IABR – 2016 – THE NEXT ECONOMY – URBAN UNDERGROUND DAY – 23/06/2016 –

URBAN UNDERGROUND is a full-day programme that addresses how careful deployment of the subsurface can enhance the value of the environment above ground. Cities are getting busier. For a city to continue to be successful it is necessary that further urbanization and densification occurs in a sustainable way and that changes in the economic, social, cultural and social fields and can also be accommodated. This requires careful planning and coordination between all the different functions in the public space.
Therefore the central theme of the International Architectural Biënnale Rotterdam 2016 will be the transition towards THE NEXT ECONOMY.
The contribution of the subsurface in this transition and to making our cities sustainable and resilient is significant but mostly unknown. The IABR Day of the URBAN UNDERGROUND on 23rd of June will change that.

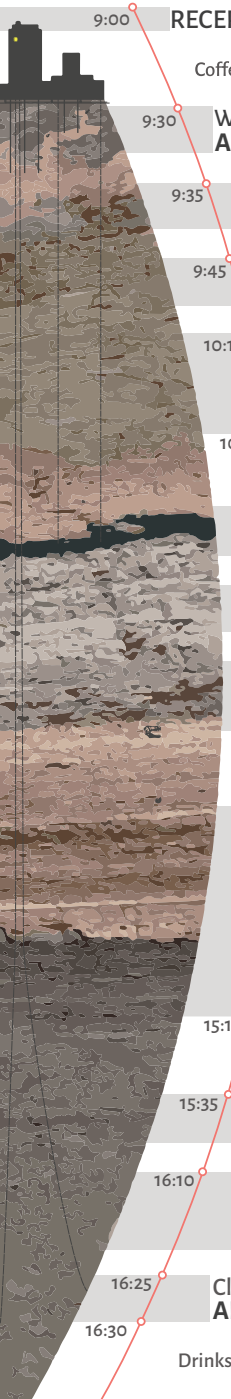
URBAN UNDERGROUND contributes to connecting the different networks in order to transform the relationship between underground experts and those who should benefit most from this knowledge such as urban planners, policy makers and the public.

Besides attending appealing presentations you will have the opportunity to participate in workshops around the themes Circular Economy, Geothermal Energy, Health and Public Participation. You can also play the 3D Serious Game Underground and visit the IABR exhibition.

The day is designed for geologists and subsurface specialists, energy experts, urban planners, architects, landscape architects, generalists, project developers,policy makers but also for interested residents; in short, for anyone who has to deal with the subsurface.

The next economy will soon be shaped by the next generation: the URBAN UNDERGROUND day will therefore also serve as a platform where "young professionals"-networks from the various involved above- and below ground level disciplines can meet and where different "generations" can inspire each other.

PROGRAMME–



9:00 **RECEPTION** - Kantine Walhalla - Veerlaan 11

Coffee and Tea

9:30 Welcome
ARD DEN OUTER - City of Rotterdam

9:35 Opening
PAULA VERHOEVEN - City of Rotterdam

9:45 Subsurface: The Engine For Transition
JAN ROTMANS - Erasmus University

10:10 European Resilience Strategies
ARNOUD MOLENAAR - City of Rotterdam
PAULO PRAZERES PAIS - Municipality of Lisbon
CATHY JOHNSTON - Glasgow City Council

10:55 Coffee and Tea

11:10 Urban Planners And The Subsurface
GURI VENVIK GANERØD - COST - SubUrban / Norwegian Geological Survey

11:30 Innovative Urban Logistics
YVETTE KOERBER - Loglay AG

11:50 Subsurface Solution For A Delta Region
KRISTEL AALBERS - Water Board Delfland
CARL PAAUWE - Water Board Delfland

12:10 Lunch - Fenixloods II - Paul Nijghkade 19

13:15 WORKSHOPS
Linking the Subsurface to:
- **Circular Economy**
- **Healthy City**
- **Public Engagement**
- **Serious Game**
- **Sustainable Energy**

15:15 Coffee and Tea - Kantine Walhalla - Veerlaan 11

15:35 Connecting To The NEXT Generation
HAN ADMIRAAL - ITACUS

16:10 Rotterdam Between Cables And Carboniferous
Michiel van der Meulen - COST SUB-URBAN / Geological Survey of the Netherlands
LINDA MOLENAAR - City of Rotterdam

16:25 Closing
ARD DEN OUTER - City of Rotterdam

16:30 Drinks

Katendrecht – Rotterdam – the Netherlands

PRESENTATIONS –

Subsurface: The Engine For Transition
Jan Rotmans, Professor in Sustainability Transitions at Erasmus University, Rotterdam

Jan Rotmans is a socially engaged scientist, with more than 200 publications in the field of climate change & global change modeling, sustainable development, and transitions and system innovations. Cities are getting busier. For a city to be successful it is necessary that further urbanization and densification occurs in a sustainable way and that changes in the economic, social, cultural and social fields and climate technical field can be accommodated. This requires careful planning and coordination between all the different functions in the public space. It is essential that the subsurface is seen as an integral part of the public space. The urban underground possesses a large untapped potential that could contribute significantly to the sustainable and resilient development of cities. In order to make use of it a radical change, a transition, is necessary. With his knowledge Jan Rotmans would like to inspire the people involved in any project, region or sector, so that they can initiate a swing into a more sustainable direction.

European Resilience Strategies
Arnoud Molenaar, Chief Resilience Officer City of Rotterdam
Paulo Prazeres Pais, Director de Departamento na Camara Municipal de Lisboa, Coordinator Resilience
Cathy Johnston Group, Manager Planning and Building Control Service Development and Regeneration Services Glasgow City Council, Resilience Team Glasgow

Rotterdam, Glasgow, and Lisbon are members of 100 Resilient Cities, a program pioneered by the Rockefeller Foundation and dedicated to helping cities around the world become more resilient to the physical, social and economic challenges of the 21st century. Resilience officers from these cities present their ideas on the role of the subsurface in Resilience. Rotterdam will handover its recently published Resilience Strategy to Diarmad Campbell, Chairman of COST SUB-URBAN, a European network to improve understanding and use of the ground beneath our cities. COST SUB-URBAN partner cities will elaborate these strategies so that the potential of the subsurface can be fully exploited.

Urban Planners and the The Subsurface
Guri Venvik Ganerød, Norges Geologiske Undersøkelse, Trondheim and Management Committee Member of COST SUB-URBAN

COST SUB-URBAN sets out to explore, promote and improve the use of the urban subsurface. It aims to help identify options for cities to grow and develop more sustainability that are currently overlooked, and to increase the predictability of ground conditions that are now considered unforeseeable. COST SUB-URBAN has arranged for interaction between the two, allowing all participants to keep to their trade, and to bring in what each does best. Even though (potential) providers and users of urban subsurface information do of course consult with each other, COST SUB-URBAN has enabled a level of exposure between the two that is rare, both in duration and depth. A first general lesson learned from the whole exercise is that the interaction achieved in this way has been very useful and productive.

Innovative Urban Logistics
Yvette Koerber, Loglay AG

The infrastructure of the future will consist of multi-functional smart networks, where heat transport is combined with data-, electricity-, water and freight are combined. Most of these networks are located in the subsurface
Yvette Koerber has more than 20 years of management experience in the logistics industry. She continuously pushes herself and others towards the application of the latest technologies and sustainable solutions. Her last assignment was with Zeppelin Baumaschinen GmbH in Germany where she was responsible for the Business Unit of fork lift trucks. Prior to that she was responsible for Sales & Marketing worldwide at Jungheinrich Germany. Currently Yvette is a Managing Partner of Loglay AG and member of the board of Cargo Sous Terrain, the planned underground freight system in Switzerland. Yvette has a background in economics.

Subsurface Solutions for A Delta Region
Kristel Aalbers, Water Board Delfland
Carl Paauwe, Water Board Delfland

Midden Delfland, the region between Rotterdam and The Hague is an example of a deltaic area that faces a lot of challenges related to the subsurface. The Region is densely populated with sensitive groundwater levels threatening the historic buildings in old cities; with geohydrological issues related to recent highway- and railway tunneling projects; with gas- and oil production in the past and with potential and potential for shallow and deep geothermal energy potential at present. Sustainable development requires an interdisciplinary and integral approach to the subsurface.

PRESENTATIONS –

Connecting To The NEXT Generation
Han Admiraal, Chairman of ITACUS, the International Tunnel Association International Tunnelling & Underground Space Association

Han Admiraal is an independent consultant in the field of underground space planning, use and management. He is based in Rotterdam, the Netherlands. ITACUS as committee is charged to create awareness on the planning, use and management of urban underground space. To do this, ITACUS has reached out to several international organizations, including ISOCARP, the International Society of City and Regional Planners. An important programme that is being jointly developed is the Young Professionals' Think Deep Programme (YPTDP). This programme aims at bringing professionals together cross-discipline to work on a real life case sponsored by a city. It is one way ITACUS is trying to connect to the next generation. During this session the YPTDP will be presented. Young professionals will also report back on the workshops they visited and together they will try to draw a conclusion from what they have heard during this event.

Out of Sight, Out of Mind & Rotterdam Between Cables and Carboniferous
Michiel van der Meulen, Chief Geologist and Research Manager, Geological Survey of the Netherlands and Management Committee Member COST SUB-URBAN
Linda Molenaar, Director City management Public space, City of Rotterdam

COST SUB-URBAN explores the management of the urban subsurface and the use of subsurface information in urban planning. For that purpose, the project's Working Group 1 has assessed the state of the art, and presented the results in a series of comprehensive reports of 17 European Cities. These reports take both an urban planning and a subsurface perspective. The Rotterdam report "Between Cables and Carboniferous" was jointly prepared by planning- and geoscience experts from the City of Rotterdam and the Geological Survey of the Netherlands. The results from the 17 reports are summarized in "Out of Sight, Out of Mind", the summary report that will be presented today. This report offers a review of the state of the art, which describes the interactions between urban and subsurface domains, with special reference to the acquisition of subsurface data, their interpretation into useful subsurface models, and the transferability of data and models to planning documents.

–WORKSHOP A: Circular Economy

Fransje Hooimeijer, TU Delft
Pieter van den Herik, Maatschappelijk Verantwoord Ondernemen, MVO, the Netherlands

In a collaboration of MVO Nederland, Circle Economy, De Groene Zaak, Het Groene Brein, Acceleratio, IMSA and the State the prerogatives of circular economy are being practiced. The programme called RACE (Realization and Acceleration of Circular Economy) is looking into social and system innovation in order to reach a circular economy. One of the fields defined to having a large potential is the subsurface. From that conclusion a consortium of companies in the chain of cable & pipes industry created a shared vision and started an investigation into three fields: design and measure of circular cables, reclaim producer ownership, and circular buying. Specific focus is being made on grid operators and water companies. The question posed to the public in this session is: what are the implications of circular economy on the design of the subsurface and public space of cities?

Workshop B: Healthy City–

Jan Meijdam, GGD Rotterdam, local health authority
Jan-Willem van der Schans, WUR, Wageningen University
Jorrit Noordhuizen, NOHNIK architecture and landscape
Kees van Oorschot, City Development Rotterdam

Jan Meijdam:
What kind of subsurface do we need for a healthy city? This question will be looked at from different angles. Generally spoken a healthy urban environment can be achieved in three ways: limiting the amount of pollution (noise, air pollution, soil pollution), changing people towards healthier behaviour (walking, biking, outdoor playing and sporting) and creating an attractive city for recreation and services.
The urban underground has a specific role to fulfill these goals. If it is unpaved it will help to reduce noise, create space for green and for water and to reduce the effects of an urban heat island. This way there are possibilities for city farms, recreational areas and outdoor activities.

Jan-Willem van der Schans;
We did research about biodiversity and carbon sequestration in a permaculture urban garden in Amsterdam. The garden is run by Urbaniahoeve. The results are impressive. But there is no business model behind it, who wants to pay for more biodiversity in the soil?
We suggest two approaches:
1/ Healthy soil produces healthy food->involve public health authorities. Permaculture involves brushes and trees, they produce berries, nuts etc. These are all healthy foods but rather expensive to buy in the supermarket. The permaculture garden makes them publicly available, e.g. to kids that walk to school and pass by the garden. There should be a connection with healthy food programmes. A new approach is that social enterprises active in urban agriculture provide awareness and education to reach public goals. These could be seen as public services that the local government is willing to pay for.
2/ Large scale peri urban arable farmers also lack organic matter in their soils. They have used fertilizer for many years and the soil is depleted. It becomes more and more difficult to handle the soil e.g. Hoekse Waard. Is it possible to design large scale compost production for farmers around Rotterdam from green urban waste produced by Rotterdam (e.g. waste from parks). One could also look into the sewage flow and harvest nutrients to recycled in the Westland Greenhouse area. How to organize these larger scale closing of urban waste flows?
The business model is now: companies are paid to remove urban green waste. The Next Economy business model should be: companies are paid to produce superior compost.

Jorrit Noordhuizen:
Inner cities are becoming more popular around the world. With this increasing popularity we face huge challenges to keep these cities functioning with respect to the supply of food, water and energy, efficient transport and social connectivity. Next to that a changing climate requires innovative and adaptive ideas to create a sustainable environment. Problems like sea level rise, cloudbursts and drought can have an immediate effect on the way we plan and design our cities. A few challenging concepts will be presented (e.g. The Watermaker - a vertical purifying water park, Dune Skeleton - a coastal defense strategy, and Karsnes Circular City - Reykjavik, Iceland) and we will explore ways to deal with these issues. The concepts aim to show that dealing with the issues at hand can lead to new and interesting urban habitats.

–WORKSHOP C: Public Engagement

Loretta von der Tann, Doctoral Researcher at University College London - Centre for Urban Sustainability and Resilience
Ruud Cino, Ministry of Infrastructure and the Environment and Program Manager Structure Vision Subsurface
Joost Martens, Consultant subsurface planning, City Maintenance Rotterdam
John de Ruiter, Consultant subsurface planning City Development Rotterdam

How do you involve the public while you are planning or realizing "underground" projects? What information about the subsurface the public should have? Which information is important for people to develop an opinion? Which information should just be made available to interested persons and which should be actively disseminated? During this interactive session we will search for the answers together. We will learn about Public engagement on different levels. Ruud Cino will tell us about their experience with public engagement on state level. The City of Rotterdam then takes us to city level with "the month of the underground" after which Loretta von der Tann will serve 'coffee on site", an exceptional concept to bring public engagement to project level. The presentations as well as the results of a collective brainstorm will be the input for participants to create their own idea how to inform and engage a wider audience about subsurface issues.

WORKSHOP D: 3D Serious Game Underground–

Richard Hartkamp, Strategis Group
Marco van der Hoek, Strategis Group
Anne Dullemond, Strategis Group

In the "Serious Game Underground" four different stakeholders (municipality, drinking water company, energy company, and a housing corporation) have a common goal: creating a livable city by making full use of the capabilities of the subsurface. At the beginning of the game, which is played in a 3D environment, each stakeholder has a budget and a number of objectives in the areas of People, Planet and Profit. To realize these ambitions 60 measures are available such as building sustainable homes and underground shopping centers, construction of a subway, a geothermal energy system.

Obstacles such as pollution need to be removed, groundwater reserves are to be protected and archaeological finds can either be retained, cleaned up or incorporated into a new destination depending on the available budget. Also need for the municipality to adapt the master plans. Stakeholders must constantly make negotiate with each other about what facilities are needed for which locations and they can also negotiate on the cost distribution. The game depicts the "layering" of the surface, shows that different usages potentially conflict with each other and provides insight into the relationship between underground and above ground use of space in urban areas. The game also shows that stakeholders can achieve their goals only through intensive Cooperation. Richard Hartkamp and Anne Dullemond will guide you through their Game.

–WORKSHOP E: Sustainable Energy

Paul Grootscholten, Grootscholten Holding BV
Eric van Griensven, Brabant Water
Cees Willemse, Technical University Delft
Roland van Rooyen, City of Rotterdam
Astrid Madsen, City of Rotterdam

In the Netherlands there is a large amount of knowledge and experience about our deeper (1-3 km) subsurface due to oil and gas exploration. The oil and gas fields from the deep layer have played an important role in the energy supply and the welfare over the past decades. In the Netherlands aquifers from which oil and gas was produced can also serve as source for geothermal heat extraction. At various locations the temperature of the water is in excess of 70° C, more than sufficient for use in households and greenhouses. And although geothermal energy can potentially contribute significantly to making our energy supply sustainable, over the past 10 years only a dozen geothermal projects have been carried out in the Netherlands.

What is the potential of geothermal energy in the Netherlands. Why does it take so long before geothermal energy is regarded by the public and companies as a serious alternative for wind and solar energy?
Why are oil and gas companies not involved in geothermal energy? Their experience and knowledge would be extremely beneficial for creating a geothermal industry. Has the geothermal branch organized itself sufficiently? What is the role of the state, province and local authority in this transformation?
Besides geothermal, the second aquifer (100-150m) also offers opportunities for the production and storage of sustainable energy. Heat and cold can be stored in this layer for a season. This offers in combination with heat pumps great opportunities for neighborhoods and utility buildings to save on energy costs.
As the existing gas infrastructure is at the end of its lifetime, this offers the opportunity to think of the energy infrastructure of the future. The existing heat network in Rotterdam can be expanded and used for feeding in geothermal energy. On larger scale cities can be inter connected to share several heat sources (the Heat Roundabout in province South Holland). This infrastructure however puts more stress on the scarce space in the underground.

Paul Grootscholten is a greenhouse owner near Rotterdam who has drilled a geothermal doublet last year. Why did he get involved in geothermal? What are his experiences so far? Eric van Griensven from Brabant Water will explain why Brabant water, a water company in the Province of Noord Brabant has recently signed the Green Deal Geothermal Energy.
Cees Willemse from the Technical University Delft will explain the DAP Delft geothermal project, initiated by students from the Technical University Delft.
Roland van Rooyen from the City of Rotterdam will shortly introduce the different energy infrastructures and different sustainable sources that can feed into them. What is the impact on the underground and could the Heat Roundabout prove to be the impetus needed to fully implement geothermal energy in Zuid-Holland?

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