

WHEN

29 June 2022 – 01 July 2022

WHERE

INRAE, Salle Rhône
5 rue de la Doua
69625 Villeurbanne, France

LANGUAGE

English

LEVEL

PhD course

FEE & GRANTS

The cost of the course is free.

There are 10 grants of 1,000 EUR available for travel and hotel via the COST Action CA17133 on Circular Cities

APPLICATION

Send a two-page CV and letter of motivation to jaime.nivala@inrae.fr and pedro.carvalho@envs.au.dk by May 15, 2022.

CONTACT

Jaime Nivala
jaime.nivala@inrae.fr
Pedro Carvalho
pedro.carvalho@envs.au.dk

TOPICS

Urban challenges for circular cities · Barriers to change · Hydraulic disconnection modelling · Large-scale planning of NBS for urban water treatment · Socio-economical aspects · Ecotoxicological considerations · Enhanced Natural Treatment Systems

TRAINING COURSE:

Accelerating the transition to circular cities with nature-based solutions for water treatment

Day 1: Context and challenges

- 9:00 – 10:30 **Module 1: Urban challenges for circular cities**
Introduction to the COST Action Circular Cities (Bernhard Pucher, BOKU)
- 10:30 – 11:00 *Coffee Break*
- 11:00 – 12:30 **Module 2: Barriers to change**
(Anacleto Rizzo, IRIDRA)
- 12:30 – 14:00 *Lunch Break*
- 14:00 – 17:00 **NBS Technical Tour**
(overlap with MULTISOURCE Annual meeting)

Day 2: MULTISOURCE urban planning tools

- 9:00 – 10:30 **Module 3: Large-scale planning of NBS for urban water treatment** (Jan Friesen, Moritz Sanne, Ganbaatar Khurelbaatar, UFZ)
- 10:30 – 11:00 *Coffee Break*
- 11:00 – 12:30 **Module 4: Hydraulic disconnection modeling**
(Gislain Lipeme Kouyi, INSA Lyon)
- 12:30 – 14:00 *Lunch Break*
- 14:00 – 15:30 **Module 5: NBS Technology selection**
(Joaquim Comas, University of Girona; Josep Pueyo, ICRA)
- 15:30 – 16:00 *Coffee Break*
- 16:00 – 17:30 **Module 6: Ecotoxicological considerations**
(Sondre Meland, NIVA)

Day 3: Social, economical, technical considerations

- 9:00 – 10:30 **Module 7: Stakeholder engagement approaches**
(Elena Petsani, ICLEI)
- 10:30 – 11:00 *Coffee Break*
- 11:00 – 12:30 **Module 8: Business models for financing and O&M of NBS for water treatment**
(Maria Wirth, alchemia-nova)
- 12:30 – 14:00 *Lunch Break*
- 14:00 – 15:30 **Module 9: MULTISOURCE Technical pilots**
(Pascal Molle, INRAE)
- 15:30 – 16:00 *Coffee Break*
- 16:00 – 17:00 **Module 10: MULTISOURCE Monitoring**
(Pedro Carvalho, Aarhus University)
- 17:00 – 17:30 *Q+A and Conclusion*

Funding provided by:



Further Info

The course links the framework and knowledge generated in the COST Action Circular Cities in nature-based solutions, urban circularity challenges, opportunities and barriers for circular economy with the development of platforms and tools within the project MULTISOURCE.



MULTISOURCE is a project targeted to facilitate the systematic, citywide planning of nature-based for urban water treatment, storage, and reuse. MULTISOURCE will deliver new knowledge about Enhanced Natural Treatment Solutions (ENTS) and their ability to remove waterborne contaminants and provide effective risk reduction for chemical and biological hazards, as well as their capacity to be integrated into the urban landscape and contribute to the overall improvement of urban habitats. The project will allow users to identify multiple sources for local water reuse, promote increased uptake of nature-based solutions, and minimize discharge of water that has not received adequate treatment. MULTISOURCE has received funding from the European Union's Horizon H2020 innovation action programme under grant agreement 101003527.



The aim of the **COST Action on Circular Cities** is to build an interdisciplinary platform for connecting city planners, architects, system designers, circular economists, engineers, and researchers from social and natural sciences that develop systems allowing cities to cope with the challenges described above. In this COST Action, the definition for a common language and understanding across disciplines are seen as crucial success factor, while CE concepts are seen as key approach and NBS or GI solutions are seen as core elements of the toolbox. This Cost Action is to encourage collaboration and research to test the hypothesis that "A circular flow system that implements NBS for managing nutrients and resources within the urban biosphere will lead to a resilient, sustainable and healthy urban environment". The planned Action will test this hypothesis in five domains: the built environment, the urban water, the resource recovery, the urban farming, and the society. The COST Action CA17133 Circular Cities received funding from the European Union's Horizon H2020 innovation action programme.

Course details

Dates: 29 June 2022 – 01 July 2022

(3 full days, plan to arrive on 28 June and depart on 02 July)

- Lunch and coffee breaks are provided.
- Participants are responsible for their breakfast and dinner costs.
- Travel and accommodation is to be covered by the participants.
- Capacity limit: 20 participants

10 grants of 1,000 EUR each available via the COST Action CA17133 on Circular Cities

The target group for this course is PhD students, researchers, and practitioners working in urban water management who have interest in the environmental, economic, and societal aspects of integrating nature-based solutions for water treatment into the urban environment.

Application requirements

Please send a two-page CV and letter of motivation to jaime.nivala@inrae.fr and pedro.carvalho@envs.au.dk by 15 May 2022. Applications will be reviewed by the local organizers, and grants will be selected by the COST Action, taking into account gender, country of origin, and other balances according to the COST rules. The letter of motivation must state whether or not the applicant is applying for one of the 10 grants. Applicants who are local are not eligible for the COST grants.

Contents

The course will provide a holistic view on the usage of NBS to address circularity and circular cities. More than discussing concepts and state-of-the-art, the course will also expand on the different key dimensions key for the implementation of NBS for urban water management. The course will touch upon technical issues from planning (geographical and hydraulic), through design (NBS technology selection) to implementation (Enhanced Natural Treatment Solutions (ENTS)); as well as viability due to economic aspects and regulatory issues dealing with water quality and ecotoxicology.

Objectives

The course aims at providing the participants with:

- an overview of different types of nature-based solutions (NBS), their common application and trade-offs
- knowledge on urban circularity challenges and how NBS can support circular cities, as well as current barriers for their implementation
- an overview of novel planning and decision support tools, as well as stakeholder engagement approaches to facilitate the uptake of NBS in urban areas
- the capability to identify socio-economic, ecotoxicological and technological aspects that can hinder the implementation of NBS in urban areas
- an overview of Enhanced Natural Treatment Solutions (ENTS) capable of producing water for reuse.

Learning outcomes and competences

At the end of the course the participants will be able to:

- describe the different types of NBS concepts, related technological units and explain urban circularity challenges
- recognize barriers for the implementation of NBS towards circular cities, and conduct stakeholder engagement activities
- become familiarized with MULTISOURCE planning and decision support tools
- discuss socio-economic models, regulatory issues about water quality and ecotoxicological data, and
- select NBS accordingly to different scenarios and needs in urban water management

Lecturers

Pedro Carvalho, Aarhus University (Denmark)

Joaquim Comas, University of Girona (Spain)

Jan Friesen, Helmholtz Centre for Environmental Research – UFZ (Germany)

Ganbaatar Khurelbaatar, Helmholtz Centre for Environmental Research – UFZ (Germany)

Gislain Lipeme Kouyi, INSA Lyon (France)

Sondre Meland, Norwegian Institute of Water Research – NIVA (Norway)

Pascal Molle, French National Institute for Agriculture, Food and Environment – INRAE (France)

Elena Petsani, ICLEI European Secretariat (Germany)

Josep Pueyo, Catalan Water Research Institute – ICRA (Spain)

Bernhard Pucher, BOKU (Austria)

Anacleto Rizzo, IRIDRA (Italy)

Moritz Sanne, Helmholtz Centre for Environmental Research – UFZ (Germany)

Maria Wirth, alchemia-nova (Austria)