



# WASCON 2018

Tampere, 6-8 June 2018

**NO CRADLE, NO GRAVE  
– CIRCULAR ECONOMY  
INTO PRACTICE**

10th International Conference  
on the Environmental and Technical Implications  
of Construction with Alternative Materials



ISCOWA - International Society for the  
Environmental and Technical Implications  
of Construction with Alternative Materials

# WASCON 2018

Tampere, 6-8 June 2018

## ORGANIZERS

RIL Finnish Association of Civil Engineers  
ISCOWA The International Society for the  
Environmental and Technical Implications of  
Construction with Alternative Materials

## CONTACT

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## PLATINUM SPONSOR



## SILVER SPONSOR



## EXHIBITORS

Metso, Ramboll and Ecolan

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19	.....	FRIDAY 8 JUNE: Excursion Day



# SOCIAL PROGRAM

## Tuesday June 5

### CITY RECEPTION HOSTED BY CITY OF TAMPERE

**LOCATION:** Vapriikki, Alaverstaanraitti 5.

Bus transportation from the conference venue at 18.30. Walking distance from the conference venue, 18 minutes.

**TIME:** 19.00 - 20.30

**WHAT'S HAPPENING:** few speeches, light food and drinks **DRESS CODE:** Business casual **PRICE:** Free for registered participants

Included in the accompanying persons program  
Organized together with ICCCB 2018 Conference

## Thursday June 7

### CONFERENCE DINNER

**LOCATION:** Conference venue

**TIME:** 19.00 - 22.00

**WHAT'S HAPPENING:** Dinner, Next host city announcement, ISCOWA Award, Cultural Program  
**DRESS CODE:** Business casual **PRICE:** Free for registered participants, extra tickets can be bought for 100 EUR (inc. VAT 24%)

Included in the accompanying persons program

### Accompanying persons' program

If you have purchased accompanying persons' program please contact registration desk for full details.

## Wednesday June 6

### COCKTAILS AT RAMBOLL OFFICE

**LOCATION:** Ramboll Finland Oy, Pakkahuoneenaukio 2. Walking distance from the conference venue: 2 minutes.

**TIME:** 18.30 - 21.00

**WHAT'S HAPPENING:** Cocktails **DRESS CODE:** Business casual **PRICE:** Free for registered participants  
Included in the accompanying persons program

### FINNISH NATURE AND SAUNA **SOLD OUT**

**If you want to truly experience the Finnish smoke sauna, this one is for you! No previous experience needed!!**

Bus will take you to truly beautiful Hangaslahti. There you'll enjoy a wonderful dinner including drinks and enjoy the Finnish sauna experience. You can even take a swim in the lake if you want to!

All needed gear is provided by the organizers!

Departure at 18.30 in front of the conference venue

**PRICE** is free for registered participants

The Finnish Nature and Sauna experience is sponsored by ECOLAN OY

### LAKE CRUISE AND DINNER **SOLD OUT**

**Experience the world-famous Finnish lake nature while enjoying your dinner!**

**TIME:** 18.15 - 21.30

**WHAT'S HAPPENING:** Lake cruise in Näsijärvi and dinner **DEPARTURE:** 18.15 Meeting at the Conference venue **WHAT ELSE:** There is a possibility to use the Sauna in the ferry during the Cruise. Towels are provided. **PRICE:** 100 EUR (inc. VAT 24%) includes the cruise and dinner with beverages.



# EXCURSIONS

Friday June 8

## FULL DAY EXCURSION

In this excursion you'll visit following sites:  
Kiimassuo waste treatment center  
Ämmässuo Waste Treatment Centre

### Schedule:

- 8.00** DEPARTURE IN FRONT OF THE CONFERENCE VENUE
- 9.30** ARRIVAL TO KIIMASSUO
- 10.30** DEPARTURE FROM KIIMASSUO (LUNCH IN THE BUS)
- 12.00** ARRIVAL TO ÄMMÄSSUO
- 13.45** DEPARTURE TO AIRPORT
- 14.30** ARRIVAL TO THE HELSINKI AIRPORT (LATEST)
- 15.15** ARRIVAL TO THE HELSINKI CITY CENTRE

Free for registered participants  
Included in the accompanying persons fee  
Lunch included.  
Luggage can be stored in the excursion buses.

## HALF DAY EXCURSION

### Schedule:

- 8.00** DEPARTURE IN FRONT OF THE CONFERENCE VENUE
- 8.30** ARRIVAL TO HIEDANRANTA AND PRESENTATIONS AND SITE VISIT
- 10.15** DEPARTURE TO ECOLAN
- 10.30** ARRIVAL TO ECOLAN, SITE VISIT
- 11.30** DEPARTURE TO AIRPORT
- 12.00** ARRIVAL TO TAMPERE AIRPORT (LATEST)
- 12.30** ARRIVAL TO THE TAMPERE CITY CENTRE

Free for registered participants  
Included in the accompanying persons fee  
Lunch included.  
Luggage can be stored in the excursion buses.

# WORKSHOPS

## Wednesday June 6

- 11.15 LEGISLATION AND REGULATION**  
Sopraano
- 13.45 ACID SULFIDE SOILS**  
Duetto 2
- 13.45 GREEN PROCUREMENT IN INFRA CONSTRUCTIONS**  
Sopraano
- 15.45 ALTERNATIVE MATERIALS IN MINING ENVIRONMENT CONSTRUCTION**  
Sopraano
- 15.45 CO-CREATING AND APPLYING DESIGN PRINCIPLES FOR CLOSED MATERIAL LOOPS,  
A MULTI-CRITERIA EXPERT CONSULTANCY**  
Duetto 1
- 15.45 THE CIRCULAR ECONOMY IN CITIES - APPROACH FOR PHOSPHOROUS MANAGEMENT**  
Riffi

## Thursday June 7

- 10.45 CIRCULAR ECONOMY IN BUILDING AND CONSTRUCTION  
FROM INFORMATION GAPS TO PROFITABLE BUSINESS**  
Duetto 2
- 10.45 GREEN PORTS AND SEDIMENT**  
Sopraano
- 13.15 URBAN BUILDING**  
Sopraano
- 15.15 NEW RECYCLED MATERIAL BINDERS AND PRODUCTS**  
Sopraano
- 15.15 PROMOTE THE USE OF SECONDARY MATERIALS BY EDUCATION AND INFORMATION**  
Duetto 2



# KEYNOTE SPEAKERS

## **Breaking out The Silos! - Towards Circular Economy Society**

**D.SC. NANI PAJUNEN**

The Finnish Innovation Fund Sitra

Wednesday June 6 at 9.30

D.Sc. Nani Pajunen is a leading specialist in the Circular economy focus area. Nani's goal is to promote solutions which implement the sustainable use of natural resources, the efficient circulation of materials and a long product life cycle. Nani has been a specialist in industry, worked as a consultant and has led research and development projects involving co-operation between companies and universities. She holds a master's degree in civil engineering and a licentiate of technology in environmental law, and wrote her dissertation on the circular economy from the perspective of the processing industry.

## **Enabling circularity by giving materials an identity**

**ROB OOMEN**

Madaster

Wednesday June 6 at 10.00

Rob has been working in circular economy for over the past 4 years in a broad range of areas. Currently, Rob works for Madaster that has the mission to give all buildings a materials passport. In construction, he worked as Project Manager with C-creators on a multi-stakeholder program for the construction sector to advance circularity in construction projects throughout the metropolitan region of Amsterdam. Rob also worked for the campaign Netherlands Circular Hotspot to promote the country as frontrunner in circular economy. Rob has an educational background in International Business and holds a degree from Hult International Business School.  
[madaster.com](http://madaster.com)

## **Cement-treated lightweight soils used in a large-scale land reclamation project**

**DR. YOICHI WATABE**

Hokkaido University

Thursday June 7 at 9.00

Dr. Yoichi Watabe is a professor of Hokkaido University, Japan, since October 2016. He had been working at Port and Airport Research Institute for more than 20 years after obtaining Doctor of Engineering from Tokyo Institute of Technology in 1995. He has been invited many technical committees for port and airport construction projects. From 1997 to 1999, he spent 2 years at Quebec, Canada as a Post-Doctoral Fellow in Laval University. From 2010 to 2014, he was the secretary of Japanese Geotechnical Society and contributed to the organization of the 15th Asian Regional Conference of ISSMGE. His main research topics have been consistently on soft clay engineering. Currently, he chairs a new ISSMGE-technical committee: TC217 on "Land Reclamation."



**Developing a more  
“respectful” cement: from  
thermodynamic calculations  
to real life applications**

**PROFESSOR  
YIANNIS PONTIKES**  
KU Leuven

Thursday June 7 at 9.30

Yiannis Pontikes is a BOF-ZAP associate professor at the Department of Materials Engineering, KU Leuven. He is leading the Secondary Resources for Engineered Material (SREMat) research group, that consists of approximately 15 post-doctoral and post-graduate researchers. SREMat has built an expertise on the valorisation of residues towards ceramic, cement and inorganic polymer (geopolymer) formulations, from the level of binder synthesis all the way to full scale prototypes. Yiannis has been a co-author in >60 peer-reviewed journal papers, he is currently work package leader or project coordinator in 12 national and international projects and is participating in different fora and networks (SIM2 at KU Leuven, CR3 in USA...). He is one of the founders of the Journal of Sustainable Metallurgy, where he serves as the managing editor.

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# POSTER PRESENTATIONS

## **A Methodological Framework for Evaluating the Cover Liner Structures: A Case Study of Pyhäsalmi Tailings Pond**

Minna Sarkkinen (KUAS), Kauko Kujala (KUAS/Solid Liner), Seppo Gehör (University of Oulu)

## **A new reactivity test for supplementary cementitious materials (TC TRM 267) applied on non-ferrous slags and sludges**

Hadi Kamyab (VITO/), Ruben Snellings (VITO/), Jef Bergmans (VITO/), Liesbeth Horckmans (VITO/)

## **Analysis of c&dw recycling facilities performance depending on input compositions**

Eva Cifrian (University of Cantabria), Berta Galán (University of Cantabria), Elena Dosal (University of Cantabria), Ana Andrés (University of Cantabria)

## **Activation of kaolinite based coal waste: chemical and thermal activation and their mineralogy**

Marina Casas (Autonomous University of Madrid.), Rosario García-Giménez (Autonomous University of Madrid. Geomateriales-Unidad asociada (CSIC-UAM).), Raquel Vigil De La Villa (Autonomous University of Madrid. Geomateriales-Unidad asociada (CSIC-UAM).), Laura Caneda (Eduardo Torroja Institute (IETcc-CSIC)), Sagrario Martínez Ramírez (Institute for the Structure of Matter (IEM-CSIC)), Moisés Frías (Eduardo Torroja Institute (IETcc-CSIC)), Iñigo Vegas (Tecnalia)

## **Alternative Materials and the Finnish Transport Agency – Development of Planning and Procurement Processes**

Elina Ahlqvist (Ramboll Finland Oy), Kristiina Laakso (Liikennevirasto (Finnish Transport Agency)), Laura Pennanen (Liikennevirasto (Finnish Transport Agency)), Timo Tirkkonen (Liikennevirasto (Finnish Transport Agency))

## **Case study on the environmental impacts and use of secondary materials in infra construction**

Malin zu Castell-Rüdenhausen (VTT Technical Research Centre of Finland Ltd), Jutta Laine-Ylijoki (VTT Technical Research Centre of Finland Ltd)

## **Designing and Detailing for Extension of Useful Building Life**

Hugh Lester (Stevens Institute of Technology)

## **Easing the Environmental Impact of Polymeric Materials: Some New Strategies combining Soft-Bonding and Bio-Sourcing**

Christopher Barrett (McGill University)

## **Ecotoxicological analysis of construction products on marine ecosystem using sea urchin liquid phase bioassays**

Araceli Rodriguez (University of Cantabria), María J. Salamanca (University of Cadiz), Juan Dacuba (Universidad de Cantabria), Julian Blasco (Institute of marine science of Andalusia), Javier R. Viguri (University of Cantabria), Ana Andrés (University of Cantabria)

## **Exploration of ecotoxicity tests for environmental assessment of coal fly ash based geopolymers: Experience with the Daphnia magna acute test**

Juan Dacuba (University of Cantabria), Andrea Galotti (University of Jaen), Gema Parra (University of Jaen), Araceli Rodriguez (University of Cantabria), Eva Cifrian (University of Cantabria), Javier R. Viguri (University of Cantabria), Ana Andrés (University of Cantabria)



## **Fast, Low-skilled, and Flexible Building Construction (Now!): Revisiting the Joint-based Universal Building System through Low-tech/High-tech Fabrication Methods**

Elizabeth Andrzejewski  
(The Pennsylvania State University)

## **Finnish national UUMA2 program**

Marjo Koivulahti (Ramboll Finland Oy), Juha Forsman (Ramboll Finland Oy), Pentti Lahtinen (Ramboll Finland Oy), Kirsi Koivisto (Ramboll Finland Oy)

## **Fly ash and steel slag aggregates employment for Control Low Strength Material (CLSM) production**

Miren Etxeberria (Universitat Politecnica de Catalunya.BarcelonaTECH), MingYao Yang (Universitat Politecnica de Catalunya.BarcelonaTECH)

## **InPhos project as a tool supporting the development of the sustainable solutions for phosphorus management in the Baltic region**

Marzena Smol (Mineral and Energy Economy Research Institute, Polish Academy of Sciences)

## **Manual of secondary materials in sport area construction**

Ari Mäkinen (Ramboll Finland Oy), Marjo Koivulahti (Ramboll Finland Oy), Pentti Lahtinen (Ramboll Finland Oy), Erja Metsäranta (Ministry of Education and Culture, Finland)

## **On the robustness of one-part alkali-activated materials preparation**

Tero Luukkonen (University of Oulu), Zahra Abdollahnejad (University of Oulu), Juho Yliniemi (University of Oulu), Paivo Kinnunen (University of Oulu), Mirja Illikainen (University of Oulu)

## **Soil stabilization using geopolymers obtained from wastes**

Juan Cosa (ICITECH-Universitat Politecnica De Valencia), Lourdes Soriano (ICITECH-Universitat Polite-

cnica De Valencia), Maria Victoria Borrachero (ICITECH-Universitat Politecnica De Valencia), Jordi Payá (ICITECH-Universitat Politecnica De Valencia), José María Monzó (ICITECH-Universitat Politecnica De Valencia)

## **The Effect of Chemical Component in Rejuvenator on the Properties of Repetitive Recycled Asphalt Mixture**

Hirakawa Kazunari (Taiseirotec corporation(Private Company)), Takashi Kanou (Taiseirotec corporation (Private Company))

## **Utilisation of fly ash in structure layers of the Mänttä aerodrome runway for small airplanes**

Marjo Koivulahti (Ramboll Finland Oy), Hannu Kempainen (Mänttä-Vilppulan kaupunki), Otto Huttunen (MW-kehitys Oy), Timo Raitanen (Ramboll Finland Oy), Janne Sikiö (Ramboll Finland Oy), Antti Laurila (Ramboll Finland Oy)

## **Utilisation of by-products and alternative construction materials in new mine construction**

Tarja Niemelin (Ramboll Finland Oy), Merja Autiola (Ramboll Finland Oy), Harri Jyrävä (Ramboll Finland Oy), Noora Lindroos (Ramboll Finland Oy), Anne Kulmala (Fortum Environmental Construction Oy), Jan Österbacka (Fortum Environmental Construction Oy), Matti Helaakoski (Suomen Maastorakentajat Oy)

## **Valorization of Finnish mining tailings for the use of ceramic industry**

Soili Solismaa (Geologian tutkimuskeskus, GTK), Marja-Iiisa Räisänen (University of Oulu), Marja Lehtonen (Imperial College London), Harisankar Sreenivasan (University of Oulu), Paivo Kinnunen (University of Oulu), Mirja Illikainen (University of Oulu), Arnold Ismailov (Tampere University of Technology), Erkki Levanen (Tampere University of Technology), Marjaana Karhu (VTT Technical Research Centre of Finland Ltd), Päivi Kivikytö-Reponen (VTT Technical Research Centre of Finland Ltd)

# WEDNESDAY 6 JUNE 2018

	DUETTO 1	DUETTO 2	MAESTRO	SOPRAANO	RIFFI
8.00	<b>REGISTRATION</b>				
9.00	<b>OPENING OF THE CONFERENCE</b>				
9.15	Chair: John Heynen				
9.30	<b>KEYNOTE 1</b>				
9.45	D.Sc. Nani Pajunen				
10.00	<b>KEYNOTE 2</b>				
10.15	Project management officer Rob Oomen				
10.30	<b>COFFEE</b>				
11.15	<b>Circularity in Buildings I</b>	<b>Recycling of C&amp;DW I</b>	<b>Utilisation of MSWI Bottom Ash I</b>	<b>WORKSHOP</b>	
11.30	Chair: John Heynen	Chair: Leena Korkiala-Tanttu	Chair: Pauli Kolisoja	Legislation and Regulation	
11.45					
12.00					
12.15					
12.30					
12.45	<b>LUNCH</b>				
13.45	<b>Circularity in Buildings II</b>	<b>WORKSHOP</b>	<b>Utilisation of MSWI Bottom Ash II</b>	<b>WORKSHOP</b>	<b>Eu Financial Instruments – Support for Your Project</b>
14.00	Chair: Ana Andres Payan	Acid Sulfide Soil	Chair: Alessandra Poletini	Green Procurement in Infra Constructions	
14.15					
14.30					
14.45					
15.00					
15.15	<b>COFFEE</b>				
15.45	<b>WORKSHOP</b>	<b>Recycled Materials in Road Construction</b>	<b>Utilization of Slags and Ashes</b>	<b>WORKSHOP</b>	<b>WORKSHOP</b>
16.00	Co-creating and applying design principles for closed material loops, a multi-criteria expert consultancy	Chair: Maria Arm	Chair: Ole Hjelmar	Alternative Materials in Mining Environment Construction	The Circular Economy in Cities - Approach for Phosphorous Management
16.15					
16.30					
16.45					
17.00					
17.15		<b>ISCOWA</b>			
17.30		Members meeting			
17.45					
18.15 - 22.00	A - 18.30 Cocktails @ Ramboll office B - 18.30 Finnish Nature & Sauna C - 18.15 Lake Cruise and Dinner				

# THURSDAY 7 JUNE 2018

	DUETTO 1	DUETTO 2	MAESTRO	SOPRAANO
8.00	<b>REGISTRATION</b>			
9.00	Chair: Carlo Vandecasteele			
9.15	<b>KEYNOTE 3</b>			
9.30	Dr. Yoichi Watabe			
9.45	<b>KEYNOTE 4</b>			
	Professor Yiannis Pontikes			
10.00	<b>COFFEE</b>			
10.45	<b>Circularity in Cement Products I</b> Chair: Alberto Coz	<b>WORKSHOP</b> Circular Economy in Building and Construction	<b>Soft Soil Stabilisation and Utilization of Slags and Fly ashes</b> Chair: Hannu Halkola	<b>WORKSHOP</b> Green Ports and Sediment
11.00				
11.15				
11.30				
11.45				
12.00	<b>LUNCH</b>			
12.15	<b>Circularity in Cement Products II</b> Chair: Margareta Wahlström	<b>Utilization of Sediments and Contaminated Soils</b> Chair: Colin Hills	<b>Recycling of Bricks, Glass and Other Materials</b> Chair: Carlo Vandecasteele	<b>WORKSHOP</b> Urban Building
13.15				
13.30				
13.45				
14.00				
14.15	<b>COFFEE</b>			
14.30				
14.45				
15.15				
15.30				
15.45	<b>WORKSHOP</b> Promote the Use of Secondary Materials by Education and Information	<b>Recycling Material Tools and Classification</b> Chair: Eeva Jernström	<b>WORKSHOP</b> New Recycled Material Binders and Products	
16.00				
16.15				
16.30				
16.45				
19.00 - 23.00	<b>DINNER</b>			



## TUESDAY 5 JUNE 2018

15.00-18.00 Registration open in Tampere Hall

19.00-20.30 City Reception together with ICCCBE 2018 Conference

## WEDNESDAY 6 JUNE 2018

8.00 Registration opens

9.00 Opening Session

Chair: John Heynen

Welcome words:

**Carlo Vandecasteele**, ISCOWA

**Pentti Lahtinen**, Chair of the Scientific Committee

**Teemu Vehmaskoski**, Finnish Association of Civil Engineers RIL

9.30 Keynote Lecture I

"Breaking out The Silos! - Towards Circular Economy Society"  
D.Sc. **Nani Pajunen**, The Finnish Innovation Fund Sitra

10.00 Keynote Lecture II

"Enabling circularity by giving materials an identity"  
**Rob Oomen**, Madaster

10.30 Coffee

## 11.15 Parallel Sessions and Workshops:

### Circularity in Buildings I

Chair John Heynen Venue Duetto 1

**11:15** COMP<sup>2</sup>ASS a disseminative tool for Design for Change **Francois Denis**

**11:30** The Dynamic Design Matrix, a major revision of the Flemish design principles for closed material loops **Waldo Galle**

**11:45** Circular Buildings from Waste and Salvage **Mark Gorgolewski**

**12:00** Phase change materials for energy-efficient buildings **Veronica Ferrandiz-Mas**

**12:15** Lokotrack® Urban™ series – reduced noise and dust emissions in mobile crushing **Juhamatti Heikkilä**

### Recycling of C&DW I

Chair Leena Korkiala-Tanttu Venue Duetto 2

**11:15** Statistical analysis of recycled crushed concrete aggregate for long-term field measurements **Taavi Dettenborn**

**11:30** Reducing environmental impact of earthworks with utilization of crushed concrete aggregate **Taavi Dettenborn**

**11:45** From C&DW to high added value prefabricated

concrete components – The European VEEP project **David Garcia**

**12:00** BIM tool for pre-demolition audits and C&DW management **David Garcia**

**12:15** Improving quality of construction and demolition waste – requirements for waste audit **Margareta Wahlström**

### Utilisation of MSWI Bottom Ash I

Chair Pauli Kolisoja Venue Maestro

**11:15** Characterization of MWI bottom ash and its potential use as alkali-activated material precursor **Alex Maldonado**

**11:30** Potential use of incineration bottom ash in construction – Evaluation of the environmental impact **Ute Kalbe**

**11:45** Production of a stable building material by treatment of MSWI bottom ash with the Tauw EquiAsh process **Marian Langevoort**

**12:00** Effect of Aging Days on Material Characteristics of Recycling Incineration Bottom Ash from Municipal Solid Waste **Takuro Fujikawa**

**12:15** Treatment trains for improving the leaching behaviour of the mineral fraction of different types of waste incineration bottom ash in view of recycling under unrestricted conditions **Giulia Costa**

**12:30** Novel hydraulically bound base course material from recovered municipal solid waste incineration bottom ash (MSWI BA) and industrial by-products **Harri Jyrävä**

**12:45** Utilization of municipal solid waste incineration bottom ash in the temporary landfill capping **Kaisa Kurikkala**

## WORKSHOP Legislation and Regulation

**11:15** Venue Sopraano

**Moderators:** Jussi Reinikainen, Finnish Environmental Institute, Finland, Rob Oomen, Madaster, Netherlands, Ole Hjelmar, Danish Waste Solution, Denmark **Topic introduction:** Else Peuranen/Jussi Reinikainen, Ministry of the Environment, Finland, Reijo Väliharju, City of Tampere, Finland, Roland Starke (Federal Ministry of Sustainability and Tourism), Hirofumi Sakanakura (National Institute for Environmental Studies)

**12.45** Lunch

## 13.45 Parallel Sessions and Workshops:

### Circularity in Buildings II

**Chair** Ana Andres Payan **Venue** Duetto 1

**13:45** A Case Study in Circular Economy Design Transforming Industrial Automotive Waste to Building Skins **Jorge Alvarado**

**14:00** Developing Mechanized Formwork: An Alternative to Single-Use Concrete Formwork Systems **Marcus Shaffer**

**14:15** The Building Passports initiative: facilitating circular economy, low-carbon emissions and healthy urban development **Diane Bastien**

**14:30** Circular Retrofit Lab: A Brussels' renovation experiment on how to re-design buildings into circular buildings **Anne Paduart**

**14:45** Alternative Architectural Design Methods in the Reuse and Remanufacturing of Scrap Metals for Commercial Buildings Facades **Patricia Kio**

**15:00** Global understanding and local visions on Circular Economy in Built Environment **Pekka Huovila**

### WORKSHOP Acid Sulfide Soils

**13:45 Venue** Duetto 2

**Moderators:** Christian Maurice, Ramböll Sverige AB, Sweden **Topic introduction:** Noora Lindroos, Ramboll Finland Oy, Finland, Josef Macsik, Ecoloop, Sweden, Pekka Stén, Vaasa University of Applied Science

### Utilisation of MSWI Bottom Ash II

**Chair** Alessandra Polettini **Venue** Maestro

**13:45** Case study on the utilization of waste incineration bottom ash in concrete products **Annika Sormunen, Riina Rantsi**

**14:00** Reuse of municipal solid waste incineration bottom ash (MSWI-BA) in ready-mix concrete – technical and environmental assessment **Denise Blanc**

**14:15** Development of lightweight aggregate by using Weathered Bottom Ash from Municipal Waste Incineration and crop by-products **Jessica Giro**

**14:30** MSWI bottom ash treatments for use in carbonate bonded construction materials **Ruben Snellings**

**14:45** Environmental behaviour of mineral fractions from advanced separation of incinerator bottom ash **Alessandra Polettini**

**15:00** Organic pollution loads in municipal solid waste incineration fly ash derived from highly reactive slaked lime in leachate from landfill site **Satoshi Mizutani**

**15:15** Technical suitability of the fine fraction of municipal solid waste incineration bottom ash to the landfill capping liner **Minna Leppänen**

### WORKSHOP Green Procurement in Infra Constructions

**13.45 Venue** Sopraano

**Moderators:** Bo Svedberg, Ecoloop, Sweden, Pentti Lahtinen, Ramboll, Finland, Pekka Petäjaniemi, Finnish Transport Agency **Topic introduction:** Elina Ahlqvist, Ramboll, Finland, Kristina Lundberg, Ecoloop, Sweden, Rob Oomen, Madaster, Netherlands

**15.15 Coffee**



## 15.45 Parallel Sessions and Workshops:

### WORKSHOP Co-Creating and Applying Design Principles for Closed Material Loops, A Multi-Criteria Expert Consultancy

15.45 Venue Duetto 1

**Moderators** Wesley Lanckriet, Architect/founder at U/Define architectes, project architect at TRANSFORM, Waldo Galle, post-doctoral project researcher at TRANSFORM

### Recycled Materials in Road Construction

Chair Maria Arm Venue Duetto 2

**15:45** Education on the utilization of secondary materials in earthworks **Pirjo Kuula**

**16:00** Structural compatibility of infrastructures utilizing alternative earth construction materials **Pauli Kolisoja**

**16:15** Investigation of the Properties and Specifications of Regenerated Products Used as Construction and Building Materials in Taiwan **Chia Chen Chang**

**16:30** Long-term performance of an industrial by-product based binder mixture in a base course stabilization **Ilari Harju**

**16:45** Utilization of recovered materials in road structures. Laboratory tests and experimental structures in paved pedestrian and bicycle ways CASE: Tampereen kaupunki, Finland **Ilari Harju**

### Utilization of Slags and Ashes

Chair Ole Hjelmar Venue Maestro

**15:45** Environmental risks of using waste steel slag aggregates in road applications **Farshid Maghool**

**16:00** Carbonation of iron-rich waste streams using chemical additives **Sumit Srivastava**

**16:15** Assessment of the potential of Fe-rich metallurgical residues as precursors for inorganic polymers **Silviana Onisei**

**16:30** Strain Hardening Cementitious Composite from Supersulfated Ladle Slag Cement with Polypropylene Fibers **Hoang Nguyen**

**16:45** Valorization of the steel industry slag and by-products as raw material asset for innovative refractories **Marjaana Karhu**

**17:00** Recyclability potential of alkali-activated Ca-Fe-rich slag mortars **Pavel Lopez**

**17:15** An accelerated, on-site bottom ash stabilization treatment and the effect of long-term leaching of bottom ash **Hiroshi Kubota**

### WORKSHOP Alternative Materials in Mining Environment Construction

15.45 Venue Sopraano

**Moderators:** Minna Pirilä, Ramboll, Finland, Christian Maurice, Ramboll, Sweden **Topic introduction:** Tarja Niemelin, Ramboll, Finland, Josef Macsik, Ecoloop, Sweden, Samira Moukannaa, Cadi Ayyad University and Mohammed IV Polytechnic University, Morocco

## WORKSHOP The Circular Economy in Cities - Approach For Phosphorous Management

15.45 Venue Riffi

**Moderators:** Dr. Marzena Smol, Polish Academy of Sciences and the Department of Management, AGH University of Science and Technology, Prof. Daina Kalniņa, Riga Technical University **Speakers:** Prof. Daina Kalniņa, Dr. Marzena Smol

### 17.15 ISCOWA members' meeting

in Duetto 2

### Social Program

A - 18.30 Cocktails at Ramboll office

B - 18.30 Finnish Nature & Sauna. Sponsored by ECOLAN Oy

C - 18.15 Lake Cruise and dinner

## THURSDAY 7 JUNE 2018

### 8.00 Registration desk opens

### 9.00 Keynote Session

**Chair:** Carlo Vandecasteele

### 9.00 Keynote Lecture III

"Cement-treated lightweight soils used in a large-scale land reclamation project"

Dr. **Yoichi Watabe**, Hokkaido University

### 9.30 Keynote Lecture IV

"Developing a more "respectful" cement: from thermodynamic calculations to real-life applications"

Professor **Yiannis Pontikes**, KU Leuven

### 10.00 Coffee

## 10.45 Parallel Sessions and Workshops

### Circularity in Cement Products I

Chair Alberto Coz Venue Duetto 1

**10:45** Leaching assessment of Recycled Concrete Aggregates (RCA) containing hexavalent chromium  
**Oumeima Ben Maouia**

**11:00** Development of Sustainable Magnesium Phosphate cements as porous materials  
**Joan Formosa**

**11:15** Incorporation of C&DW as pozzolanic addition in cements. Its influence on sea-water resistance  
**Eloy Asensio**

**11:30** Effect of an activating agent on the transformation of coal waste into a supplementary cementing material: kinetic parameters and heat evolution

**Eloy Asensio**

**11:45** Alkali-Silica-Reaction (ASR) of glass aggregates in dry-mix concrete block  
**Shuqing Yang**

**12:00** Current status and future development of manufactured carbonated aggregates  
**Colin Hills**

### WORKSHOP Circular Economy in Building and Construction - from Information Gaps to Profitable Business

10.45 Venue Duetto 2

**Moderators and speakers:** Harri Hakaste, Ministry of the Environment, Finland, Nitesh Magnani, Royal BAM Group Director of Sustainability, Pekka Huovila, One Planet Sustainable Buildings and Construction Programme Coordinator, Cuno van Geet and Joan Prummel, Ministry of Infrastructure and Water Management, the Netherlands

### Soft Soil Stabilization and Utilization of Slags and Fly Ashes

Chair Hannu Halkola Venue Maestro

**10:45** Reuse of excavated lime and cement stabilized soft and quick clay  
**Gunvor Baardvik**

**11:00** Stabilisation of peat soil using unique additives with sand and incinerated bottom ash  
**David Thompson**

**11:15** OSAMAT LIFE09 ENV/EE/000227 project: post-construction environmental monitoring results  
**Arina Koroljova, Janek Reinik**

**11:30** Inorganic polymerisation of Fe-rich slags: unravelling the complex reactions of a simple system

**Arne Peys**

**11:45** Biomass ash modification in development of sustainable binders  
**Valter Wigren**

### WORKSHOP Green Ports and Sediment

10.45 Venue Sopraano

**Moderators:** Tommi Marjamäki, Ramboll Finland Oy, Finland, Yoichi Watabe, or other suggestions from Japan

**Topic introduction:** Yoichi Watabe, Hokkaido University, Japan, Jorma Havukainen, Ramboll Finland Oy, Finland, Pentti Lahtinen, Ramboll Finland Oy, Finland, Pete Seymour, Ecocem Materials Ltd.

**12.15 Lunch**

## 13.15 Parallel Sessions and Workshops

### Circularity in Cement Products II

Chair Margareta Wahlström Venue Duetto 1

**13:15** Active Roof Cladding System Reducing Energy Consumption of Buildings **Petr Bibora**

**13:30** An assessment framework for the circularity of specific applications of recycled and secondary materials in the construction sector **Jeroen Vrijders**

**13:45** Urban mining strategies for management of dismantled materials on an office building renovation

site in Brussels **Jeroen Vrijders**

**14:00** Assessment of the environmental properties of danish c&d waste (crushed concrete) in relation to recycling as aggregates for construction purposes

**Ole Hjelmar**

**14:15** Reuse of concrete waste: Challenge with hexavalent chromium (Cr6+) **Cathrine Eckbo**

### Utilization of Sediments and Contaminated Soils

Chair Colin Hills Venue Duetto 2

**13:15** Physical-chemical, mechanical and microstructural properties of contaminated marine sediments solidified by high volume of incinerated sewage sludge ash **Yifan Zhou**

**13:30** Contribution of the mineral processing techniques to the recycling of river sediments in construction materials **Mathieu Henry**

**13:45** Barriers in the reuse of waste and low level contaminated soil – Lessons learnt in Norway **Gudny Okkenhaug**

**14:00** Novel treatment methods of sedimented fibre sludge, 0-fibre, for utilization **Tuomas Suikkanen, Reijo Väliharju**

**14:15** Remediation of contaminated soil in geotechnical composites by the utilization of different recycled materials **Primož Oprčkal**

**14:30** Utilization of mass stabilized surplus mud and clay as fill and embankment construction material in urban building **Juha Forsman**

### Recycling of Bricks, Glass and Other Materials

Chair Carlo Vandecasteele Venue Maestro

**13:15** Brick-to-brick: masonry fraction of C&DW as a substitute for primary fillers in the production of clay-fired bricks **Jef Bergmans**

**13:30** Study of the addition of a secondary lead smelting slag to clay bricks: industrial test **Janneth Torres Agredo, Fernando Alvarez Hincapie**

**13:45** A novel way to maximize the use of waste glass in alkali activated cement mortar **Pingping He**

**14:00** Geopolymer development based on the glass

waste as unique precursor **Jessica Giro**

**14:15** Alternatives of waste valorisation of a sulphite pulp mill in construction materials **Alberto Coz**

**14:30** Urban Recycling Intervention: Prototype Tooling for Transforming Waste Corrugated Cardboard into Architectural Elements and Building Components **Julio Diarte**

**14:45** Project life eco-sandfill **Antonio Martínez, Edith Guedella, Clara Delgado, Lucia Unamunzaga**

### WORKSHOP Urban Building

13.15 Venue Sopraano

**Moderators:** Rob Oomen, Madaster, Netherlands, Bo Svedberg, Ecoloop, Sweden, Pentti Lahtinen, Ramboll,

Finland **Topic introduction:** Rob Oomen, Valley Creators, Netherlands, Mikko Suominen, City of Helsinki / Riina Känkänen, Ramboll, Finland, Pirjo Rinnepelto, Apila Group Oy Ab, Urban infra revolution – project Kristina Lundberg, Ecoloop, Sweden

14.45 Coffee

## 15.15 Parallel Sessions and Workshops:

### WORKSHOP

#### Promote the Use of Secondary Materials by Education and Information

15.15 Venue Duetto 2

**Moderators and speakers:** Pauli Kolisoja, Tampere University of Technology, Leena Korkiala-Tanttu, Aalto University, Pirjo Kuula, Tampere University of Technology, Minna Leppänen, Tampere University of Technology, Maria Penttilä, Tampere University of Technology, Alina Reiman, Tampere University of Technology.

#### Recycling Material Tools and Classification

**Chair** Eeva Jernström der Sloot **Venue** Maestro

**15:15** MATRx: development of a material flow assessment tool for Design for Disassembly **Camille Vandervaeren**

**15:30** Hazardous waste classification – tools for assessment of waste status of ashes **Margareta Wahlström**

**15:45** 6Aika Future Circular Economy Hubs (CircHubs) project **Pirkko Eteläaho**

**16:00** GEOreCIRC – utilization of TBM spoil **Christian Strømme Ofstad**

**16:15** No Graves or Good Graves? Death with Dignity, Architectural Hospice and the Palliative Care of Architectural Materials **James Kalsbeek**

### WORKSHOP New Recycled Material Binders and Products

15.15 Venue Soprano

**Moderators:** Pentti Lahtinen, Ramboll Finland Oy, Finland, Ana Andrés, University of Cantabria, Spain, Yiannis Pontikes, KU Leuven, Belgium **Topic introduction:** Valter Wigren/Bob Talling, Renotech Oy, Finland, Tuomas Suikkanen, Ramboll Finland Oy, Finland, Ana Andrés, University of Cantabria, Spain, Yiannis Pontikes, KU Leuven, Belgium

## 19.00 Dinner

# FRIDAY 8 JUNE: EXCURSION DAY

### Full day: 8.00-14.30, lunch included

Ends in Helsinki-Vantaa Airport and Helsinki City Centre

### Half day: 9.00-12.00, lunch included

Ends in Tampere-Pirkkala airport and Tampere City Centre.

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