Speakers

Maria Yeroyanni is a Civil Engineer from the University of Thessaloniki. She is program officer for the European Commission, responsible for research projects and policy issues on natural resource management.

Arnaldo Cecchini is Full Professor in Urban Planning at the Faculty of Architecture in Alghero of the University of Sassari, Italy. He explores urban phenomena from a perspective based on games, simulations and urban models.

Dr. Ulrich Reuter is a meteorologist. He is the head of the Section of Urban Climatology of the Office for Environmental Protection in Stuttgart. He is member of several committees and lecturer at the University of Applied Sciences Stuttgart.

Winy Maas is a Dutch architect, landscape architect, professor and urbanist. He is one of the founding architects of Rotterdam based practice MVRDV.

Dr. Nektarios Chrysoulakis is a Senior Researcher on environmental monitoring, atmospheric and microclimatic physics. He is a remote sensing expert, and the coordinator of the BRIDGE Project at FORTH.

Dr. Roland Vogt is a Senior Researcher in the field of micrometeorology at the Institute of Meteorology, Climatology and Remote Sensing, University of Basel.

Carlos Borrego is Full Professor of Environmental Engineering at the University of Aveiro. He was Minister of Environment and he is part of a number of national and international scientific boards and committees.

Ab Veldhuizen is a research hydrologist at Alterra, in the fields of integrated water management and regional hydrological modelling.

Program of the conference

09:30-10:00	**Welcome coffee break**	
10:00-10:15	**Maria Yeroyanni** *EU DG Environment officer*	DG Environment view on sustainable cities
10:15-10:45	**Arnaldo Cecchini** *Faculty of Architecture in Alghero of the University of Sassari, Italy*	Experts in the hive: knowledge and tools for a sustainable urban planning
10:45-11:15	**Ulrich Reuter** *Environmental Protection Agency, Stuttgart*	Sustainable urban planning by implementing urban climatology
11:15-11:45	**Coffee break**	
11:45-12:15	**Winy Maas** *Architect, Netherlands*	The importance of using sustainability data in urban planning and design: Example of Dutch architecture
12:15-13:00	**Synthesis and discussion**	Synthesis of previous presentations and discussion: what is needed? What info on biophysical aspects? How?
13:00-14:00	**Lunch break**	
14:00-14:15	**Nektarios Chrysoulakis** *Foundation for Research and Technology - Hellas* *BRIDGE project leader*	BRIDGE project overview
14:15-14:30	**Roland Vogt** *BRIDGE, University of Basel*	Energy and CO_2
14:30-14:45	**Carlos Borrego** *BRIDGE, University of Aveiro*	Air quality
14:45-15:00	**Ab Veldhuizen** *BRIDGE, Wageningen University*	Water management
15:00-16:00	**Workshops & Poster Session**	
	Poster session on urban metabolism and sustainability topics.	Workshop with a tool for sustainable urban planning - the new BRIDGE DSS.
16:00-16:30	**Tea break**	
16:30-17:00	**Maria Yeroyanni**	Summary, challenges and future outlook – how to proceed? Followed by discussion
17:00	**Closure**	

Conference location

DIAMANT Conference & Business Centre
Bd. A Reyerslaan 80
B-1030 BRUSSELS
Tel +32 (0)2 706 88 00
www.diamant.be

Confirmation of attendance

Please confirm your attendance
(name, address, organization and function)
by e-mail to bjoern.lietzke@unibas.ch
or judith.klostermann@wur.nl
no later than 29th September 2011.

Poster session contribution

If you would like to contribute to the poster session on urban metabolism and sustainability topics, please state with your confirmation of attendance:
Title, authors and a short abstract and a description of its content .

Accommodation

We have arranged a limited booking option for the nights of the 25th and 26th October with the "Gresham Belson Hotel" Brussels:
150€ per night including Breakfast and a free shuttle service from/to the airport and the DIAMANT Congress Center.
Refer to BRIDGE while booking. This option is valid for 30 rooms until the 1st of October.
www.gresham-hotels-brussels.com

For information regarding the aims of the BRIDGE project refer to www.bridge-fp7.eu.
In case of any questions, please do not hesitate to contact us
(bjoern.lietzke@unibas.ch or judith.klostermann@wur.nl).

Dear urban planning practitioners and urban environment researchers,

We cordially invite you to the

BRIDGE Sustainable urban planning Conference

in Brussels
on the 26th of October, 2011

What do we need to know in order to develop and design a sustainable urban plan?

Knowledge on the biophysical aspects of a city is necessary to evaluate the impacts of planning decisions on air quality, temperature, water use and heat/energy exchange in a city.

However, all the available models and data on many case studies in European cities are useless for the end users if the link between the science and the urban planning community is missing.

In the **BRIDGE project** the available knowledge was brought together in a prototype tool for urban planners.

Objectives of the conference

✓ To facilitate **exchange of ideas and experience** between urban planners and BRIDGE researchers regarding sustainability issues and to increase participants' understanding about the integrated character of urban metabolism and its role in urban planning ;

✓ To involve municipal politicians, architects, property developers, urban professionals, consultancy firms, and EU policy makers in the discussion on **how to proceed towards realization** of sustainable cities ;

✓ To provide hands on **experience with a new tool** supporting sustainable urban planning: the BRIDGE Decision Support System (DSS) that has been developed within the project.

BRIDGE project

The FP7 project BRIDGE (**sustainaBle uRban plannIng Decision support accountinG for urban mEtabolism**) is a joint effort of 14 European organizations aiming at incorporating sustainability aspects in urban planning processes, accounting for some well recognized relations between urban metabolism and urban structure.

BRIDGE focuses on the following components of urban metabolism:

- ✓ **Energy**
- ✓ **Water**
- ✓ **Carbon**
- ✓ **Air pollutants**

BRIDGE was launched in 2008 in order to assist urban planners to present and evaluate planning alternatives towards a sustainable city.

SEVENTH FRAMEWORK PROGRAMME
Environment (including Climate change)

Funded by the European Commission under the SEVENTH FRAMEWORK PROGRAMME
Grant agreement no.: 211345

BRIDGE DSS : A Multi Criteria Decision Making Approach

End users involvement

The BRIDGE project has used input from end users on their needs and requirements in the design of the DSS. **Communities of Practice** (CoP) were organized to bridge the gap between researchers and urban planners.

Ten CoP meetings were organized in **Athens, Firenze, Gliwice, Helsinki and London** to identify the key planning issues, generic and city-specific objectives and indicators to be used for the assessment of planning alternatives.

The DSS: BRIDGE's main innovation

The innovation of BRIDGE is the development of a **Decision Support System (DSS),** which can assist urban planners in decision-making.

The DSS provides a structured presentation of planning alternatives and the tools to evaluate them on the basis of environmental impacts of energy, water, carbon and air pollutants fluxes.

Physical models and an evaluation module

The cascade modelling approach within BRIDGE integrates different types of models from large to local scale :

- **Regional climate model** and **meteorological models**
- **Urban canopy models** to estimate heat island effect, inhabitants comfort, and building energy indexes
- **Air quality models** and **hydrological models**
- **Computational fluid dynamics**
- **Land use dynamics cellular automata** to determine the spatial distribution of an aggregate land use demand

Decision making steps for end users

As an interactive tool, the BRIDGE DSS asks end users to provide information and to analyse results at some steps. The figures 1 to 5 below explain these steps.
Once city databases are set (figure 1), end users select and weigh indicators from the DSS set according to sustainability considerations in each city (figure 2).

End users then provide planning alternatives (figure 3) while the DSS presents modified land-use arrangements.
The physical models and evaluation module (figure 4) enable end users to assess and rank alternatives (figure 5) according to defined objectives. Eventually end users can perform sensitivity analyses by changing indicators' weights.

Representation of actual city
Land use, land cover, topography, infrastructure networks, socio-economic, air quality & meteorological data

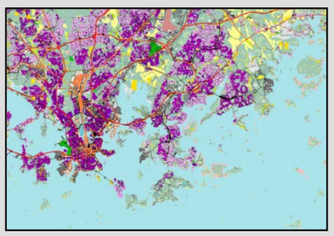
Sustainability objectives
User defined objectives, weighted criteria and indicators.

Planning alternatives
User defined land use, infrastructure networks, vegetation, building material, ...

Physical Flows modelling
Climate, air quality, energy, comfort, water, land use dynamics

Multi criteria evaluation & decision making
Quantified criteria, maps and scores

City databases



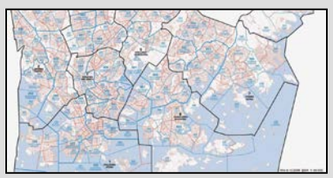
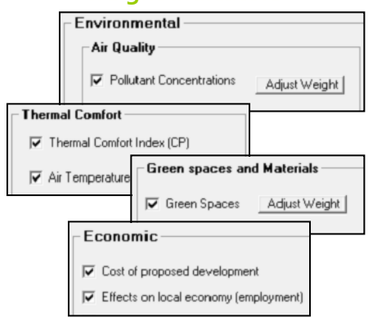


Figure 1.
Helsinki land use map (top) and socio-economic data sample area (bottom)

Define objectives and weight indicators



Indicator	Weight
Environmental	0,369
Social	0,267
Economic	0,364

Figure 2.
Extract from indicators table

Define planning alternatives

Figure 3.
Planning alternatives (examples)

Compute impacts (on air quality, energy consumption, ...)

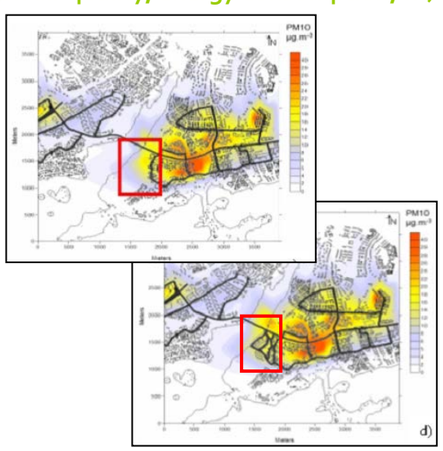
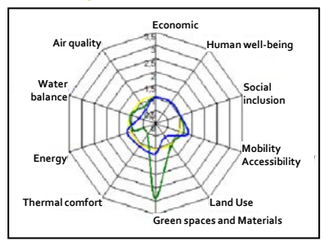


Figure 4.
Comparison of PM10 concentration fields for baseline (top) and planning alternative (bottom)

Assess performances



	Final Appraisal Score
Alternative 1	0.443507
Alternative 2	0.308393
Alternative 3	0.457766

Figure 5.
Star diagram (top) and final score (bottom)

5 Case study cities

Athens

Municipality of Egaleo (Western part of Athens). Five main road axes divide the area in four quarters.

Firenze

Cascine's park: a strong cultural heritage with expected modifications.

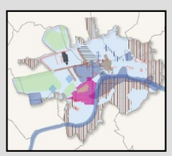
Gliwice

A satellite city with an old central town and residential districts around.

Helsinki

Helsinki with focus on Kumpula and Viikki. Heterogeneous areas consisting of buildings, paved areas and vegetation, and different wind directions.

London



Central Activity Zone (CAZ), including the Central Business Area, the commercial centre, and three major parks.