



Tuesday March 10, 2009  
9:00 to 10:30

Lyon Convention Center  
France

## REDUCING CITIES' ECOLOGICAL FOOTPRINT: SUSTAINABLE CITIES

### Moderator

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- **Bruno Giussani**, European Director, TED Conferences, Switzerland

### Speakers

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- **Catherine Gaillochet**, Cercle Cyclope, France
- **Tom Rufty**, Bayer CropScience Professor of Sustainable Development, Departments of Crop Science and Plant Biology, North Carolina State University, USA
- **Gordon Shepherd**, Director Global and Regional Policy, WWF, Switzerland
- **Karsten Voss**, Professor, Wuppertal University, Germany

### Summary

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- The purpose of this session is to discuss how we can make cities more sustainable by reducing their ecological footprint.
- The rise of the Megalopolis illustrates how the world has tilted to cities. Today, half of the world's population, according to UN statisticians, lives in cities, and cities represent 70 to 80% of greenhouse emissions. This leads to an interesting paradox: efficient cities could play a key role in mitigating the effects of global warming. However, cities as they are designed and managed today are a major source of hazards and pollution.
- Reducing cities' impact on pollution can be achieved through better planning, designing and building.
- The world total biocapacity is estimated at 12 bn ha for 6.5 bn human beings (providing 1.8 ha per individual if biocapacity was spread fairly). The footprint for industrialised countries is much higher (USA and UK's footprints are respectively 5.3 planets and 3.1 planets). Therefore, the world has been indulging in unsustainable consumption since the early 1980's at least.
- Sustainable living, as detailed by the WWF in its "One planet living" concept, will require:
  - Zero carbon
  - Zero waste
  - Sustainable transport
  - Local and sustainable materials
  - Local and sustainable foods



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- Sustainable water use
  - Natural habitat and wildlife
  - Cultural and heritage preservation
  - Equity and fair trade
  - Health and happiness
- One planet living is a blueprint on how we can reduce the ecological footprint of mankind. Examples of its application are currently being applied in new property development in Portugal, the UAE (Masdar) and elsewhere.
  - Building sustainable new cities is an important step forward but the real challenge lies in retrofitting the existing ones.
  - When setting zero emission goals, it is important to measure results.
  - Examples exist of zero emission buildings. Experiments on autonomous houses were conducted in Freiburg/Germany as early as 1991.
  - The number of zero emission buildings is rising as companies have identified the marketing/communication potential for building up their green credentials.
  - It is essential to adopt a net zero energy approach where you look at the overall picture: what is consumed from the outside must be provided back at a later stage.
  - Results show that passive house design features can play an important role. Nevertheless, the ever increasing number of electrical appliances however efficient they are becoming can only be fully compensated by on-site electricity generation (for example by using solar panels).
  - This works well in individual houses and small buildings but becomes problematic in multi-storey ones as a limited generation capacity (roof size) is shared by a larger number of inhabitants/workers.
  - With net zero energy, efficiency comes first. A low mismatch between consumption and needs induces low transportation costs and storage losses. To do so, all sectors of energy consumption need to be taken into account.
  - Another way of achieving the goal of sustainable cities is by increasing the number of green spaces.
  - When asked why people need green spaces several answers are provided: beauty, spiritual connection, leisure, gathering spaces, etc.
  - Green spaces can play a key role in sequestering carbon, minimising environmental impacts and the dispersal of effluents.
  - When it comes to carbon sequestration, forests can trap 4 tons of carbon per ha per year. Turf grass is also an interesting means for sequestering carbon as it can absorb 1 ton of carbon per ha per year but research also shows that it can reduce the amount of nitrates released into the environment.
  - Turfgrass can therefore play a key role in reducing the ecological footprint of a city. Its efficiency depends on the climate and the soil.
  - Last but not least, waste management is a key factor to take into account when attempting to reduce the ecological footprint of a city. Waste management varies according to countries. In developed countries, different approaches exist such as landfills or incinerations. Recycling rates also vary (up to 49% in South Korea and in the 40s % in Scandinavia). Whereas, in poorer countries, the battle often lies in eliminating illegal dumping.

## Quotes

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"One planet living is a concept for living without destroying the planet"

Gordon Shepherd

"It is time to convert the Net Zero energy concept from a slogan into a convincing reality for all building types: new and existing ones."

Karsten Voss

"Green spaces have tremendous potential to contribute to the sustainability of cities."

Tom Rufty

"Waste management constitutes a challenge!"

Catherine Gaillochet