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Nordic Innovation



# **Sustainable and Innovative Material Management for the Construction in Cities, SIMM-CCities**



Nordic Innovation, NIC Project P11060

Final report

Stockholm 2014-09-26

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## INTRODUCTION

Large quantities of inert materials and aggregates are required in construction activities in urban regions. These material flows put a strong pressure on logistical systems, city planning, infrastructure and the surrounding environment.

The aggregate supply chain involves a number of different and diverse stakeholders that may have many, potentially, conflicting societal, commercial and environmental goals. The overall need and ambitions to reduce the environmental impact from construction industry and lower its use of public resources.

## METHOD

The simm-cities project has been performed through a series of working group meetings and a final conference, open to public.

### *Working group meetings*

There were continuous meetings within the working group, which consisted of 5 persons from 4 different countries:

Christoffer Carstens	Ecoloop	Sweden
Kata Kreft-Burman	Ramböll	Finland
Graham Aid	Ragn-Sells/KTH	Sweden
Arnt-Olav Håøya	Ecoloop	Norway
Margit R��utelmann	EWMA	Estonia

The working group planned the conference, gathered speakers and raised awareness of the actual event.

A steering committee, consisting of Fredrik Meurman from Stockholm County and Bo Svedberg, Ecoloop SE.

## Conference

The conference aimed at international participation, particularly from Nordic countries and the Baltic Sea region. It was planned as a two-day event with keynote speakers and active participation in work-shops from all participants. The keynote presentations were divided into 4 different topics as follows:

**Block 1: Benchmarking, material flows and standardization**

**Block 2: Spatial planning and supporting planning tools**

**Block 3: Emerging technologies and demonstration projects**

**Block 4: Awareness raising; Dissemination of knowledge and tools for action. Unlocking investments**

The overall aims of the conference was to highlight current situations in different Nordic and BSR countries, introduce new technology, investigate financing possibilities for larger projects and initiating joint collaborations.

## Information spreading and dissemination

Information dissemination was done through e-mail contact list from previous projects, a web site ([www.simmccities.com](http://www.simmccities.com)), an information leaflet as promotion and a newsletter after the conference.

## RESULTS

The working group had 11 meetings in the planning phase, from November 2012 to April 2013.

### Webpage

The conference webpage [www.simmccities.com](http://www.simmccities.com) was launched in November 2013. The activity in the webpage almost doubled each month up to the conference, reaching a monthly high in April of 713 views (**Fel! Hittar inte referenskölla.**).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>2012</b>											23	70	93
<b>2013</b>	125	250	411	713	171	41	55	30					1,796

Table 1. Number of views per month on the conference webpage

Divided by country (table 2), the activity on the webpage shows a strong emphasis on the targeted Nordic and BSR countries. 12 countries have more than 10 views, indicating a real interest in the webpage. The reason Peru is so high on the list is that one of the project group members spend much of the planning period there. Of the Nordic and BSR countries, Iceland, Lithuania and Belarus are absent from the list, indicating a need for targeting key persons in those countries.

<b>Country</b>	<b>Views</b>	<b>Country</b>	<b>Views</b>
<b>Sweden</b>	637	<b>South Africa</b>	4
<b>Norway</b>	356	<b>Brazil</b>	4
<b>Estonia</b>	234	<b>Italy</b>	3
<b>Finland</b>	181	<b>Czech Republic</b>	3
<b>Poland</b>	150	<b>Pakistan</b>	3
<b>Peru</b>	59	<b>Spain</b>	2
<b>Denmark</b>	55	<b>Canada</b>	2
<b>United Kingdom</b>	43	<b>Japan</b>	2
<b>Netherlands</b>	25	<b>Belgium</b>	2
<b>Germany</b>	22	<b>Nepal</b>	1
<b>Latvia</b>	20	<b>Thailand</b>	1
<b>United States</b>	18	<b>France</b>	1
<b>Switzerland</b>	6	<b>Australia</b>	1
<b>Russian Federation</b>	5	<b>Slovakia</b>	1
<b>Republic of Korea</b>	5	<b>Saudi Arabia</b>	1
		<b>Hungary</b>	1

*Table 2. Number of views per country*

## Conference

The conference took place 24-25 April 2013 and gathered 40 participants from 8 different countries (Sweden, Norway, Finland, Denmark, Estonia, Poland, Belgium and China). The conference was opened by vice chair for Environment and Archipelago, Stockholm County, Fredrik Andersson who held an engaged and initiated speech. During day one there were 13 topical keynote presentations within the 4 main subjects (table 3). Speakers came from seven different countries. The topics covered a wide spectrum, from national overviews of aggregate and recycling markets to guidelines and standardization issues, to examples of new technology and tools for material management. The end session included many openings for future collaboration and financing possibilities, when Jenny Lindberg from the academia presented the upcoming EU programs, prof. Wennersten presented the situation in China and finally Hans Fridberg presented Nordic Built. Day 1 ended with some social activities and a joint dinner.

Production of aggregates in Estonia – general overview of the aggregate industry in Estonia. Use of recovered fuels in cement industry.	Kalle Kikas, Kunda Nordic Cement
Viable recovery options for construction and demolition waste	Christian Engelsen, SINTEF
Recycling of construction and demolition waste in Europe	Geert Cuperus, Fédération Internationale du Recyclage (FIR)
Challenges and possibilities in the use of anthropogenic material in Civil Engineering. Past, present and future situation.	Wojciech Sas Warsaw University of Life Sciences – SGGW
OPTIMASS - governance and material flows in the Stockholm region	Kristina Lundberg, Luleå University of Technology/Ecoloop
NGU Regional plans for building material management – examples from Norway	Lars Libach, Geological Survey of Norway
Possibilities to use recycled aggregates in road construction works.	Ott Talvik, Tallinn University of Technology
Experiences from Helsinki	Mikko Suominen, City of Helsinki
Sustainable use of materials - modification and reuse	Göran Holm, Yvonne Rogbeck, Swedish Geotechnical Institute
Overview of the funding arena and upcoming opportunities	Jenny Lindberg, Grants office - Luleå University of Technology
Applying Eco-Cycle thinking in urban development projects in China – Opportunities for cooperation with EU	Ronald Wennersten, Shangdong University
Nordic Built Funding - A joint Nordic funding program for innovation, R&D, demonstration and networking projects.	Hans Fridberg, Nordic Innovation

Table 3. Topical key notes presentations

Day 2 was devoted to work-shops within 3 topics/groups. These were *Public and private resource management*, *Structures and materials* and *Platforms/ business organizations (FIR)*. Results from the different work-shops were a strong engagement from all involved participants and a number of identified key issues that needs to be addressed in joint project. Key issues include

- Joint guidelines and coherent quality criteria in the whole region
- Knowledge sharing and demonstration project dissemination
- Efficient tools for management and planning
- Regional business association and lobbying resources
- Strategy for meeting upcoming EU funding opportunities and emerging global market

The conference resulted in two application efforts, one to the program BSR Stars Innovation Express (which later was approved) and one to the Swedish Institute for seed money.

### ***Conclusions from the work in SIMM-Cities conference***

A quick sum up of all the delegates' presentations, performed work at workshops and discussion held throughout the conference could be elaborated into three important findings for the delegates on the topic of recycling and reuse of construction and demolition waste, including excavated soils:

- A. An emerging market is on the way. EU regulations, energy and climate goals and business opportunities will be drivers
- B. It is most important to make joint applications in order to unlock investments
- C. The promotion and support of knowledge exchange is a key for a successful implementation

One of the key findings and results from the conference were a unanimous decision to develop larger development projects as EU-funding is released upcoming years. Thus the participants agreed to make applications for cluster collaborations within the Baltic Stars Innovation Express program and Swedish Institute Baltic Sea Unit seed money.

## SUM UP

The outcome of the project is on one hand the performed activities such as workshops and meetings in which three major conclusions were drawn concerning the management of excavated soils and construction and demolition waste:

- A. An emerging market is on the way. EU regulations, energy and climate goals and business opportunities will be drivers
- B. It is most important to make joint applications in order to unlock investments
- C. The promotion and support of knowledge exchange is a key for a successful implementation

SIMM-Center: After the project was closed the delegates has joined forces in a project titled SIMM-Center co funded by Innovation express. The project focuses on enabling new technologies for recycling of materials such as excavated soils and construction and demolition waste. The project management includes representatives from clusters in Sweden, Finland and Estonia. SIMM-Center is currently ongoing and is currently proposing new development projects in order to promote a sustainable management of excavated soils. More information about SIMM-center can be found on [www.optimass.se/simm-center](http://www.optimass.se/simm-center).

OPTIMASS: Another side-kick and partly outcome of the project SIMM-CCITIES is Optimass. Optimass is a Swedish project covering the same topics and running until 2016-12-31. One work package is dedicated to establish a national platform I Sweden as well as providing a platform for international cooperation. Further info about Optimass can be found on their webpage, [www.optimass.se](http://www.optimass.se).