

**CONFERENCE PROGRAM**  
**28-29 June 2022**  
**(27<sup>th</sup>/30<sup>th</sup> June/1<sup>st</sup> July excursions)**  
**Utrecht, The Netherlands**





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## Welcome by the organisers:

Dear Participants of TERRAenVISION 2022

We are happy to welcome you on the Campus of the Utrecht University where we will spend two days together discussing NATURE-BASED SOLUTIONS TO FACILITATE THE TRANSITIONS FOR LIVING WITHIN THE PLANETARY BOUNDARIES.

On Tuesday we discuss our first two sub-themes and on Wednesday the other two.

1. Nature based solutions for agriculture, forests and natural areas (soil, water and landscape)
2. Nature based solutions for natural hazards (fire, floods and droughts)
3. Science brokers for transitioning to a climate resilient (climate mitigation and adaptation) and circular society
4. Nature based solutions in urban and industrial areas (land and water management and spatial planning)

For each sub-theme we have half a day programme as we did in the previous TERRAenVISIONs: first two keynotes with a debate; and later parallel sessions with talks and workshops. Our poster presenters will be asked to pitch their poster in 1 minute in the plenary session. The online participants will be able to listen to the plenary session and the oral talks session with the possibility to ask questions, as well as present their work. The online poster presenters will have a 2 minute presentation uploaded to the website and their poster will be shown digitally in the poster room.

We hope for a fruitful meeting in which researchers from all over the world, from different backgrounds, online and physically present in Utrecht. Next to our indoor activities on the 28<sup>th</sup> and 29<sup>th</sup> of June, we have the excursions on the 30<sup>th</sup> of June and the 1<sup>st</sup> of July where we will see NBS in practice in the Netherlands, in rivers, in urban, rural and peatland areas.

This conference would not have been possible without the support of our organisations: Rijkswaterstaat, Utrecht Universiteit and Wageningen University and Research.

We hope you will enjoy the conference and you will go back home inspired.

The organizing team:

Saskia Keesstra (Wageningen UR)

Margot de Cleen (Rijkswaterstaat)

Co Molenaar (Rijkswaterstaat)

Ruud Schotting (Universiteit Utrecht)

Gerben Mol (Amsterdam Institute for Advanced Metropolitan Solutions)

Wouter Grevaerts (Arcadis)

Carla Ferreira (Stockholm University)

Artemi Cerdà (University of Valencia)

Ioannis Daliakopoulos (Hellenic Mediterranean University)

## Mission TERRAenVISION:

Our Planet suffers from human activities. Scientists know more and more about our environment, about processes, rates of change, new threats and risks. However, the challenges seem to grow quicker than the solutions that can be created. To find the right, feasible and viable solutions to make the transition towards a society that stays within the planetary boundaries, it is needed that scientists, policy makers and to join forces with industry.

This conference aims to focus on finding solutions for the societal issues of our time. TERRAenVISION promotes to exchange scientific research, solutions from industry and insights from policy for interdisciplinary collaboration and networking. To bring scientists and stakeholders that have the same goal, work on the same societal issue, but have different backgrounds. By bringing the people and their knowledge together, we may be able to take the steps towards solutions that can bring our society to a more sustainable situation. In this conference, we want to link to International policies such as the Sustainable Development Goals, the UN Climate conventions, the Green Deal, COP and CAP.

This conference is framed around themes which are connected to the big transitions of our time. Each theme is kicked off by two plenary keynote speeches of 20 min, followed by a discussion. After the plenary session, a range of different parallel sessions will be organised.

We want to stress that this conference is not only for scientists, but also for those people from outside the scientific world working on transitions towards climate mitigation and adaptation, sustainable cities and agriculture and a circular economy with a focus on the sustainable use and management of the natural system.

The chair of the TERRAenVISION Organizing Committee,

Saskia Keesstra

Senior researcher Wageningen Environmental Research, Netherlands  
Conjoint Associate Professor, University of Newcastle, Australia

	room red/rood	room purple/paars	room Blauw/blue & Ruppert 134	parallel 0.40
<b>28th of June</b>				
8.00-9.00	Registration			
9:00-9:30	Opening			
9:00-9:15	Opening by organizers: Saskia Keesstra, Co Molenaar, Margot de Cleen			
9.15-9.30	Opening by Utrecht University Prof. Ruud Schotting			
9.30-11.00	<b>Plenary session Theme 1: NATURE BASED SOLUTIONS FOR AGRICULTURE AND NATURAL AREAS (SOIL, WATER AND LANDSCAPE)</b>			
9.30-9.55	Keynote Annette Schneegans (DG AGRI, European Commission): A soil Deal for Europe			
9.55-10.20	Keynote Willem Ferwerda (Commonland): How to make system change practical at landscape level? Experiences, lessons and needs.			
10.20-11.00	Discussion and poster pitches			
11.00-11.30	coffee break (offered by Rijkswaterstaat)			
11.30-13.00 Parallel session 1	Oral session on agriculture (Seeger)	Oral session on erosion/connectivity (Poepl and Cerdà)	Workshop: Nature-Based Solutions (NBS) by applying Nature-based design (Koot & van Nieuwenhuijzen) room blauw/blue	Workshop: Support to the EU Mission "A Soil Deal for Europe": How to engage actors, close R&I gaps and set up Living Labs and Lighthouses (Maring et al.)
13.00-14.00	lunch			
14.00-15.30	<b>Plenary session Theme 2: NATURE BASED SOLUTIONS FOR NATURAL HAZARDS (FIRE, FLOODS AND DROUGHTS)</b>			
14.00-14.25	Keynote Esther Blom (Stichting Ark): Rewilding nature to combat societal challenges			
14.25-14.50	Keynote Hein Pieper (Dijkgraaf Waterschap Rijn en IJssel/ head of the Waterboard Rhine and IJssel): The climate challenge in water management			
14.50-15.30	Discussion and poster pitches			
15.30-16.00	coffee break offered by Rijkswaterstaat)			
16.00-17.30 Parallel session 2	Oral session methodologies (Lopez-Vicente and Klamerus-Iwan)	Workshop Challenges and opportunities for the upscaling of successful climate buffers (Klostermann et al.)	Oral Session on fire (Gomez-Gimenez and Cerdà) room 134	Workshop: Scaling Nature-based Solutions for climate resilient food systems (Groot et al)
17.30-19.00	Poster session with refreshments (offered by Rijkswaterstaat)			

	room red/rood	room purple/paars	room blue/blauw	room 0.05 or room 114
<b>29<sup>th</sup> June</b>				
8.00-9.00	<b>Registration</b>			
9.00-10.30	<b>Plenary session theme 3: SCIENCE BROKERS FOR TRANSITIONING TO A CLIMATE RESILIENT AND CIRCULAR SOCIETY</b>			
9.00-9.25	Keynote Lilian van den Aarsen (Director of the Delta Programme Commissioner's Staff): Climate adaptation in the Netherlands, Lessons from the Delta Programme			
9.25-9.50	Keynote Nicola Di Virgilio (EU Commission DG Agriculture and Rural Development): EU Climate policies in the land sector			
9.50-10.30	Discussion and poster pitches			
10.30-11.00	Coffee break (offered by Rijkswaterstaat)			
11.00-12.30 Parallel session 3	Oral session communication (Castelló and de Cleen)	Oral session urban (Ferreira, Mol, Grevaeerts)	Workshop: Inter-action between society, problem owner and regulator on brownfield redevelopment (Nicole network)	Workshop: RESANAT: Nature based solutions : importance of quantifying natural processes and dynamics (van de Wiele et al.) (Room 0.05)
12.30-13.30	lunch			
13.30-15.00	<b>Plenary session theme 4: NATURE BASED SOLUTIONS FOR LAND AND WATER MANAGEMENT IN URBAN AND INDUSTRIAL AREAS (SOIL, WATER AND SPATIAL PLANNING)</b>			
13.30-13.55	Keynote Marco Roos (Naturalis): Wanted: biodiversity in the City; do we realize what it entails? – from decoration to ecology			
13.55-14.20	Keynote Thomas Hartmann (Technical University of Dortmund): Urban floods and private land - challenges of implementing nature-based solutions			
14.20-15.00	Discussion and poster pitches			
15.00-15.30	coffee break (offered by Rijkswaterstaat)			
15.30-17.00 Parallel session 4	Oral session circular/carbon farming (Visser, van Hattem/Kuikman/Kragt)	Workshop: Multi-functional nature-based infrastructure in urban areas: where and how (Alves Beloqui et al)	Workshop: Planning for effective urban NatureBasedSolutions – combining long term visions and short-term actions (Voskamp and Brolsma)	Workshop: How can subsurface Nature Based Solutions properly be implemented in sustainable urban areas (Grotenhuis and Hensen) (Room 114)
17.00-18.30	Poster session with refreshments (offered by Rijkswaterstaat)			
19.00-..	Conference dinner De Veldkeuken (Koningslaan 11a, NL 3981 HD Bunnik)			

# Scientific Program

Tuesday 28<sup>th</sup> June 2022

8.00-9.00 Registration

9:00-9:15 Opening by organizers (Co Molenaar, Margot de Cleen and Saskia Keesstra)

9.15-9.30 Opening by Utrecht University Prof. Ruud Schotting

## Plenary session Theme 1: NATURE BASED SOLUTIONS FOR AGRICULTURE AND NATURAL AREAS (SOIL, WATER AND LANDSCAPE)

Chair: Saskia Keesstra (Red Room)

9.30-9.55 **Keynote Annette Schneegans: A soil Deal for Europe (DG AGRI, European Commission): EU Climate policies in the land sector.**

9.55-10.20 **Keynote Willem Ferwerda (Commonland): A language framework to make system change practical at landscape level. Experiences, lessons and needs.**

10.20-11.00 **Discussion and poster pitches**

11.00-11.30 Coffee break

### 11.30-13.00 Parallel session 1

**Option 1: Oral session on Transforming agriculture – nature based solutions between the poles of tradition and innovation to tackle land degradation**

**Organiser:** Manuel Seeger (room red/rood)

**Description:** Starting with the Neolithic Revolution, humankind has transformed the landscapes, in most of the cases in detriment of biodiversity and soil health and quality. In addition, during the last decades an enormous economic pressure has arisen on farmers forcing them to highly productive agronomic systems. Therefore, agriculture is nowadays driven by high input of fertilizers and pesticides, landless livestock husbandry, consolidation of land and a high level of mechanization. Also the commercialisation of agricultural products is widely decoupled from the production systems. Thus, the pressure on the natural systems has increased.

In the last decade, societal awareness has increased on the effects of unsustainable consumption, including agricultural products, on the environment, but also on the economic situation of the

farmers. This has led to a reversion to traditional production and distribution, as well as to breaking traditional concepts of agriculture. This includes the enhancement of traditional grazing activities and raising of local and regional breeds of livestock and plants, the identification of characteristic production areas (e.g. terroir), as well as new concepts of crop diversification.

The conceptualisation, analysis and understanding of these new concepts of sustainable agriculture deserve a multidisciplinary approach which makes it possible to link landscapes with people, soils with economy, sustainability with tasty and healthy food and drinks.

In this session, we will learn about different concepts of nature based solutions to the actual problems of -sometimes highly profitable, but almost always not sustainable- modern agriculture.

We will see the points of view of environmental science, ecology, soil science and agronomy targeting one goal. Finding and applying nature based solutions to keep our earth worthy to live.

NR	PRESENTER	ORAL PRESENTATIONS
1	Artemi Cerda	The role of plant species on runoff and soil erosion in a Mediterranean shrubland
2	Jesus Barrena Gonzalez	Soil nutrients washing in dehesa farms of Extremadura, SW Spain
3	Adriano Sofo	Agroecosystem diversification and sustainable management lead to increased biodiversity, crop production and socio-economic advantages: the case of Mediterranean olive orchards
4	Mia Tits	Breaking monoculture: crop rotation scenarios with maize
5	Thomas Iserloh (online)	Crop diversification in low input viticulture on steep slopes
6	Sofia Matsi (online)	Establishment of thyme-based living mulch and its effects on carob drought stress under rainfed conditions

#### **Option 2: Oral session on erosion/connectivity (Poepl and Cerdà)**

**Organisers:** Ronald Poepl; Artemi Cerdà (room purple/paars)

**Description:** Different types of human impacts (incl. climate change) can have detrimental effects on terrestrial and aquatic (eco)systems. These include changes in land use and different types of river engineering activities causing soil erosion, flooding and river channel degradation. Sustainable river and catchment management (incl. restoration efforts) require nature-based options to mitigate (or even reverse) the effects of different types of human interference and climate change. These, for example, include reforestation or the installation of different water retention measures such as riparian vegetation/buffer strips, soil conservation, erosion and flood control measures, the elimination of river bank protection, or other activities such as the removal of dams. Connectivity has emerged as an important conceptual framework for understanding and managing the transfer of surface water, sediment, nutrients and biota through landscape systems. (Dis-)connecting features can have large spatial and temporal implications on ecological, geomorphic, hydrological and biogeochemical processes through buffering water and material fluxes, thus forming neuralgic points for river and catchment management (incl. restoration) actions. Here we aim to create a diverse interdisciplinary session that reflects a broad range of research seeking to illustrate the role of nature-based solutions in managing hydro-geomorphic and ecological connectivity in a river and catchment management (incl. restoration) context.

NR	PRESENTER	ORAL PRESENTATIONS
1	Ronald Poepl	Assessing and managing soil erosion and lateral sediment connectivity in agricultural catchment systems: an Austrian example
2	Roey Egozi	The feasibility of applying nature-based solutions for flood mitigation in Israel: Marrying hydro-morphological analysis with land property rights
3	Carla Santos Ferreira (online)	Impact of Nature-Based solutions on flow connectivity and flood hazard mitigation within a Mediterranean peri-urban catchment
4	Paul Verhaagen	Treatment of landfill leachate using an innovative test facility. A significant step towards a more sustainable and biodeverse water treatments
5	Ine Rosier	Modelling the effects of vegetated landscape elements on the rainfall-runoff behaviour in a small agricultural watershed.
6	Garrett Altmann	Developing Watershed Resilience with Indigenous Traditional Ecological Knowledge (ITEK) and Nature-based Solutions (NBS)

### Option 3: Workshop Nature-Based Solutions (NBS) by applying Nature-based design

**Organisers:** Corinne Koot, dr.ir. Arjen van Nieuwenhuijzen (Witteveen+Bos)(room Green/Groen)

**Workshop Description:** The ‘Nature-based design’ principle means that natural processes are used to strengthen the design. Working with nature instead of against nature. This will help prevent unintended negative side effects and result in additional benefits, for instance in terms of nature values. It may also result in cost savings. The ‘Nature-based design’ principle requires engineers to gain insight into the natural processes occurring in a project environment by determining their physical, chemical and/or biological characteristics. Negative effects on these processes can then be avoided in the design phase, while such processes can also be used to create additional benefits. This principle is called ‘Building with Nature’. It is applied by performing a system analysis to consider the project in a broader context. Such an analysis involves determining the dominant processes, identifying key factors that can influence these processes, and finally identifying effective measures targeted at those key factors.

When applying the sustainable design principles, system analysis is a much-needed ally. A water system, a soil system, a financial system, a computer system or a social system – taking effective measures that will influence a system in the right way is not possible until you understand how the system works. A system analysis involves looking at the condition a system is in relative to any processes that influence that condition.

For Terra Envision we provide 2 cases related to this design principle:

#### *Case 1 Nature-Based Solutions Quicksan*

The Nature-Based Solutions (NBS) Quicksan contributes to achieving project ambition regarding climate resilience and biodiversity. The NBS Quicksan provides insight into which NBS can promote climate adaptation and biodiversity in a project and how NBS can offer various social secondary functions.

The NBS Quickscan follows the integral design method of Witteveen+Bos by first providing insight into the goals we want to achieve in the project and the context with a system analysis. With the help of the function analysis, the desired functionalities of the project are explained. The variant study then provides insight into various ways in which NBS can fill desired functions. Finally, the costs and benefits of the NBS are assessed, resulting in an advice on how NBS can be of added value for the project.

NBS Factsheets provide an overview of functionalities, practical application, advantages and disadvantages of the NBS that appear to be of value to the project. After the NBS Quickscan, together with the client, we decide which NBS offer added value to the project and are applied in the design.

#### *Case 2 Nature-Based Integrated Coastal Protection of Java*

Our project along the north coast of Java (Indonesia), that provides coastal protection and sustainable aquaculture production, materialised the transition to climate resilience and circularity. The coastal zone that consists of coastal waters, mud flats, mangroves and aquaculture ponds provide multiple services and have strong interrelation. By restoring the mangrove green belt besides the coastal protection, the water quality is increased and as well as the size of habitats resulting in a larger fish population resulting in more fish catch. With sustainable aquaculture the production increased as well as the water quality strengthening the co-benefits already stated. These results are achieved in strong involvement of the local communities and governments.

#### **Option 4: Workshop: Support to the EU Mission “A Soil Deal for Europe”: How to engage actors, close R&I gaps and set up Living Labs and Lighthouses**

**Organisers:** Linda Maring, Laura Nouguès, Saskia Keesstra (room 0.40)

**Workshop description:** The project “Soil Mission Support” (SMS) takes the audience along the objectives and activities of the European Soil Mission “A Soil Deal for Europe”. The goal of the Mission is to lead the transition towards healthy soils by 2030. The Mission has set “operational objectives”: 1) R&I; 2) soil literacy; 3) monitoring; 4) Living Labs and Lighthouses (LL&LH), and 8 specific objectives on soil threats, EU global footprint on soils and soil literacy.

SMS presents for three operational objectives its activities and discusses after each presentation what helps to implement the soil mission in practice:

**R&I;** SMS presents the gap analysis per mission objective

Discussion: Do you miss gaps? What are effective ways to close these gaps? How can we reach specific regions with specific challenges?

**Soil literacy:** SMS presents the actor engagement guide, actor value propositions and ontology

The audience is asked to add examples to make different actor groups enthusiastic for healthy soils

**LL&LH:** SMS developed criteria, characteristics, success factors for LL(-network)s

We discuss: What topics/mission objectives fit in a LL setting? What business models are effective? How to engage actors in LL?

Discussion results will be used in the SMS Roadmap for the Mission.

**13.00-14.00      Lunch**

## Plenary session Theme 2: NATURE BASED SOLUTIONS FOR NATURAL HAZARDS (FIRE, FLOODS AND DROUGHTS)

Chair: Co Molenaar (Red Room)

**14.00-14.25 Keynote Esther Blom (Stichting Ark): Rewilding nature to combat societal challenges**

**14.25-14.50 Keynote Hein Pieper (Dijkgraaf Waterschap Rijn en IJssel/ head of the Water Authority Rhine and IJssel): pending**

**14.50-15.30 Discussion and poster pitches**

**15.30-16.00 coffee break**

**16.00-17.30 Parallel session 2 (4 parallel sessions)**

### Option 1. Oral session methodologies

**Organisers: Manuel Lopez-Vicente and Anna Klamerus-Iwan (room purple/paars)**

**Description:** NBS must be applied in agriculture, forestry and natural areas to achieve sustainable management. The NBS are usually smaller scaled and based on soil or landscape solutions but they must be applied upon policies that apply strategic solutions for regions and countries. Besides, an accurate assessment of soil sustainability includes the characterization and analysis of a wide range of parameters like soil structure, erosion, quality, biodiversity, degradation, resilience, management, health, use, productivity, etc. Topics like sensors installed in UAVs, in-situ monitoring at high temporal resolution, data mining, machine learning analysis, advanced geo-statistical methods, connectivity of water and sediment, sustainable land management options in intensive and extensive agriculture or social, economic, biophysical and perception constraints are welcome.

NR	PRESENTER	ORAL PRESENTATIONS
1	Annelie Soeurich	To seal or not to seal ,Äi what kind of soil is lost in Germany?
2	Roeland Emaus	What triggers a socio-ecological transition? Lessons from the Early Middle Ages.
3	Dafni Petratou	How can different decision-making criteria shape mulching techniques in burnt areas?
4	Veronica Nogueira	Are nature-based solutions a sustainable and efficient treatment option for olive oil mill wastewater?
5	Sylvia Maria Alfieri	Remote sensing monitoring of beach cliff vegetation and shallow landslides in Catterline Beach, Scotland
6	Anna Brook	Total Carbon content assessed by UAS near-infrared imagery as a new fire severity metric

**Option 3. Workshop Challenges and opportunities for the upscaling of successful climate buffers (Klostermann et al.)**

**Organizing team:** Judith Klostermann, Jeroen Veraart, Wilma Jans, representative of ‘Coalitie Natuurlijke Klimaatbuffers’ (CNK) (room purple/paars)

**Description:** The concept of ‘climate buffers’ has been put in practice in several successful field pilots. Climate buffers typically realize different important aims at the same time: CO2 sequestration, water retention, coastal safety, biodiversity improvement, better quality of the landscape, and more. Despite this potential, it remains a question how this concept can be upscaled to become common practice, and how it can best be integrated in land use planning. In order to use the momentum of climate mitigation, additional knowledge is needed how CO2 sequestration can be optimized by climate buffers without increasing methane emissions. The financing options and land use planning options for climate buffers also need more work. How can we make opportunity maps for climate buffers in different landscapes such as the marine coast, wetlands, or high & dry nature types? What stakeholders need to be involved to put it into practice? This is not only interesting from a scientific point of view, but also urgently needed from a societal point of view, as both the clocks of climate change and biodiversity loss are ticking more loudly than ever.

Session format: We propose a series of short (5-10 min) presentations, in which each presenter lists relevant challenges and opportunities at the end of their presentation. After that a group discussion is held to analyse if we recognize patterns in the challenges and/or the opportunities, and how this could be addressed in the future.

**Option 3. Oral Session Paradigm shifts in wildfire management**

**Organisers:** M. Gómez-Giménez, A. Neidermeier, M. Roberts, G. Laneve, A. Cerdà (room Green/groen)

**Description:** Wildfires are considered either a forest threat or a beneficial source of ecosystem services. However, the number of fires and length of fire seasons are growing as an effect of climate change. In the Mediterranean region, more than 40,000 fires a year were recorded between 2010 and 2016. Moreover, recent fire events on lands with high carbon content have begun to be especially concerning. Therefore, wildfire monitoring is more crucial than ever to mitigate the risks associated with unchecked wildfire. Managing these risks demands a trade-off between costs and efficiency. Current approaches involve high-cost suppression operations along with controversial policies that lead to inefficient risk management. To overcome these issues, new approaches promote groundbreaking technology, training, guidelines, and policy recommendations to improve wildfire management, reduce the most harmful effects, and adapt fire management strategies to socioeconomic contexts and projected climate scenarios. In this session, we wish to engage researchers, professionals, legislators, and citizens to exchange experiences and discuss the impact of wildfires on nature and society, needs to prevent extreme wildfires, the role of land management strategies at different scales, and nature-based solutions for fire risk management across Europe.

NR	PRESENTER	ORAL PRESENTATIONS
1	Serhii Sydorenko/Sergey Zibtsev (online)	APPROACH FOR SELECTION OF FIRE RISK ASSESSMENT, REDUCTION AND ADAPTATION PRODUCTS FOR DEMONSTRATION WITHIN FIREURISK PROJECT (online)

2	Alex Neidermeier	Land management strategies to reduce wildfire risk across Europe
3	Ruth Pereira	Native soil microalgae and cyanobacteria consortium as a nature-based solution for the immediate protection of burnt soils
4	Mario AL SAYAH	Modeling forest fire risk in southern Corsica and development of a decision support tool for local authorities and land protectors
5	Rebecca Aleix (online)	Greenhouse gas emissions risk management in forest fires (Interreg Sudoe REMAS)
6	Viktor Myroniuk (online)	Mapping canopy base height using GEDI relative height metrics for wildfire simulation models (online)

**Option 4: Workshop: Scaling Nature-based Solutions for climate resilient food systems: What works and what not?**

**Organising team:** Annemarie Groot, Cora van Oosten, Wijnand Sukkel, Vincent Linderhof (Wageningen University and Research) (room 0.40)

**Workshop description:** Food systems are currently not delivering what is expected or needed to ensure food security, an affordable, safe, and healthy diet for all people, ecological sustainability and resilience. Climate change and biodiversity loss add stresses on food systems. Many exemplary projects have demonstrated that nature-based solutions can contribute to climate resilient food systems, if they are implemented in the right place, and are well adapted to the spatial conditions. Spatialising nature-based solutions has implications for the way in which they are applied, accelerated and scaled. This workshop will discuss different experiences with the scaling of nature-based solutions, and their different levels of success.

First, Vincent Linderhof and Jeroen Veraart will share their experiences with nature-based solutions that are inspired by or make use of natural processes. They will share their work in Ghana and The Netherlands, where *spatial approaches* are used to scale nature-based solutions of rainwater harvesting and wastewater management. In both cases a software tool has been used to combine expert knowledge with spatial and statistical data to identify feasibility and scaling opportunities of nature-based solutions within a specific area.

Second, we will learn from Seerp Wigboldus how a *transition perspective* can help to support the scaling of nature-based solutions in food systems. Seerp will help us to use a transition lens for reflecting on the opportunities and barriers to scale nature-based solutions in different climate zones and socio-spatial contexts.

Finally, Simkje Kruiderink from the Dutch Ministry of Agriculture, Nature and Food Quality (LNV) will focus on nature-based solutions from a *policy perspective*, and highlight the different challenges that exist for the design and implementation of policies around nature-based solutions in food systems”.

The presentations will be followed by an interactive session during which the panel members will interact with the audience. The audience will be challenged to share their own experiences with nature-based solutions, and give recommendations with regard to their scaling. The panel members

will then react on the audience's experiences and recommendations from a scientific, an implementation and a policy perspective.

### 17.30-19.00 Poster session with refreshments

NR	Presenter	Poster Title
1	Saskia Visser	European Joint Program Agricultural Soils under Climate Change
2	Manuel Lopez-Vicente (online)	Seasonal changes in the effectiveness of a seeded cover crop to reduce the loss of soil nutrients in a rainfed vineyard
3	Tisja Dagggers	Assessment of the performance of implemented NBS in the IJssel delta, The Netherlands ,À land cover and biodiversity
4	Jesus Barrena Gonzolez	Determination of dry matter production by spectroscopy techniques in rangelands of SW Spain
5	Jannes Uhlott	How does different crop type classifications affect biodiversity indicators in arable regions in Germany: towards (geo)data fitness for use quality metrics
6	Adriano Sofo	Adoption of nature-based solutions and orchard sustainable management to face kiwifruit vine decline syndrome (KVDS)
7	Valerio Vivaldi	Hydrological monitoring on different managements vineyards to access shallow slope failures susceptibility and water stress phenomena
8	TianJiao Feng (online)	Long-term effects of afforestation on hydrological ecosystem services on the Loess Plateau
9	Saskia Keesstra	Nature-based solutions as building blocks for the transition towards climate resilient and circular food systems
10	YuFei Zhang (online)	Effects of vegetation restoration on soil physicochemical properties are achieved by the coupling contributions of biological synusium on the Loess Plateau
11	Marit Kragt	Using Black Soldier Fly technology to turn livestock waste into profitable products
12	Ilse Nijenstein (online)	Monitoring gully erosion in a coastal slope with Nature-based Solutions using terrestrial laser scanning
13	Artemi Cerda	The use of weather types to foresee future runoff and soil loss activation in Mediterranean burned Shrublands
14	Rosemarie Stangl	Nature-based Soil Bioengineering Solutions for Post-fire Response and First Erosion Control
15	Pavel Raska	Four perspectives on agri-forest configurations for natural flood management
16	Anna Brook	Inclusive Outscaling of Agro-ecosystem REStoration ACTions for the MEDiterranean - Pilot Area Bethlehem of Galilee, Israel
17	Antonio Minervino Amodio (online)	Analysis of land use changes and erosion process for a Degraded Rural Landscape using DEMs, Historical Images, LEM and USPED Models
18	Kevin Thibaut	Socio-ecosystemic analysis of the 2018 drought in Wallonia (Belgium) and possible recommendations for a transversal and sustainable risk management



<b>19</b>	Vukasin Roncevic	Measuring the size of pendant water drop generated by hypodermic needles for construction of rainfall simulator for soil erosion research
<b>20</b>	Valerio Vivaldi	Estimation of shallow landslides susceptibility by the hydrogeological characterization of vineyard steep slopes, through a multidisciplinary survey.
<b>21</b>	Artemi Cerda	The role of extreme rainfall events on soil erosion on bare and plant covered plots: A 7-year assessment under Mediterranean climatic conditions
<b>22</b>	Mario AL SAYAH	On the use of the Resilience Performance Assessment framework for evaluating NbS-induced hydro-geomorphic connectivity
<b>23</b>	Eleni Kokinou (online)	Modeling Soil Texture Parameters for Irrigation Optimization: a case study from Crete (Greece)
<b>24</b>	Marta Gomez-Gimenez	Adapting wildfire management to climate and global changes: A paradigm shift for the European Union
<b>25</b>	Zeinab Hazbavi (online)	How much have the nature-based solutions incorporated in the studies of Iranian paired watersheds?

## 29th of June

8.00-9.00 Registration

### Plenary session theme 3: SCIENCE BROKERS FOR TRANSITIONING TO A CLIMATE RESILIENT AND CIRCULAR SOCIETY

Chair: Margot de Cleen (Red Room)

9.00-9.25 Keynote Lilian van den Aarsen (Director of the Delta Programme Commissioner's Staff): Climate adaptation in the Netherlands, Lessons from the Delta Programme

9.25-9.50 Keynote Nicola Di Virgilio (EU Commission DG Agriculture and Rural Development): EU Climate policies in the land sector

9.50-10.30 Discussion and poster pitches

10.30-11.00 Coffee break

### 11.00-12.30 Parallel session 3

Option 1: Oral session **Environmental Resilience and Nature Based Solutions: Communication, Science, Policies**

**Organisers:** Margot de Cleen, Co Molenaar, Enric Castelló (room red/rood)

**Description:** This session includes contributions on research advances, communication and applied policies and measures focused on Environmental Resilience (ER) and Nature Based Solutions (NBS). The paradigm of "the fight against climate change" and its consequences is turning towards the need for parallel action to promoting the management and communication of change. Nature has resilient and regenerative mechanisms that we must understand and accompany. For this, we need better interpretive frames that trigger urgent decisions to slow down global warming. The session will explore ways to create citizens awareness and comprehension on the mechanisms required to attenuate the consequences of climate change on the environment and nature: these include vegetation recovery, soil transformation, physical and chemical processes, species adaptation, water management, and other sort of reorganization in response to the changes. The session will cover case study examples on ER and NBS, media and storytelling approaches, field experiments involving different stakeholders and resilience building projects.

**Keywords:** Environmental Resilience, Nature Based Solutions, Science Communication, Stakeholders Interaction, Social Awareness, Environmental Media.

NR	PRESENTER	ORAL PRESENTATIONS
1	Andrea Aldas-Vargas	Describing the potential of nature based solutions for urban groundwater remediation in the Griftpark by the use of storytelling
2	Enric Castello (online)	Is the resilience frame of wildfires gaining momentum in mainstream media? Exploring narratives in Spain
3	Catalina Papari	Can the EU Taxonomy help upscaling investments into urban nature-based solutions?
4	Tim van Hattum	Toward a nature-based future: A vision for a nature-based future for The Netherlands
5	Mirjam Hack-ten Broeke	Nature Based Solutions for climate adaptation in the Netherlands
6	Carmen Rodriguez Fernandez-Blanco (online)	Revisiting wildfire resilience from a territorial perspective: Insights from Mediterranean Spain

**Option 2: Oral session Nature based solutions for urban and industrial areas (land and water management and spatial planning)**

**Organisers** (Gerben Mol, Wouter Grevaerts, Carla Ferreira) (room purple/paars)

**Description:** Urban environments are under great human pressure and subject to environmental degradation. Nature based solutions are in many cases the option of choice for policy- and decision-makers and other urban professionals when they want to increase urban resilience vis a vis the effects of climate change and increase the liveability of the urban surroundings. In this session we would like to explore the role of soils in the urban setting and the water management challenges, innovative nature based approaches and methodologies to face urban environmental degradation, and enhance the scientific basis for sustainable development and urban resilience.

NR	PRESENTER	ORAL PRESENTATIONS
1	Rosemarie Stangl	Potentials of circular and engineered soils for advancing and re-establishing nature-based retentive functional surfaces
2	Lenka Dubova	How to sustainably implement and operate community gardens: Understanding the motivation of community garden coordinators
3	Bunafsha Mislimshoeva/ Mario Al Sayah	A methodology leveraging satellite data to support urban resilience planning through nature-based solutions: Application to the city of Ouagadougou in Burkina Faso
4	Suzanne Faber (video, Ruud Schotting for Q&A)	Past, Present and Future Predictions „Ä Understanding the behaviour of contamination at a complex former manufactured gas plant
5	Paola Sangalli	Soil and Water Bioengineering in urban fluvial rehabilitation and in flooding prevention: The Estepona RiVER
6	Sebastien Kaskassian	Phytoremediation: a nature-based remediation solution and a means for improving underground and above ground biodiversity

**Option 3: Workshop: interaction between society, problem owner and regulator on brownfield redevelopment**

Organisers: the Nicole network; Wouter Grevarts (room blue/blauw)

**Workshop description:** In this session we would like to focus on several aspects of the redevelopment of contaminated sites/brownfields into healthy soils. Part of the aspects is linked on the different topics of healthy soils (sealing, organic matter, contamination,...), part of them is linked to stakeholder engagement. We will include the views of the different partners in those redevelopments : regulator, consultant, redeveloper, problem owner. The following presenters are invited :

- Paul Van Riet(Nicole, the European Network for sustainable land management of industrial sites) : setting the scene
- Lydie Sombre (Brussels Environment, Belgium): What is for the regulator a healthy soil in an urban area?
- Anne Delos (Ma Friche Urbaine, France): How to include the neighbors in the redevelopment process?
- Lida Schelwald-van der Kley (Nicole): Land Stewardship at industrial sites; a chance to enhance societal and natural value (see also the abstract attached

**Option 4: Workshop RESANAT: Nature based solutions : importance of quantifying natural processes and dynamics**

**Organisers:** Ovam : Katrien Van de Wiele / Hans Vincent; Deltares : Marcelle Van der Waals; Tauw: Tobias Praamstra; iFLUX: Marjan Joris; TTE Consultants: Lisanne Keijser (room 0.05)

**Workshop description:** RESANAT stands for the remediation of residual contamination with nature based solutions. Nature based solutions use the natural capacity and resilience of plants, microorganisms and natural materials, processes and resources e.g. (ground)water flow, wind and solar radiation. Ovam, the public waste agency of Flanders, manages the project and joins forces with 8 partners: Bio2Clean, Deltares, Dura Vermeer, iFLUX, Jan de Nul , TAUW, TTE Consultants and Witteveen + Bos. The objective of the project is to eliminate risks and stimulate the (re)development of historical industrial sites, contaminated with persistent components, in Belgium and the Netherlands by using nature based solutions.

Instead of using conservative remediation techniques, with high cost and energy consumption, innovative nature based solutions are put in practice to demonstrate their efficiency and increase applicability and reliability for persistent contaminants. The RESANAT project started in 2019 and will be finalized by the end of 2022. The project provided to test and demonstrate 3 known nature based remediation concepts, reactive mat, phytoremediation and in-situ stimulated biological remediation. In the design and monitoring of the pilot tests additional to the available results and traditional testing, innovative technologies are used to create better insights in the behaviour and spreading of the contamination and the natural dynamic processes characteristic for these - long term, less disruptive - nature based solutions.

During this session we will present both the concepts and results of the 3 demonstration projects of Resanat, with a major focus on the reactive mats in De Lieve, Ghent. We will also introduce the

nature based remediation concepts of LIFE Narmena. In this project phytoremediation and constructed wetlands are used to immobilize heavy metals in waterways, riverbanks and flooding area, in order to reduce the bioavailability and thus the risk posed by the pollution. RESANAT and LIFE Narmena use similar concepts and complement each other since they tackle respectively organic and inorganic pollutants.

More information of the demonstration projects and plan of approach of both projects you can find on their project website:

<https://www.ovam.vlaanderen.be/resanat>

<https://www.narmena.eu>

The remediation measurements will be explained together with the monitoring technologies which are used to develop and monitor future proof remediation concepts. Beside results we'll clarify uncertainty and gaps, explaining when alternative methods are applied to fill these gaps, or when not. This approach creates more certainty, adding value in dimensioning the remediation measurements. Same approach and technologies are used to monitor efficiency and effectivity to allow adjustments, proactively, when needed. Nature based solutions are a less disruptive and sustainable alternative to conservative approach. To succeed it is of great importance to understand the natural processes used in the remediation to get insights in the dynamics occurring and let them do the work.

During the session we'll show a movie with the perspective of the different stakeholders. The results of the pilots will be presented together with the challenges, lessons learned and how to proceed. We want to show the challenges and opportunities of the redevelopment of historical industrial sites in and near urban areas for society and environment.

The demonstration projects provide tools for good design and policy advise. TERRAenVISION offers the opportunity to present and collect feedback, which contribute to practical guidelines and codes of good practice. Herefor we'll provide and moderate an interactive part with questions to the audience.

## **12.30-13.30      lunch**

# **Plenary session theme 4: NATURE BASED SOLUTIONS FOR LAND AND WATER MANAGEMENT IN URBAN AND INDUSTRIAL AREAS (SOIL, WATER AND SPATIAL PLANNING)**

Chair: Tim van Hattum (Red Room)

**13.30-13.55      Keynote Marco Roos (Naturalis): Wanted: biodiversity in the City; do we realize what it entails? – from decoration to ecology**

**13.55-14.20      Keynote Thomas Hartmann (Technical University of Dortmund): Urban floods and private land - challenges of implementing nature-based solutions**

**14.20-15.00      Discussion and poster pitches**

**15.00-15.30      Coffee break**

## 15.30-17.00 Parallel session 4

### Option 1: Circular Economy and Carbon Farming

**Organisers:** Saskia Visser, Peter Kuikman, Tim van Hattum & Marit Kragt (room red/rood)

**Description:** This scientific session aims to share knowledge and build an international network on the potentials and limitations of nature-based interventions, solutions and pathways to enhance the transition towards a circular and climate neutral society. The land use and agricultural sector has been long been flagged as not just a contributor to greenhouse gas emissions and to loss of soil and water quality but at the same time part of the solution.

Changing land management practices can increase carbon sequestration and improve soil health, enhancing the soil's capacity to provide ecosystem services (primary productivity, nutrient cycling, water purification and regulation, climate regulation with carbon sequestration, and habitat for biodiversity and biological processes).

In this session, we explore the different ways in which nature-based solutions (NbS - including carbon farming) can contribute to a circular economy and a net zero emissions agricultural sector. Topics may include the following:

- Potentials and limitations and governance of NbS to close water, nutrient and carbon cycles, and mitigate the impact of land use and agriculture on climate change and resilience of food systems
- Potentials and limitations of NbS to minimize resources losses, reduce waste and environmental degradation, and so enhance circularity
- Lock-ins and enablers of a nature-based driven transition towards circular food systems under climate change
- Synergies and trade-offs between existing carbon farming policies across different scales and how can we carbon farming schemes that cover benefits and returns to farmers in terms of risks and insurance.
- Encouraging the uptake of carbon farming and circular practices by creating a market that pays farmers for the ecosystem services provided by such practices
- Accounting for the large diversity of farms between and within EU countries.
- Solutions that address in particular socio-economic barriers and levers for promoting soil health in agricultural soils, i.e., promoting the delivery of ecosystem services by soils.

NR	PRESENTER	ORAL PRESENTATIONS
1	Stefano Martini /Dico van Aalderen	Orchid City
2	Cheng Liu	Climate Knowledge Agenda: Synergies and trade-offs of Wageningen Climate Solution
3	Tessa van der Voort	Enabling carbon farming: presentation of a robust, affordable and scalable method

4	Marit Kragt	Using Black Soldier Fly technology to turn livestock waste into profitable products
5	Mathieu Nogues	ORCaSa project
6	Joke van Wensem	LIFE CO2SAND Using clay to make farmland climate proof

**Option 2: Workshop: Multi-functional nature-based infrastructure in urban areas: where and how?**

Organizers: Alida Alves Beloqui and Wei-Shan Chen (WUR) (room purple/paars)

**Description:** The goal of the session is to discuss how to integrate multiple functions or benefits when planning nature-based solutions (NBS). There are many types/options of nature-based infrastructures and different places where they can be implemented in urban spaces. Deciding what option to apply and where to allocate them should consider a combination of objectives. Climate adaptation, human health, biodiversity and energy saving are examples of objectives where nature-based infrastructures can be of added value. How to maximise multiple benefits using NBS? What aspects need to be considered when planning these measures to target multiple objectives? We will explore these questions through an interdisciplinary and interactive session, where we integrate research and practical perspectives. We will present the main elements to consider when trying to achieve each single objective. Afterwards, we propose a collaborative activity to explore together synergies and trade-offs between different objectives.

**Presentations by:**

Roy Remme (Leiden University)  
 Joeri Morpurgo (Leiden University)  
 Mike Slootweg (Leiden University)  
 Joeri Willet (WUR)  
 Alida Alves Beloqui (WUR)

**Option 3: Workshop: Planning for effective urban NatureBasedSolutions – combining long term visions and short-term actions**

Organising Team: Ilse Voskamp (WENR) and Reinder Brolsma (Deltares) (room blue/blauw)  
 Format: Presentations of concrete cases (research projects in Dutch cities) followed by interactive discussion

**Workshop description:** Nature-based solutions (NBSs) are increasingly recognized for their potential as an urban climate change adaptation measure and strategy. For NBSs to be effective, they require integrated and trans-sectoral planning that involves a wide range of stakeholders and address diverse interests and different perspectives. Planning for NBS in urban areas is thus a challenging task and the uptake of NBS is a task that many cities are struggling with. How to overcome these challenges?

In this session experts from practice and research will share experiences and results on planning and implementing of NBS for climate adaptation in Dutch cities from an integrated, multi-scale perspective. Firstly, we will highlight how long-term, city-scale visions (based on the underlying soil and water system) are needed as a dot on the horizon to plan in an integrated way for effective

urban NBS. Subsequently, we will zoom in to the city, neighbourhood and street level and the different planning horizons. We share the challenges faced at these scale levels and we would like to discuss with you what is needed and can be done to accelerate a wider uptake of NBS in urban areas on the short term.

- Ilse Voskamp, Wageningen Environmental Research (WENR)
- Reinder Brolsma, Deltares
- Daniel Goedbloed, Waternet
- Jeroen Kluck, HvA
- Daan Rooze, Deltares
- Rens Wijnakker, FABRICations

#### **Option 4: WORKSHOP: How can subsurface Nature Based Solutions properly be implemented in sustainable urban areas**

Organisers: Tim Grotenhuis (Wageningen University Research); Maurice Henssen (Bioclear earth). (room 114)

**Workshop description:** Due to industrial activities and urbanization, subsurface soil and groundwater in most cities is contaminated to some extent. Clean up is expensive and not always adaptable within the existing situation. However, when restructuring and redeveloping urban areas, nature based solutions are very well combinable with measures that are commonly taken in modern urban developments. Installing sustainable energy systems, like ATEs (Aquifer Thermal Energy Storage) and greening of the urban environment are aims on itself, and fortunately gives opportunities to integrate nature based solutions, leading to a steady quality improvement of soil and groundwater. Biological degradation of groundwater contamination can be stimulated using ATEs systems and with the help of some additional, well-thought eco-engineering, urban landscaping can scaled up towards “remediating green areas”. Implementation of these effective combinations however takes some effort, in design, planning, organization and financial aspects.

Our main question for our open session will be: How can subsurface Nature Based Solutions properly be implemented in sustainable urban areas?

Within 20 minutes using concise, catchy presentations various interesting combinations of urban redevelopment will be highlighted by the conveners Tim and Maurice. Presenting three Nature Based Solutions in concrete cases:

- ATEs+: Heat and Cold storage in the subsurface combined with accelerated biodegradation of contaminated groundwater
- Phytoremediation: using remediating green infrastructure, helping to cleanup soil and groundwater
- Monitored Natural Attenuation (MNA): nature on its strongest, taking care of contaminants all by itself.

Based on these introducing examples the attendees and panel participants will discuss:

- Nature Based Solutions in the subsurface provides results in a time period of 20 to 30 years; political decision has a cycle of on average 4 years: How to organize the NBS on a consistent and sustainable manner? How to provide an attractive societal business case?
- Stacking of functions in the urban m<sup>2</sup> is essential for the development of a sustainable city. How to organize the integrated stacking of functions? Can Urban Living Labs function as catalyst?
- Who or which parties should be available to initiate such redevelopment cases?

### 17.00-18.30 Poster session with refreshments

NR	Presenter	Poster Title
1	Milica Kasanin-Grubin (online)	Increase of sustainability of urban forests by prevention of land degradation
2	Ines Amorimdovale Leitao	Retention of microplastics by green urban spaces vegetation
4	Marc Brian Alivio	Stormwater control benefits of urban tree canopy via rainfall interception and intensity reduction
5	Ruud van Uffelen	LIFE CO2SAND Using clay to make farmland climate proof
6	Anna Brook	Integrated modelling for urban runoff
7	Martin Dolejs	Floodplain land uptake: Cental-European perspective
8	Bunafsha Mislimshoeva (online)	Infrastructure vulnerability assessment and NbS recommendations
9	Anna Klamerus-Iwan	Evaluation of selected factors affecting the water capacity of small-leaved linden (T. cordata Mill.)
10	Saskia Keesstra	What does the circular and climate neutral household of the future look like?
11	Marit Kragt	The failures of Australia, Ås carbon farming policies
12	Tessa van der Voort	Leveraging legacy data to lower implementation thresholds for carbon farming
13	Irene Christoforidi (online)	Bringing the Wood and Scrub to the Mediterranean Urban Park
14	Bijan Khalilimoghadam (online)	The effect of different urban land use on the deposition of particle matter by plants in southwestern Iran
15	Jia Zhou	Mathematic programming and model simulation for cover crops in Northwest China by assessing ecological and economic values

**18.30-21.00 Conference dinner at  
De Veldkeuken (Koningslaan 11a, NL 3981 HD Bunnik)**

## Venue

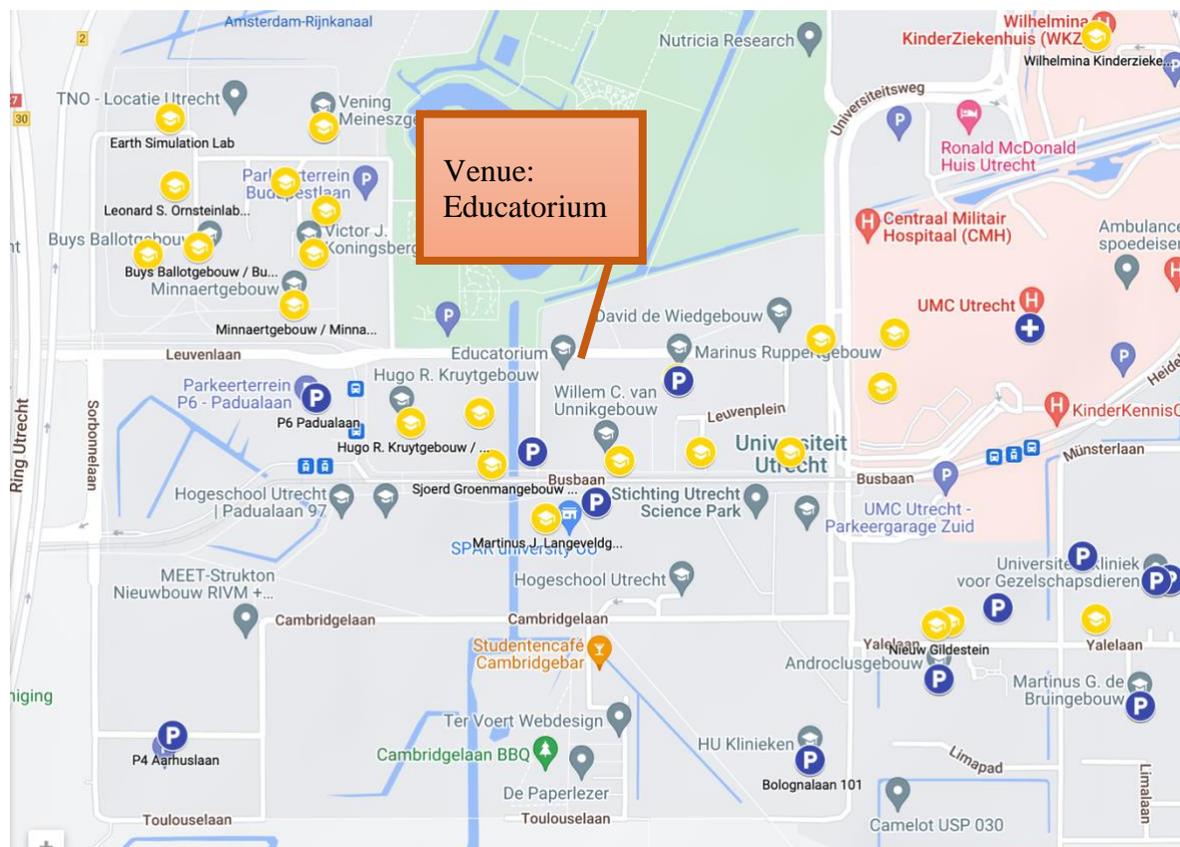
Conference will be organised at the University Campus of Utrecht University, the Uithof, building Educatorium: Leuvenlaan 19, 3584 CE Utrecht. Tel: +31 (0)30 253 8538 (reception)

### How to get there:

- Utrecht is connected to Schiphol Airport by direct train. At Utrecht central station there is a bus: 28 bus stop Heidelberglaan or tram 22 to Heidelberglaan
- More details can be found at: [www.9292.nl](http://www.9292.nl)
- By car: on the campus you can park in the Parkeerterrein P6 – Padualaan or Carpark Leuvenlaan from there it is a 5-10 minute walk to the venue.

More info on: [www.terraenvision.eu](http://www.terraenvision.eu)

### Map of the campus





# Excursions

## 27<sup>th</sup> June Nature based City walk with icebreaker

Start at central station at **16.00**  
Tour around the historical center of Utrecht where NBS are used.

**18.00: Icebreaker at 'De Rechtbank' (Korte Nieuwstraat 14, Utrecht)**



## 30<sup>th</sup> June: Excursion: NBS in sustainable land management, flood management and circular climate resilient farming

To fulfil the societal challenges we need 3 to 6 times the land surface of the Netherlands. Sustainable and multiple use of soil and land is needed. The excursion shows this in the Soil4U project in practice. Also examples will be shown where combinations of climate adaptation, improvement of biodiversity and the spatial quality are realized.

- 7.45 Departure Campus Utrecht University, Leuvenlaan 19
- 9.00 – 9.30 Arrival and welcome at Grootstal Estate, Sint Jacobsweg 15a, 6533 KL Nijmegen
- 9.30 – 10.00 'Multi-purpose is the new effective' Introduction to the Estate Model 'Soil4U'; Presentation by Kien van Hövel tot Westervliet
- 10.00-10.30 Introduction on Climate Farmers for life (by Anne van Leeuwen)
- 10.30- 12.00 Tour on the estate/Climate Farmers for life
- 12.00-13.00 Sustainable Lunch
- 13.00-13.20 Introduction on Room for the River (by Co Molenaar Rijkswaterstaat)
- 13.20-13.40 Introduction Blue Green Deal Water Authority Rijn and IJssel (Marion Wierda, Waterschap Rivierenland)
- 13.40 – 14.15 Transport to the 'Waalsprong' part of the project Room for the River
- 14.15 – 15.00 Tour 'Waalsprong' bypass River Waal (De Bastei, Nijmegen)
- 15.00 – 15.30 Departure Ooijpolder
- 15.50 Tour Nature development and conservation Ooijpolder ( Henk-Jan Kooij, Radboud University Nijmegen/ViaNatura)
- 17.00 Back to Utrecht

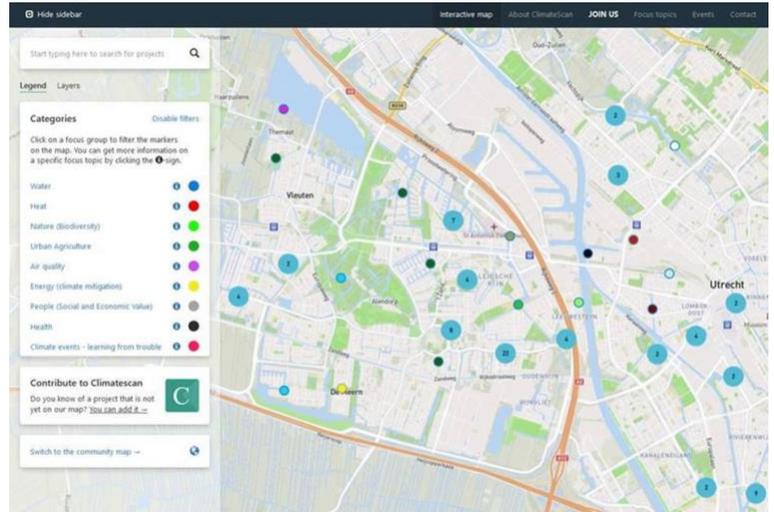


## Excursion 1<sup>st</sup> July: Urban small scale Nature-based solutions Utrecht (morning) and peatland in Holland (afternoon)

### MORNING

Fieldtrip Urban small scale Nature-based solutions Utrecht

Utrecht was one of the first municipalities to implement NBS such as bio swales, green roofs, sub surface infiltration and constructed wetlands. On this fieldtrip we will visit some 'vintage NBS' that are implemented more than 15 years ago when Leidse Rijn (west of Utrecht) was built. We will discuss the design, construction and maintenance needed for their long term efficiency. We will do this fieldtrip the Dutch way, so make sure you know how to ride a bike with a sandwich of cheese in one hand.



### AFTERNOON

Peatland management in Holland

The western part of the Netherlands has iconic Dutch landscapes with meadows with cows and sheep and windmills. But the soil beneath this landscape is mainly peat. Which has been oxidating and subsiding since it was drained from being a low land swamp/peat bog. In this afternoon excursion by bus we will visit the municipality of Gouda to discuss possible future ways to manage the Dutch peatlands with key scientist dr. Gilles Erkens and local stakeholders.



# TERRAenVISION 4

See you at in Granada, Spain (University of Granada, Faculty of Philosophy and Letters; Dr Rodrigo-Comino)

Dates to be confirmed in July 2024: 3 days meeting, 2 days excursion (to the Sierra Nevada, Beatic Experimental Plot (Terra Lab UGR))



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