



CONCEPT NOTE

Enhancing the Food-Water-Energy Nexus: Insights from Experience and Forward Strategies

30 October, 09:00 – 16:45 (Skopje/Geneva)

Background

The sustainable management of food, water, and energy resources is increasingly vital for achieving the 2030 Agenda for Sustainable Development. These systems are deeply interconnected through the Food-Water-Energy (FWE) Nexus, where pressures on one resource can significantly impact others. For instance, water availability affects agricultural yields and hydropower generation, while energy production requires significant water inputs for extraction, processing, and cooling. Simultaneously, agriculture accounts for the majority of global freshwater withdrawals and is both a consumer and potential producer of energy resources. Climate change, rapid urbanization, geopolitical tensions, and evolving socio-economic dynamics further intensify these interdependencies, demanding integrated, innovative solutions for sustainable resource governance.

In urban environments, the critical resources of food, water, and energy are profoundly interconnected. The assessment and mapping of food availability can illuminate these relationships, revealing synergies and trade-offs within this nexus. A core focus involves enhancing collective capacity to implement integrated approaches and effectively combining them with Nature-based Solutions (NBS) and renewable energy (RE). This emphasizes the crucial interplay between food systems, water availability, usage, sanitation needs, and the critical raw materials vital for energy transition and increased urban resilience. Innovative, integrated nature-based solutions—such as urban food trees—can significantly improve urban food security, strengthen nexus approaches, and contribute directly to combating the effects of climate change.

The Food-Water-Energy (FWE) nexus extends to critical raw materials, essential for renewable energy technologies like solar, wind, and electric vehicles. These materials, including cobalt, lithium, and rare earth elements, are vital for low-carbon transitions. However, their extraction and processing pose significant environmental and social challenges, such as water use and pollution. Integrating critical raw materials into nexus thinking is crucial for circularity, resilience, and sustainability. This approach helps mitigate supply chain vulnerabilities by promoting circular economy principles like





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recycling and reuse, ultimately balancing economic growth with environmental stewardship and social equity.

This session aims to deepen the understanding of the FWE nexus and highlight how integrating critical raw materials and energy systems into nexus strategies can enhance resilience and circularity. It will gather policymakers, experts, industry stakeholders, and regional actors to exchange experiences, share case studies, and discuss actionable pathways for sustainable, inclusive resource management globally with a special focus across Eastern Europe, South-Eastern Europe, Caucasus, Central Asia, the Middle East, and Africa.

Objectives

- Enhance understanding of the Food-Water-Energy Nexus and its critical role in sustainable development and climate resilience.
- Highlight the strategic importance of water resources, particularly for arid regions such as Central Asia, Middle East and North Africa for agricultural productivity, energy generation and regional stability
- enhance the understanding of how to implement integrated approaches and effectively combine them with Nature-based Solutions, specifically focusing on the interplay between food systems, water, energy, and urban resilience in urban environments.
- Explore the interlinkages between critical raw materials and energy systems within the broader nexus framework. Identify circular economy solutions and integrated governance approaches that strengthen resource security and resilience.
- Share regional experiences and best practices in managing nexus interdependencies and securing sustainable supply chains.
- Discuss guidelines, innovative tools, and partnerships to promote sustainable resource management.

Target Group

Policymakers, technical experts, private sector actors, academia, international organizations and civil society engaged in managing food, water, energy, and critical raw materials, seeking integrated, sustainable, and resilient solutions across sectors and regions.

Provisional Programme

Time	Item
09:00 – 09:15	Opening and Welcome Remarks

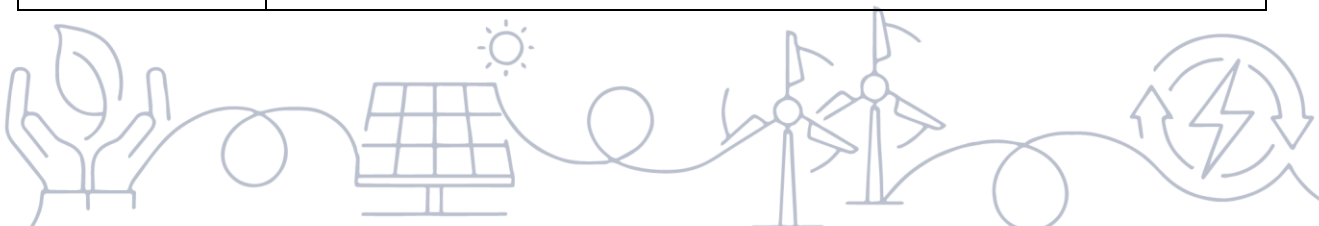
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<p>09:15 – 10:15</p>	<p>Session I: Integrating the Food-Water-Energy Nexus – Governance, Innovation, and Emerging Technologies</p> <p><i>Moderator: Teresa Ponce de Leão</i></p> <p>Speakers:</p> <ul style="list-style-type: none"> • Hari Tulsidas, UNECE – Charting the Next Horizon: AI, Water, and the Future of Sustainable Resource Management. • Dinara Ziganshina, Scientific-Information Center of the Interstate Coordination Water Commission of the Central Asia - Nexus governance research results from Central Asia (online) • Ghadi Sabra, UNECE consultant – Criticality Assessment Tool: Risks and vulnerabilities in critical mineral supply chains. • Discussions
<p>10:15 – 10:45</p>	<p>Coffee / Networking Break</p>
<p>10:45 – 12:00</p>	<p>Session II: Integrating Critical Raw Materials and Energy Systems in the FWE Nexus</p> <p><i>Moderator: Radia Sedaoui</i></p> <p>Speakers:</p> <ul style="list-style-type: none"> • Simon Michaux, GTK, Finland - Energy as a CRM • Erika Ingvald, UNECE – Mineral - Water issues - The role of critical raw materials in sustainable energy transitions. • Leonardo Souza, Chief, Energy Statistics Section, United Nations Statistics Division - Measuring the Energy Transition: Statistical Insights for Integrated Resource Management • Nevton Kodhelaj, University of Tirana, Albania - Geothermal Energy and Nexus-Based Solutions in Urban and Rural Contexts. • Discussions
<p>12:00 – 14:00</p>	<p>Lunch Break</p>
<p>14:00 – 14:45</p>	<p>Session III: Global Net Zero Resources Assessment – Linking Critical Raw Materials, Energy Systems, and the Nexus Agenda</p> <p><i>Moderator: Ghadi Sabara</i></p> <p>Speakers:</p>





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	<ul style="list-style-type: none"> • Jeremy Webb, Executive Director, New ZealandTiaki Institute - Global Net Zero Resources Assessment Report Launch • Exploring interlinkages between critical raw materials and energy systems within the broader nexus framework - Highlighting innovative tools (such as the UNFC) to promote sustainable resource management • Discussions
<p>14:45 – 15:45</p>	<p>Session IV: Session IV: Nourishing Cities – Integrating Food Systems into the Urban Nexus</p> <p><i>Moderator: Liliana Annovazzi-Jakab, UNECE</i></p> <p>Speakers:</p> <ul style="list-style-type: none"> • Liliana Annovazzi-Jakab, UNECE - How sustainable food systems, urban agriculture, and nature-based solutions enhance resilience and circularity in cities. • Elena Kokthi, Associated Professor, Faculty of Biotechnology and Food, Agriculture University of Tirana, Albania - Case study Tirana - a city assessing its food availability in a new context and framework (online) • Veronika Wendt, Author - A Quick Guide to Food-Based Nature-Based Solutions in Cities: Unlocking Fresh Pathways for Urban Resilience. • Discussions
<p>15:45 – 16:30</p>	<p>Session IV: Policy Dialogue and Forward Strategy</p> <p><i>Moderator: Karen Hanghoj</i></p> <p>Speakers:</p> <ul style="list-style-type: none"> • Xiansheng Sun, Chairman, ISETS - Key guidance and regional cooperation pathways. • Hosni Ghedira – AI for Climate Resilience: Integrating Technology and Policy in the Water-Energy-Food Nexus • Matija Vajdić, Energy Institute Hrvoje Požar, Croatia - Financing the Food-Water-Energy Nexus: Lessons from EEA and Norway Grant-Funded Projects • Damir Narynbayev, Executive Director, Kazenergy, Kazakhstan - Kazakhstan’s Energy Transition: Aligning Resources with Strategic Vision





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	<ul style="list-style-type: none"> • Radia Sedaoui, ESCWA – Strengthening the FWE Nexus in the Arab Region: Best Practices and Forward Looking • Discussions
16:30 – 16:45	Closing Reflections and Way Forward <ul style="list-style-type: none"> • Summary of key messages and insights. • Participant feedback and follow-up steps.

Mode of participation

The workshop will take place in a hybrid format (in-person and online).

Contact

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