



SMART
WaterDomain

SMART-WaterDomain

**International Workshop on Water Reuse for
Sustainable and Smart Water Management in Europe
and Japan**



**UNU
FLORES**



**UNU
IAS**

Sponsored by

Federal Ministry of Education and Research (Germany)

Ministry of the Environment, Government of Japan

Japan Science and Technology Agency (JST)

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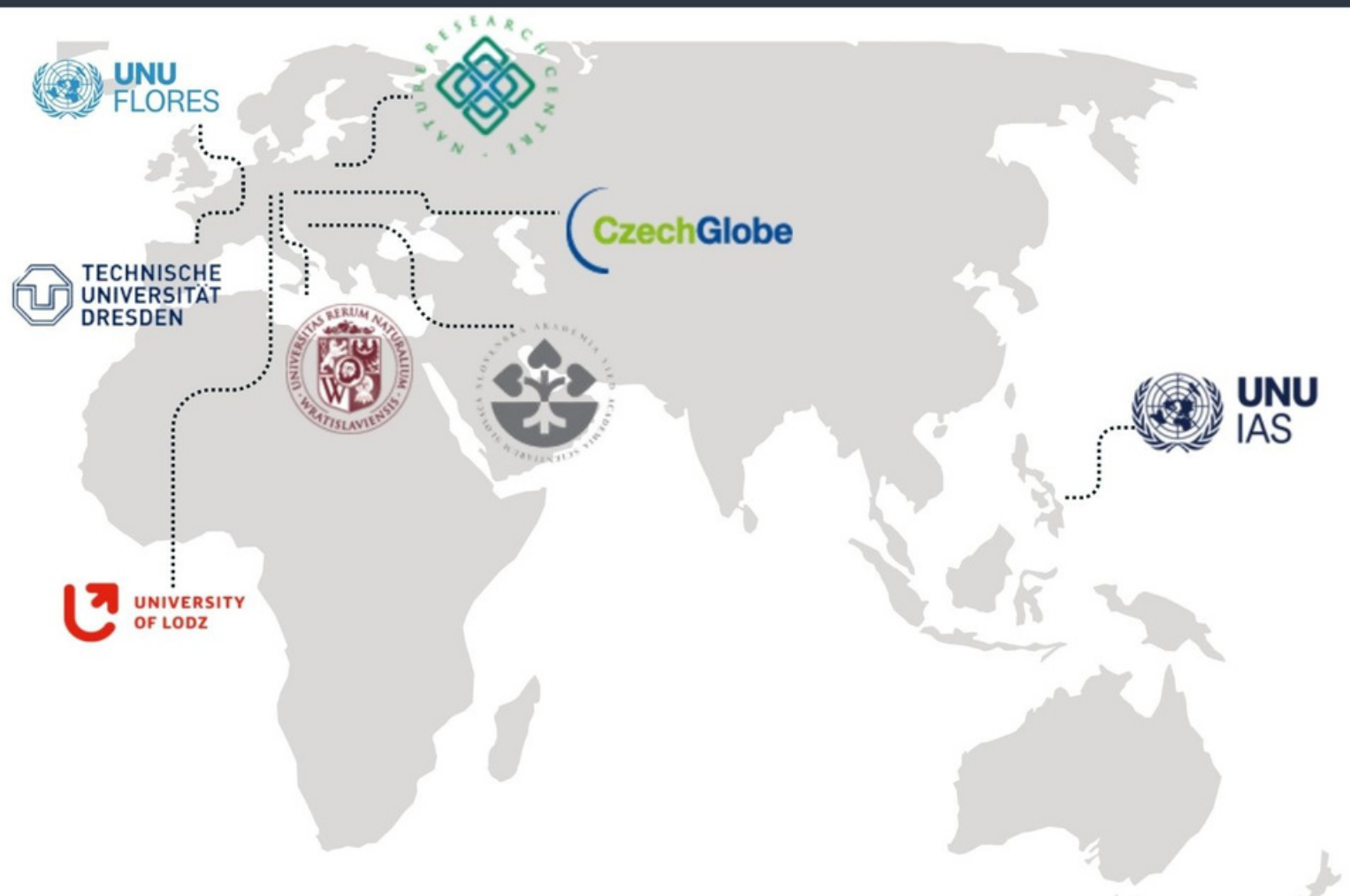
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Background

Pressures on freshwater resources and the cascading effects of climate change can limit the ability of economies and societies to function effectively. Water reuse on an agricultural and industrial scale offers promising opportunities to reduce the vulnerability of freshwater systems to climate change impacts, increase capacity to cope with water stress and bring several environmental benefits.

There are strong incentives to increase water sustainability and growing research focused on advancing water reuse technologies. Nevertheless, despite the number of direct and indirect benefits of water reuse and the technological advances, the market and industries have lagged in integrating technology into their value chains and face complexities such as a lack of technical capacity and low public acceptance. Thus, there is a growing need to enhance the adoption of fit-for-purpose water reuse in the industrial/agricultural sector.

The research project “Framework for Organizational Decision-Making Process in Water Reuse for Smart Cities (SMART-WaterDomain)” focuses on enhancing the adoption of fit-for-purpose reuse water in the agricultural-industrial sector and developing a systematic framework for companies and utilities to facilitate the uptake of water reuse practices in their operations.

With pilot studies carried out across Europe (e.g., Germany, Poland, Slovakia, Czech Republic, Lithuania) and Japan, the project engages in utility operational framework development with critical stakeholders to produce digital decision support and monitoring tools that utilise real-time data and climate change projections. The outcomes of the project are expected to demonstrate how to enhance the implementation of strategies that would increase the acceptance of water reuse practices for the local economy and society.

SMART-WaterDomain represents a unique example of an international project jointly led by UNU institutes: UNU-FLORES and UNU-IAS. The collaboration brings together accomplished researchers from Europe and Japan to generate evidence-based knowledge that could assist policymakers in developing realistic solutions towards exploring the potential of water reuse under private–public partnerships (PPPs).

The SMART-WaterDomain project stands as a successful example of research initiatives pursued by the United Nations University, amplifying its role in fostering the capabilities of Member States to effectively achieve the objectives of the 2030 Agenda and the Sustainable Development Goals. The project is primarily centred around SDG 6.3, which seeks to improve water quality by reducing pollution, minimising the release of hazardous chemicals and materials, halving the proportion of untreated wastewater and increasing recycling and safe reuse by 2030.

The project’s long-term vision and integrated approach encompass a dual emphasis: a focus on elevating wastewater management as a catalyst for achieving the UN 2030 Agenda second, the strategic integration of wastewater management within the broader context of resource efficiency and the circular economy principles. By facilitating an international and inter-disciplinary dialogue with businesses, UN agencies, and public authorities, the project strives to forge a holistic pathway towards sustainable development by transitioning societies and economies towards a smart, water-efficient, and sustainable society.

The Workshop Objectives:

- Provide a multi-disciplinary platform featuring high-profile keynote speakers who will provide theoretical and practical insights on the most pertinent topics for water reuse emphasising the cross-cutting importance of wastewater for the 2030 Agenda for Sustainable Development.
- Build an understanding of climate-responsive water reuse and the strategies to balance environmental needs and complex resource challenges using change-climate change scenarios to project potential shifts in future water availability and distribution patterns.
- Draw on the significance of corporate responsibility by analysing the scale of the impact of the operations on water resources. The Workshop will be an opportunity to present the 'SMART-WaterDomain Decision Support Tool' crafted to aid organisations in navigating their water management processes.
- Present the barriers and opportunities of water reuse and strategic water management for the implementation of sustainable options of water reuse in agriculture/ agro-industrial sectors in European and Japanese contexts.
- Initiate a dynamic dialogue with industry representatives and policymakers to assess and validate the accreditation scenarios developed from the tool and shape the framework to foster practical applications for industry agriculture and government.
- Advocate for water reuse for urban development that explores strategies to encourage Public Private Partnerships (PPPs), as a form of intersectoral cooperation to facilitate the sustainable management of water resources.

PROGRAMME HIGHLIGHTS

DAY 1 Tuesday, 7 November 2023

14:00 - 15:00

Field Trip: Shibaura Water Reclamation Centre
Reclamation Centre

DAY 2 Wednesday, 8 November 2023

13:30 - 14:00

Welcome and Registration

14:00 - 17:00

Workshop

Climate Responsive

Water Reuse: Environmental Needs and
Resource Challenges

Mr. Petr Skalák

Senior Researcher, CzechGlobe

Dr. Petr Štěpánek

Senior Researcher, CzechGlobe

Dr. Pavel Zahradníček

Senior Researcher, CzechGlobe

PROGRAMME HIGHLIGHTS

DAY 3 Thursday, 9 November 2023

09:30 - 10:00

Welcome and Registration

10:00 - 11:15

Opening & Charing

Dr. Serena Caucci

Associate Programme Officer, UNU-FLORES

Keynote Speeches

Prof. Tshilidzi Marwala

Rector, United Nations University

Prof. Shinobu Yume Yamaguchi

Director, United Nations University Institute for the
Advanced Study of Sustainability (UNU-IAS)

Prof. Edeltraud Guenther

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

Prof. Kensuke Fukushi

Academic Programme Advisor & Academic Director, UNU-
IAS

Prof. Hiroaki Furumai

Institute Professor of the Research and Development
Initiative, Chuo University

PROGRAMME HIGHLIGHTS

11:20 - 12:00

Panel Discussion

Dr. Serena Caucci (Chair)

Associate Programme Officer, UNU-FLORES

Prof. Hiroaki Furumai

Institute Professor of the Research and Development Initiative, Chuo University

Mr. Yu Kamei

Director, International Cooperation Office, Environment Management Bureau, Ministry of the Environment, Japan

Prof. Futaba Kazama

Specially-Appointed Professor of Yamanashi Prefectural University

12:00 - 14:00

Lunch Reception

Interviews & Photoshooting

14:30 - 17:45

Setting the Scene: SMART-WaterDomain

Dr. Serena Caucci (Project Coordinator)

Associate Programme Officer, UNU-FLORES

Building Capacities for Sustainable Water Reuse

Technical Solutions for Water Reuse

Prof. Katarzyna Pawęska

Associate Professor, Institute of Environmental Engineering, Wrocław University of Environmental and Life Sciences

Prof. Ewa Burszta-Adamiak

Assistant Professor, Institute of Environmental Engineering, Wrocław University of Environmental and Life Sciences

Dr. Aleksandra Bawiec

Assistant Professor, Institute of Environmental Engineering, Wrocław University of Environmental and Life Sciences

Dr. Wiesław Fialkiewicz

Assistant Professor, Institute of Environmental Engineering, Wrocław University of Environmental and Life Sciences

PROGRAMME HIGHLIGHTS

Opportunities and Barriers to Sustainable Implementation of Water Reuse

Dr. Jonathan Clive Morris

Research Associate, Leibniz-Institute of Ecological Urban and Regional Development

Ms. Isabella Georgiou

Doctoral Researcher, TU Dresden | UNU-FLORES

Climate-Responsive Water Reuse

Mr. Petr Skalák

Senior Reseracher, CzechGlobe

Dr. Petr Štěpánek

Senior Reseracher, CzechGlobe

Dr. Pavel Zahradníček

Senior Reseracher, CzechGlobe

Behavioural Change Towards Water Reuse in Europe & Japan

Mr. Petr Skalák

Senior Reseracher, CzechGlobe

Decision Support Tool for Implementing Water Reuse in Organisations & Businesses

Prof. T. Bartosz Kalinowski

Associate Professor, University of Łódź

Dr. Piotr C. Sosnowski

Assistant Professor, University of Łódź

Dr. Agata Rudnicka - Reichel

Assistant Professor, University of Łódź

PROGRAMME HIGHLIGHTS

17:45 - 17:50

Closing Remarks

18:00 - 19:00

UNU Conversation Series
Global Crises and United Nations Response and Innovations: Lessons Learned, Challenges and Prospects

19:00 - 20:00

Reception

DAY 4 Friday, 10 November 2023

12:30 - 13:00

Welcome and Registration

13:00 - 16:00

Stakeholder Validation Workshop: Perspectives on the Decision Support Tool for Advancing Industrial Water Management in Europe and Japan

Prof. T. Bartosz Kalinowski

Associate Professor, University of Łódź

Dr. Piotr C. Sosnowski

Assistant Professor, University of Łódź

Dr. Agata Rudnicka - Reichel

Assistant Professor, University of Łódź

Dr. Takashi Hashimoto

Associate Professor, Research Center for Water Environment Technology, School of Engineering, University of Tokyo

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Director, UNU-FLORES

Dr. Takashi Hashimoto

Associate Professor, Research Center for Water Environment Technology, School of Engineering, University of Tokyo

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Senior Researcher, Nature Research Centre, Lithuania

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Associate Professor, Faculty of Management, University of Łódź

Dr. Nijolė Kazlauskienė

Senior Researcher, Nature Research Centre, Lithuania

Prof. Tatiana Kluvánková

Professor, SlovakGlobe - A joint Centre of the Institute of Forest Ecology, Slovak Academy of Sciences and Institute of Management, Slovak University of Technology

Dr. Danguolė Montvydienė

Senior researcher, Nature Research Centre, Lithuania

Dr. Jonathan Clive Morris

Research Associate, Leibniz-Institute of Ecological Urban and Regional Development

Ms. Zeynep Ozkul

Senior Research Assistant, UNU-FLORES

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Associate Professor, Institute of Environmental Engineering, Wrocław University of Environmental and Life Sciences

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Dr. Petr Štěpánek

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