense, central areas, and decrease flood risks from heavy rains.

Our research objective was to assess the potential for adopting NBS in selected public spaces in three Colombian cities with different altitudes, climates, and urban morphologies: Bogotá, Bucaramanga, and Cartagena. The potential for NBS in selected public spaces was evaluated with a water balance modeling, NBS location suitability modeling using GIS-MCDA analysis, and public space co-design workshops with communities, local administrations, NGOs and academia in the case study cities. The results show that adopting NBS in public spaces and developing urban design guidelines for their implementation and evaluation can be a valuable strategy to improve water governance and prepare cities for climate change improving urban ecosystem services in Colombia.

➔ More information and access to the English version of the report

F8: Monitoring Framework for the Quantification of Nexus-Smart Water Governance

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 10:05 to 11:35

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Dr. Maria Vrachioli, TU Munich, Germany; Juan Pablo Henao Henao, TU Munich, Germany; Pietro Sala, TU Munich, Germany

Description

Improving integrated water management relies on the application of monitoring frameworks, capable of capturing all the relevant dimensions of water governance. The OECD Indicator Framework is the first attempt to fulfil this goal. The objective of the proposed workshop is to showcase an alternative framework, developed within the RETOUCH NEXUS project, which combines the OECD framework with the most recent literature on the topic, to provide a comprehensive perspective on NEXUS-Smart Water Governance. An introduction to the framework will be followed by a training session with the most relevant data sources identified.

We will discuss a refined list of indicators, a monitoring framework, as well as publicly available data sources and assessment strategies for such indicators. The proposed monitoring framework allows assessing policy outcomes and understanding the interactions between the Water, Energy, Food and Ecosystems (WEFE) Nexus. The indicators within our framework support decisions related to water allocation, the distribution of water-related benefits, and the formal and informal institutions involved in the decision-making processes regarding water management. For the assessment of indicators within our monitoring framework, a step-by-step procedure is suggested. In the first step, the most relevant indicators can be selected for the given context. This is done for both the qualitative and quantitative dimensions. The subsequent steps vary depending on the type of indicator. We identify publicly available data sources for quantitative ones, and we describe how qualitative can be assessed. Whenever data is unavailable, we explore alternative options. We conclude by highlighting the lessons learned and the implications for cross-sectoral water governance policy-making.

F9: Governing the Groundwater Nexus: Knowledge, Motivation and Agency

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 10 April 2025, 12:30 to 14:00

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s):

Claudia Ringler, International Food Policy Research Institute (IFPRI), Washington, DC, USA

Johannes Münch, Federal Institute for Geosciences and Natural Resources (BGR), Hannover, Germany

Description

Groundwater is an increasingly vital common pool resource that is also a quintessential nexus construct as the source is increasingly essential for water and food security but requires energy for lifting. While there are many institutional tools for governing groundwater, there are no universal solutions, and successes are rare. This session will discuss different tools and approaches for better coordination across actors and improved management of the resource. These approaches can use water, energy or food as the entry point.

Programme

12:30	Welcome by the session chairs; session overview and scope: Johannes and Claudia
12:35-12.45	**The role of groundwater policy and governance for water and food security in Ethiopia and beyond** H.E. Seleshi Bekele, Ethiopia (online, TBD)
12:45-12:55	**Strengthening Groundwater Governance in SSA: A New Tool for Sustainable Resource Management** Johannes Münch, Federal Institute for Geosciences and Natural Resources (BGR)
12:55-13:05	**Groundwater governance in Ghana: The role of knowledge, motivation and agency** Claudia Ringler, International Food Policy Research Institute
13:05-13:15	Questions and Discussion
13:15-13:25	**Shallow Aquifer Management in Urban Areas in India: A Nexus-Driven Approach for Water Resilience** Kaur Ishleen, National Institute of Urban Affairs

13:25-13:35	**Unwatering the Fields: Analyzing Incentives for Crop Diversification amid Groundwater Crisis in India** Disha Gupta, Indira Gandhi Institute of Development Research (online)
13:35-13:45	**WEFE nexus approaches to groundwater management in South Asia: lessons for Central Asia** Matthew McCartney, International Water Management Institute
13:45-14:00	Discussion and Conclusions

G1: Agroecological Futures: Insights from Nexus Assessments and Approaches

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, Slot 1 – 8:15 to 9:45; Slot 2 – 10:00 to 11:30; Slot 3 – 12:50 to 14:20

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s):

Dr. Christoph Woiwode, Leibniz Institute of Ecological Urban and Regional Development (IOER), Dresden, Germany

Prof. Rune Bjerke, Kristiania University College, Oslo, Norway

Dr. Claudia Ringler, Director, International Food Policy Research Institute,

Description

This session explores innovative approaches to sustainable agroecological production, resource management, and climate resilience through the Water-Energy-Food-Ecosystem (WEFE) Nexus. Presentations will showcase cutting-edge research and practical solutions addressing sustainability challenges across diverse contexts, from aquaculture in Norway to hydroponics in Morocco and wastewater management in India.

Key themes include:

- Digital innovations in waste management and food systems transformation
- Climate-smart agriculture and water-efficient food production
- Circular economy approaches in aquaculture and dairy processing
- Governance strategies for reversing agricultural poverty and enhancing drought resilience

Case studies from Türkiye, Tunisia, Rwanda, Brazil, and beyond will highlight how integrated resource management can drive sustainability and food security.

Programme

Slot 1 – 8:15 to 9:45

8:15-8:20	Welcome by the session chairs; session overview and scope
8:20-8:30	**Strategic Sustainability Challenges and Practice in the Norwegian Aquaculture Industry** Rune Bjerke, Kristiania University College, Oslo, Norway

8:30-8:35	Questions and Discussion
8:35-8:45	**Eat Your City: Co-Imagining Tomorrow's Vertical Foodscapes** Atiqah Fairuz Binte Md Salleh, UNU-FLORES, Dresden, Germany
8:45-8:50	Questions and Discussion
8:50-9:00	**From data to impact: the potential of digital waste management solutions to prevent food waste and transform food systems** Dominik Leverenz, DTU - Technical University of Denmark, Lyngby, Denmark
9:00-9:05	Questions and Discussion
9:05-9:15	**Hydroponic Culture: A WEFE Nexus Approach for Sustainable Agricultural Production in Morocco Amid Climate Change** Said Meftah, University Hassan I, Settat, Morocco
9:15-9:20	Questions and Discussion
9:20-9:30	**Design and Construction of a WEFE (Producing Healthy Food in Harmony with Nature and Using Renewable Energy and Water Efficiently) Proven Demonstration Unit in Taşarası Village of Türkiye** Tanay Sıdkı Uyar, İstanbul Beykent University, Istanbul, Türkiye
9:30-9:45	Questions and Discussion

Slot 2 – 10:00 to 11:30

10:00-10:10	Welcome by the session chairs
10:10-10:20	**Water Quality as a Key Connector in the WEFE Nexus for Reclaimed Water Reuse in Agriculture: The Case of Ouardanine, Tunisia** Olfa Mahjoub, National Research Institute for Rural Engineering, Water and Forestry - INRGREF, Ariana, Tunisia
10:20-10:25	Questions and Discussion
10:25-10:35	**Assessing Wastewater Footprint of Dairy Milk Processing Units in Punjab (India) for Sustainable Water Management** Shruti Chopra, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab, India [ONLINE]

10:35-10:40 Questions and Discussion

10:40-10:50 **Modelling the uptake of agroecological practices: insights from a global exercise**

Charlotte Chemarin, Alliance of Bioversity International and CIAT, Montferriez-sur-Lez, France [ONLINE]

10:50-10:55 Questions and Discussion

10:55-11:05 **An Analysis of the Use of Network Management Approach through Water-food-energy nexus to Reverse Agricultural Poverty in Rwanda**

Aimable Mukama, Rwanda Mines Petroleum and Gas Board, Kigali, Rwanda

11:05-11:10 Questions and Discussion

11:10-11:20 **Enhancing Drought Resilience through the WEF Nexus: A Case Study of Smallholder Farmers in Çanakkale**

Abdullah Konak, Penn State Berks, Reading, USA

11:20-11:30 Questions and Discussion

Slot 3 – 12:50 to 14:20

12:50-13:00 Welcome by the session chairs

13:00-13:10 **The Nexus of Climate Change Risks with Land and Water Governance: Transforming the agro-food system in the Chennai metropolitan region (India)**

Christoph Woiwode, Leibniz Institute of Ecological Urban and Regional Development (IOER), Dresden, Germany

13:10-13:15 Questions and Discussion

13:15-13:25 **Duckweed as a NEXUS solution? Learnings from an innovation transfer project in Brazil**

Tilman Reinhardt, GFA - General Agent of the German Federal Ministry of Food and Agriculture for the Bilateral Cooperation Programme, Berlin, Germany

13:25-13:30 Questions and Discussion

13:30-13:40	**Integrating the Climate-Water-Vegetation Nexus for a comprehensive Assessment of Agricultural Drought Risk** Hela Hammami, UNU-FLORES, Dresden, Germany
13:40-13:45	Questions and Discussion
13:45-14:20	Extended discussion and conclusions of the session

G2: Fertilizers in the Nexus

Venue: Future Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 8 April 2025, 11:45 to 13:15

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Prof. Dr. Rainer Quitzow, TU Berlin and Research Institute for Sustainability, Potsdam, Germany; Prof. Dr. Andreas Goldthau, Director of the Willy Brandt School of Public Policy, Erfurt University, Germany

Description

Rainer Quitzow will give a presentation focusing on fertilizers at the centre of a nexus perspective that considers the dimensions of food, energy, climate and environment and security. He will not only sketch how trends in the sector are affecting the relationships between these variables, but also offer conceptual thoughts on the nexus concept that this raises. The presentation will be followed by a discussion with representatives from research, government, civil society and the fertilizer/chemical industry as well as the audience.

Programme

Presentation

The nexus of geopolitics, decarbonization, and food security gives rise to distinct challenges across fertilizer supply chains
Rainer Quitzow

Panel Discussion followed by Q&A

Claudia Ringler, International Food Policy Research Institute (IFPRI)

Markus Bosch, SKW Piesteritz

Elisabeth Kriegsmann, International PtX Hub

Tina Marie Jahn, INKOTA e.V.

Moderation: Andreas Goldthau, Universität Erfurt

H3: Soil Health and Resource Nexus

Venue: Resources Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 17:15 to 18:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s):

Prof. Nima Shokri, Hamburg University of Technology, Hamburg, Germany

Prof. Gergely Tóth, Institute of Advanced Studies Kőszeg (iASK), Kőszeg, Hungary

Description

Healthy soil is crucial to ensure life on Earth. It is essential for ecosystem services and functioning, access to clean water, socioeconomic structure, biodiversity, and food security for the growing global population.

Healthy soils will help to mitigate climate change's effects and reduce the consequences of extreme events such as floods and droughts.

Healthy soils influence the hydrologic cycle via its consequences on transpiration, water infiltration, and soil water evaporation affecting land-atmosphere interactions.

Plant growth is severely impeded in “unhealthy” soil leading to reduced crop productivity. Desertification, soil organic carbon cycle modification, and worsening economic opportunities, which may lead to human migration, are only a few detrimental consequences of unhealthy soils.

Programme

17:15-17:20	Welcome by the session chairs; session overview and scope
17:20-17:30	**Soil Health in Coal Mining Areas: A Global Geochemical Perspective** Alexey Alekseenko, UNU-FLORES, Dresden, Germany
17:30-17:33	Questions and Discussion
17:33-18:43	**From Degradation to resilience: Geospatial Deterministic Estimation of Soil Erosion to Safeguard the Lesotho-South Africa Water Transfer Project** Polao Ishmael Moepi, National University of Lesotho, Roma, Lesotho

17:43-17:46	Questions and Discussion
17:46-17:56	**Impact of microplastics on thermal and radiative properties of soil** Milad Aminzadeh, Hamburg University of Technology, Hamburg, Germany
17:56-17:59	Questions and Discussion
17:59-18:09	**Status and outlook of soil quality based soil resources use in the European Union** Gergely Tóth, Institute of Advanced Studies Kőszeg (iASK), Kőszeg, Hungary
18:09-18:12	Questions and Discussion
18:12-18:22	**How does groundwater table influence heatwave occurrences globally?** Anastasia Vogelbacher, Hamburg University of Technology
18:22-18:25	Questions and Discussion
18:25-18:40	Panel Discussion
18:40-18:45	Conclusions of the session

H4/S6: Resource Nexus Perspectives on Sustainable Buildings and Construction

Venue: Marta Fraenkel Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 9 April 2025, 8:15 to 9:45

Session Registration: Not required; this session can be accessed by all participants of DNC 2025.

Chair(s)/Moderator(s): Isabela de Paula Salgado, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany

Programme

8:15	Welcome by the session chair
8:20	**The Global Alliance for Buildings and Construction** Mona Abdulghani Naji Mohammed, Programme Management Officer, UNEP and Global Alliance of Buildings and Construction
8:35	Questions and Discussion
8:40	**Living Art of Building** Prof. Dr. Edeltraud Günther, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany
8:55	Questions and Discussion
9:00	**From Waste to Wealth: Assessing the Impact, Challenges, and Opportunities of the Kishangarh Marble Dumping Yard through the Nexus Lens** Kratika Sharma, Malaviya National Institute of Technology Jaipur
9:15	Questions and Discussion
9:20	**Sustainability Nexus Assessment for the evaluation of new composite materials in the construction sector - A Systematic Literature Review** Waseem Ashraf, United Nations University – Institute for Integrated Management of Material Fluxes and of Resource (UNU-FLORES), Dresden, Germany
9:35	Questions and Discussion
9:40	Conclusions of the session

4. Side Events

This is a draft programme and subject to change. Please check for updates on the conference website.

Pre-conference side event

SE 1: Doctoral Researchers Workshop on the Resource Nexus

Venue: United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Ammonstr. 74, 01067 Dresden, Workshop Room (Room 9.2, 9th floor)

Date and Time: 7 April 2025, 10:00 to 13:00

Registration: Please complete this registration form if you would like to attend the workshop.

Moderators: Prof. Dr. Serena Coetzee, Ms. Dinara Dikhanbaeva

Join us for a morning of networking and exchange about your doctoral research. You will get firsthand exposure to the new e-learning courses in the UNU-FLORES Knowledge Academy of the Resource Nexus (KARE), and the opportunity to discuss / engage on the role of environmental resources in your doctoral research. There will be some fun activities and a surprise. Meet doctoral researchers from all over the world, all of them with an interest in improving the integrated management of environmental resources. We will start at 10:00 on the 9*th* floor of the World Trade Centre (Ammonstr 74). At 13:00 we will have lunch together in the cafeteria (at your own expense) (EUR 8-15 per person). Registration is compulsory but free of charge.

For any questions, you can email Dinara Dikhanbayeva dinara.dikhanbayeva@unu.edu. A limited number of seats is available – we will handle registrations on a first-come-first-serve basis.

Pre-conference side event

SE 2: Measuring Urban Water Security

A hands-on training with WATSAT (Water Security Assessment Tool)

Venue: United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Ammonstr. 74, 01067 Dresden, Workshop Room (9th floor)

Date and Time: 7 April 2025, 13:30 to 17:30

Workshop Registration: Please register by 31 March 2025 via https://go.unu.edu/djnuY. To ensure an interactive format, the workshop is limited to a maximum of 30 participants. Workshop registration is independent from registration from the Dresden Nexus Conference.

Moderators: Prof. Dr. Mukand S. Babel, Dr. Kaushal Chapagain

Water is central to human security. It constitutes a prerequisite for food and energy production, but is also closely interlinked with culture, and well-being. Effective water management influences nearly every aspect of society, which is why achieving water security is among the top priorities of government policies across the globe. While formulating policies to enhance water security are important, even more crucial is monitoring the changes brought about by implementing these policies.

As we cannot manage what we cannot measure, this hands-on workshop will introduce participants to the WATSAT (Water Security Assessment Tool) that is meant to address this very need: How to measure water security?

WATSAT comprises a three-layered structure – dimensions, indicators and variables – that form the basis for calculating a Water Security Index (WSI). It features five dimensions and twelve indicators and provides users with a substantial list of potential variables to ensure that indicators can be covered in diverse settings. The tool has been developed to make it as user-friendly as possible, keeping in mind that its actual design purpose is to facilitate city authorities and decision-makers to make an objective evaluation of the water security situation and foster practical solutions to improve water security in the city.

WATSAT has been developed by the Asian Institute of Technology (Thailand), the National Institute of Urban Affairs (India), Thuyloi University (Vietnam), Tribhuvan University (Nepal), and Central University of Rajasthan (India) with financial support from the Asia-Pacific Network for Global Change Research (APN).

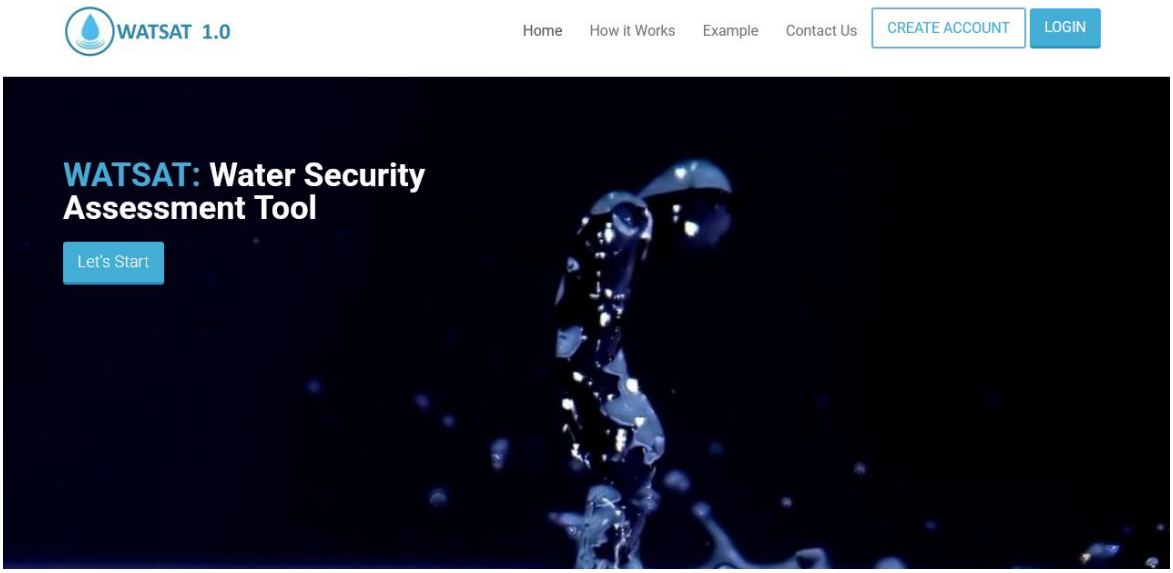


Figure 1: Web interface of the WATSAT tool at www.watsat.org

Figure 2: Structure of the water security index in WATSAT

Post-conference side event

SE 3: Driving the Nexus together - A community of Nexus Experts for KARE

Venue: United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Ammonstr. 74, 01067 Dresden, Workshop Room (Room 9.2, 9th floor)

Date and Time: 11 April 2025, 10:30 to 12:30

Registration: Please complete this registration form if you would like to attend the workshop: https://go.unu.edu/tqRkZ

Moderators: Prof. Dr. Serena Coetzee, Dr. Inéz Labucay, Ms. Asha Verma

We at UNU-FLORES are establishing the **Knowledge Academy for the Resource Nexus (KARE)** with the aim to empower scientists, practitioners, citizens, policy and decision makers with Resource Nexus thinking on the pathway to a resource-neutral, sustainable society. At the heart of KARE are three self-paced and interactive e-learning courses on the Resource Nexus.

We are inviting high-level experts to join the KARE community to share their knowledge and experience via KARE. At the same time this is an opportunity to showcase your work, reach a wider audience of both emerging scientists and practitioners, and to extensively widen and deepen your Resource Nexus network.

If you are interested in becoming part of the community, please join us for the workshop and complete the registration form linked above.

For any questions, please do not hesitate to send an email to Ms. Asha Verma a.verma@unu.edu or to Private Lecturer Dr. Inéz Labucay inez.labucay@unu.edu

SE 4: Towards an International Standard for the Resource Nexus

Venue: Nexus Hall, German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden
For the workshop on 11 April 2025: United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Ammonstr. 74, 01067 Dresden, Workshop Room (Room 9.2, 9th floor)

Date and Time: 10 April 2025, 10:00 to 11:30, and 11 April 8:00 to 10:00 (workshop)

Session Registration: Not required; this session can be accessed by all participants of DNC 2025. [Change if needed]

Chairs: Prof. Dr. Edeltraud Guenther, Prof. Dr. Serena Coetzee, UNU-FLORES, Dresden, Germany

Moderator: Dr. Saroj Chapagain, UNU-FLORES, Dresden, Germany

Description

The Resource Nexus which calls for an integrated management of environmental resources constitutes a key strategy for addressing interconnected environmental problems that include climate change, biodiversity loss, the degradation of soil, changes in global and hydrology, materials' overconsumption and the pollution of the terrestrial and marine environment. However, the complexity of these interdependencies and a multitude of different definitions present significant challenges not only for policymaking, but also for the application of Resource Nexus approaches in industry and the service sector. Establishing clear terminology and international standards is crucial for advancing the Resource Nexus as a tool for environmental assessment, including specifically life cycle assessment (LCA).

Programme SE 4.1 – 10 April 2025, 10:00 to 11:30 (at DMHD)

10:00	Welcome by the side event moderator, Dr. Saroj Chapagain Aims and logistics of the side event
10:05	**The EU Taxonomy for Sustainable Activities** Prof. Dr. Marzia Traverso, Director, Institute of Sustainability in Civil Engineering, RWTH Aachen, Germany
10:25	Questions and Discussion
10:30	**Developing standards for environmental assessment: Experiences from ISO subcommittee ISO/TC 207/SC 5 Life cycle assessment** Prof. Dr. Peter Saling, Director Sustainability Methods, BASF SE, Ludwigshafen, Germany

10:50	Questions and Discussion
10:55	**Discussion: How can we best advance the Resource Nexus in international standards** Moderated by Prof. Dr. Edeltraud Guenther & Prof. Dr. Serena Coetzee, UNU-FLORES, Dresden, Germany
11:25	Conclusions and outlook to continuation of the side event

Programme SE 4.2 – 11 April 2025, 08:00 to 10:00 (at UNU-FLORES)

08:00	Welcome by the side event moderator, Dr. Saroj Chapagain Aims and logistics of the side event
08:05	**Towards a Resource Nexus Standard: What is there, what is needed? Introduction to the workshop** Prof Dr. Edeltraud Guenther, UNU-FLORES and Prof. Dr. Peter Saling, Director Sustainability Methods, BASF SE, Ludwigshafen, Germany
08:10	**Work in breakout groups**
08:55	Coffee Break
09:05	Continuation of group work
09:30	**Sharing the results of breakout groups**
09:45	**Outlook: Roadmap towards standardizing the Resource Nexus approach** Prof Dr. Edeltraud Guenther, UNU-FLORES and Prof. Dr. Peter Saling, Director Sustainability Methods, BASF SE, Ludwigshafen, Germany

SE 5: Business Meets Science & Exhibition

Venue: German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

Date and Time: 09 April 2025, 09:00 to 17:00

Registration: Open to all participants of DNC 2025.

Organizers: Ms. Dana Marschner, Ms. Juliane Dziumla, Ms. Sonja Hahn-Tomer, Ms. Johanna Schäpling

Description

The Business Meets Science networking event at DNC 2025 provides a platform for exchange between scientists, businesses, and policymakers, fostering strategic collaborations and innovative solutions for sustainable resource management. Participants gain insights into industry perspectives, explore research-driven innovations, and engage in discussions on bridging the gap between science and practice. The event offers opportunities to connect with decision-makers, discover potential partnerships, and contribute to shaping sustainable business models through scientific expertise.

List of exhibitors

- Intelligent Fluids GmbH
- CTC - Center for the Transformation of Chemistry
- World Trade Center Dresden
- Algenwerk by PUEVIT GmbH
- ZEUSS - Central EU Service Saxony
- Heartucate GmbH
- futureSAX GmbH
- Landesamt für Geobasisinformation Sachsen (GeoSN)

SE6: Exhibition of Sculptures by Jens Galschiøt

Venue: Outside German Museum of Hygiene Dresden (DMHD), Lingnerplatz 1, 01069 Dresden

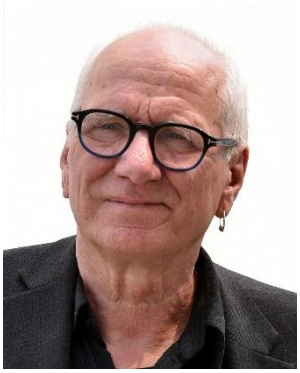
Date and Time: 8 April 2025 until 10 April 2025

Registration: Not required; the sculptures are accessible in the outside area. Please make sure not to damage anything!

Artist: Jens Galschiøt, Galleri Galschiøt, 5270 Odense N, Danmark

Description

Jens Galschiøt is known internationally as one of the most important modern artists of Denmark. The trained blacksmith, self-taught silversmith and sculptor produces small fine figures to giant, politically charged sculptures, many of which highlight the current imbalance in the world.



Source: Wikipedia

"Double Standard"

With closed eyes and scales in hand, the Western goddess of justice, Justitia, proclaims:

I am sitting on the back of a man.

He is sinking under my burden.

I will do anything to help him.

Except stepping down from his back.

The sculpture uses the age-old symbols of inequality between rich (the large well-fed figure) and poor (the starving figure).

We will do anything to help, unless it is inconvenient for us.

“Refugees”

“Freedom to Pollute”

The 6m high replica of the Statue of Liberty symbolizes the selfish “Freedom to Pollute” attitude of the rich countries.

The statue has become an icon for sustainable development in Denmark and in Germany.

Photos are taken from the website of Jens Galschiøt and modified by AI-based background removal.

SE 7: Office Tour: The Flexible Office Concept in Practice

Venue: United Nations University – Institute for Integrated Management of Material Fluxes and of Resources (UNU-FLORES), Ammonstr. 74, 01067 Dresden, Lounge (Room 9.1, 9th floor)

Date and Time: 10 April 2025, 10:00 to 10:30

Session Registration: The tour will take place on demand. Please send an email to dziumla@unu.edu to register

Chairs: Atiqah Fairuz Salleh, Juliane Dziumla

Description

The Flexible Office: Concept for RESource Optimisation (FLORES) represents a shift away from conventional fixed desk arrangements towards a more adaptable and needs-based workspace. Designed with input from UNU-FLORES staff, the concept aims to improve space efficiency, support collaboration, and enhance overall workplace sustainability. By allowing employees to choose their workstations based on specific tasks and preferences, the design accommodates diverse working styles while making optimal use of office resources.

This short office tour will provide an overview of the FLORES concept and its implementation at the UNU-FLORES offices in the World Trade Center Dresden. Participants will gain insights into the design principles, the key factors influencing the concept, and how the approach contributes to a more flexible and resource-efficient work environment.