

## BRIDGE

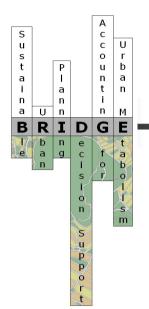
# 1<sup>st</sup> CoP Meeting

#### London, August 24, 2009

### **The BRIDGE Project**

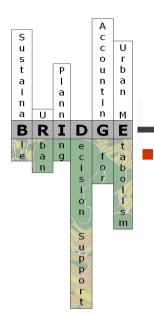


## N. Chrysoulakis FORTH



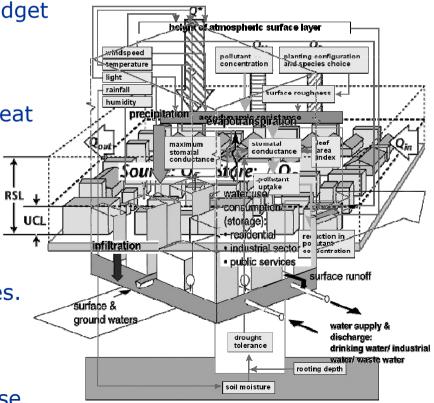
# **The BRIDGE objectives**

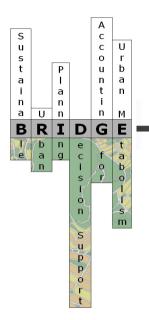
- To define urban metabolism by means of energy, water and air pollution fluxes in **local scale**.
- To examine the role of land use and resources use in saving energy, in minimising impairment of the water cycle and in removing air pollutants.
- To develop indicators to quantify the environmental impacts of the above components of urban metabolism.
- To develop a DSS based on these indicators.
- To use this DSS to estimate the environmental and socioeconomic benefits of alternative land and resource use.
- To devise sustainable planning strategies based on these estimations.



# The problem

- Urban development removes natural vegetation replacing it with impervious surfaces. It also alters the behaviours of the urban residents in terms of demands of resource use. The following impacts are noted:
- Energy storage: Energy budget is modified, sensible heat increases, latent heat deceases, anthropogenic heat sources are added.
- ✓ Water cycle: Both
   evapotranspiration and
   infiltration decrease, while
   stormwater runoff increases.
- Air quality: Air pollution removal and carbon sequestration rates decrease.





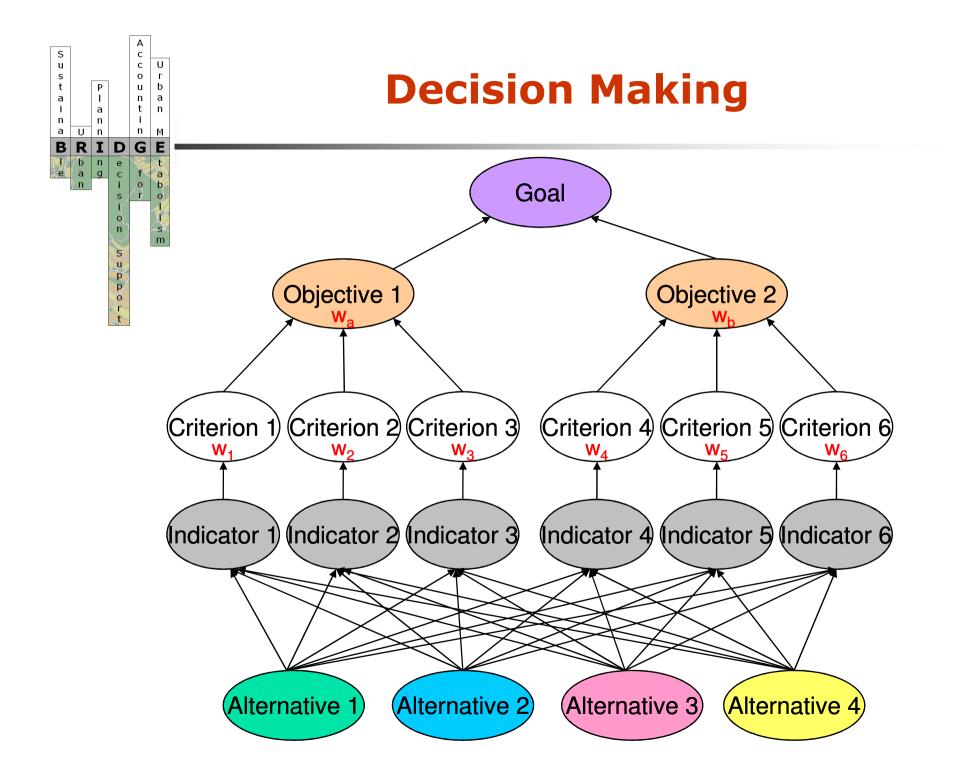
# The challenge

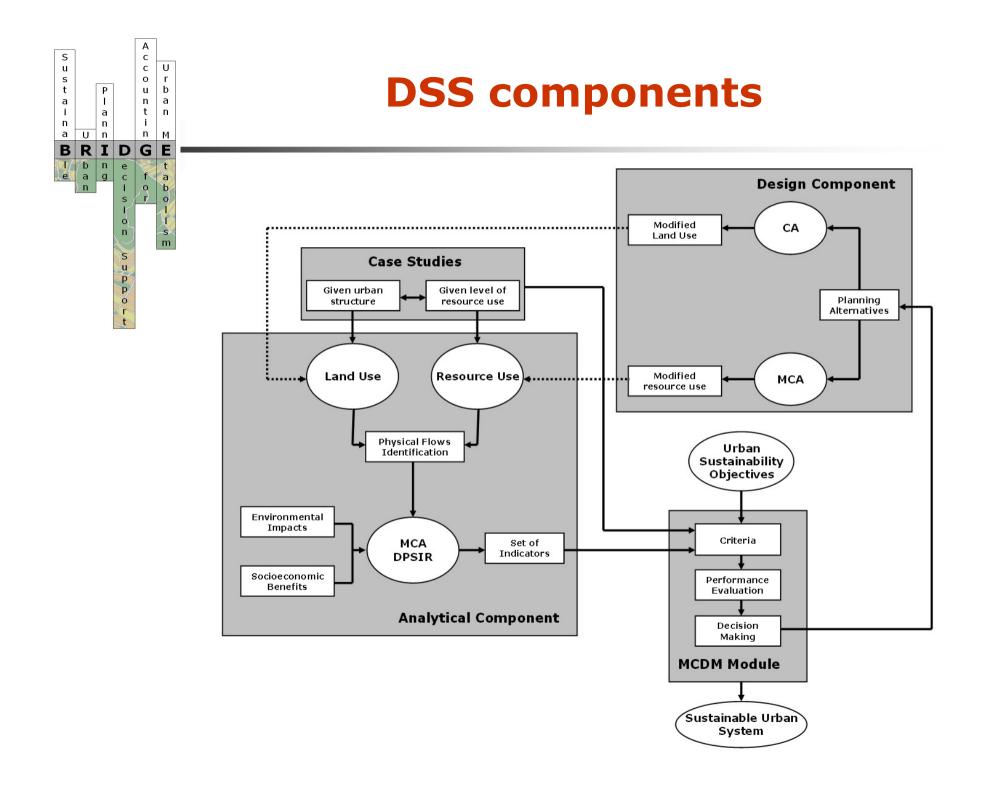
- Urban metabolism is considered as the exchange and
  transformation of energy and matter between a city and
  its environment.
- The city is considered as a **system** and the physical flows between this system and its environment will be quantitatively estimated.
- BRIDGE will focus on the following components of urban metabolism:

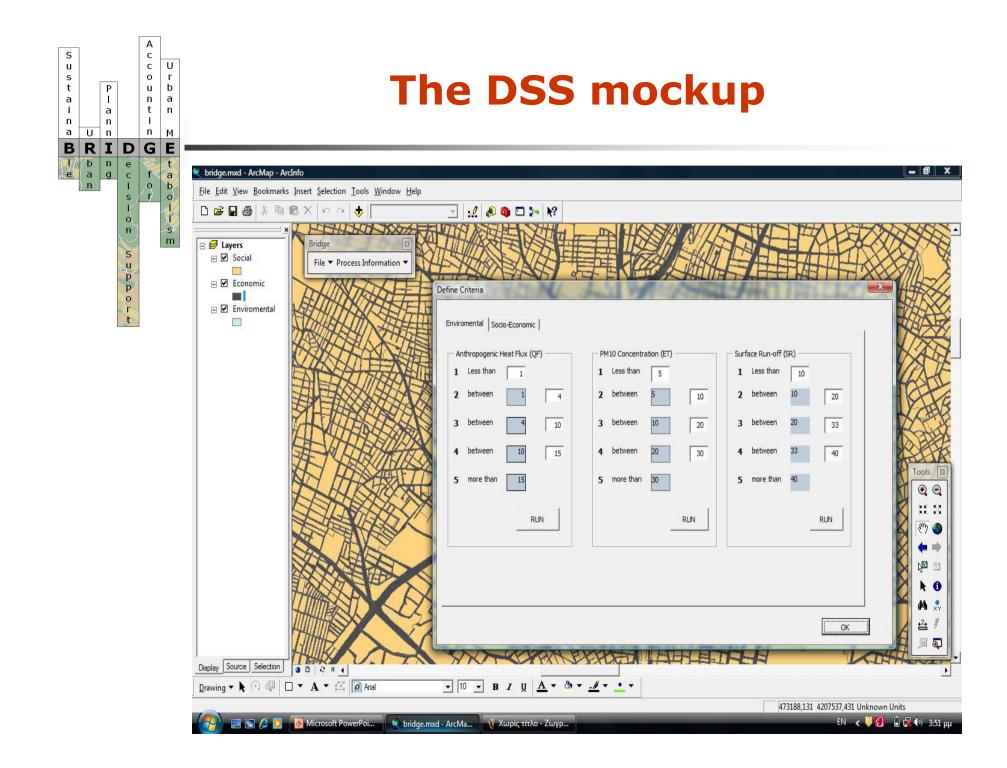


Water

Carbon and pollutants







#### A c c U The vision: BRIDGE in planning o u n t r b Ρ а 1 а n i. n n М n G I D E bn a<u>g</u> n e c i f o r a b S 0

STATION DO NOT

S u

s

t

а

i

n

а U

В

l e

R

0 n

S m

