Semana temática: Agua y ciudad

Eje temático: Pautas de los gobiernos locales para la sostenibilidad

Título de la ponencia: *Urban water indicators systems*

Authors: Maria Berrini e Lorenzo Bono
Ambiente Italia Research Institute, Via Carlo Poerio 39, 20129, Milano, Italy. Tel 0039 – 02 277441; www.ambienteitalia.it; maria.berrini@ambienteitalia.it; lorenzo.bono@ambienteitalia.it; ecosystem.eu@ambienteitalia.it;

Summary:

The UEE - Urban Ecosystem Europe - Report provides an integrated assessment of the urban environment in the main and bigger European cities and focuses on their local responses capacity and needs. The set of indicators (25) has been selected focusing to the main scope of the survey (benchmarking EU cities) so the data availability is a relevant criteria. It has been taken into consideration as much as possible the most valid and recent "common" and "integrated" European local Indicator systems and related research projects. The policy framework considered is represented by the Aalborg Commitments, the EU Thematic Strategy on Urban Environment, the Leipzig Chart. The UEE set of 25 Indicators includes 2 Water related indicators: "Domestic water consumption" and "Inhabitants served by water treatment plants". The report provides interesting data about 32 EU cities performances on this field. The concrete experience of collecting data directly with cooperation of the cities open the way for Indicators improvement and for further research and dissemination about local good practices behind the best results.

Key-words: Urban Indicators**,** Water Indicators, European cities, Benchmarking.

Introduction - Aims, actors, policy framework

The UEE - Urban Ecosystem Europe - Report provides an integrated assessment of the urban environment in the main and bigger European cities and focuses on their local responses capacity and needs. Many of the data used refers to 2006 – 07, thanks to the fact that the main source of data have been cities, actively involved in the data collection and quality check process.

The survey results help to better understand strengths and weaknesses of the main EU cities. It could be used as a reference point to discuss the urban policy priorities and agenda at EU, national or local level. It could be a Baseline review, useful also for EU or for local target-setting practices.

The UEE - Urban Ecosystem Europe - survey has been financed – for the 2006 and 2007 yearly editions - by Dexia Group, an international banking group, world leader in funding sustainable development projects in the local public sector. The Report has been prepared by the Research Institute Ambiente Italia, in cooperation with Legambiente (Italian Ngo) and has been endorsed by EU City Networks such as ICLEI, Union of Baltic Cities, MEDCities, Climate Alliance, the French Comité21, the Italian Agende21 Locali and ANCI. Strong interest in the results has been expressed by the European Environmental Agency, by DG Regio and DG Environment. Thanks should also be expressed to the REC and to the organisers of Sevilla 2007 and GlobalCity2007 Conferences who have invited the Urban Ecosystem Europe authors to present the initiative at relevant public events organised at European level.

During 2008 a presentation has been done in the MUE25 Project (UBC and ICLEI) final Conference in Berlin, and in the DG Regio – The state of European Cities Conference in Bruxelles. The EU Green Capital Award, that will take place next year, launch in Bruxelles during May 2008 by the Commissioner Dimas Stavros as main promoter will take in strong consideration the Urban Ecosystem Europe report as a useful source of data for the evalution of the award candidates.

The Urban Ecosystem Europe Survey intends to consolidate itself as a periodical reporting system and in so doing, is looking for new participants, new endorsers, partners and sponsors.

The set of indicators has been selected in 2006 focusing to the main scope of the survey (benchmarking EU cities), taking into consideration as much as possible the most valid and recent "common" and integrated European local Indicator systems and related research projects (as Urban Audit, ECI, TISSUE, STATUS,…) and the policy framework represented by the Aalborg Commitments, the EU Thematic Strategy on Urban Environment, the Leipzig Chart. The results of the first Survey year round, during 2006, have given important inputs, so the 2007 set has been refined working further on harmonisation, feasibility and relevance of indicators (see below, the indicators list).

Cities participating and Data collection

The Survey has focused its attention on main cities (capital and medium-big size) from all Member States and over (accession and neighbouring countries).

Cities active participation has been a success, as 32 cities have actively cooperated in the data collection phase (see the table with the cities participating and the year reference for data collection).

- 26 to the 2006 data collection phase
- 24 to the 2007 data collection phase
- 18 both to the 2006 and 2007 data collection

City	Country	2006	2007
Antwerpen	Belgium	x	x
Aalborg	Denmark		x
Aarhus	Denmark	x	
Barcelona	Spain	x	x
Berlin	Germany	x	
Bristol	United kingdom	x	x
Bruxelles	Belgium	x	x
Kobenhavn	Denmark	x	x
Dresden	Germany	x	
Durres	Albania		x
Goteborg	Sweden	x	x
Hannover	Germany		x
Heidelberg	Germany	x	x
Helsinki	Finland	x	x
London	United Kingdom	x	x
G.Lyon	France	x	x
Lefkosia	Cyprus	x	
Madrid	Spain	x	x
Milano	Italy	x	x
Munchen	Germany		x
Napoli	Italy	x	x
Oslo	Norway		x
Paris	France	x	
Patra	Greece		x
Praha	Czech Republic	x	x
Riga	Latvia	x	x
Roma	Italy	x	x
Stockholm	Sweden	x	
Tampere	Finland	x	
Turku	Finland	x	x
Wien	Austria	x	
Zaragoza	Spain	x	x

The participating cities belong to 16 different european countries: 5 cities from Germany; 3 cities from Finland, Denmark, Italy and Spain, 2 cities from France, Belgium, Great Britain and Sweden, 1 city from Latvia, Czech Republic, Austria, Albania, Cyprus and Greece.

In summary, 11 cities belong to northern Europe (including Great Britain), 10 to the central area, 9 to the south and 2 to the east Europe.

12 of the urban areas considered have more than one million inhabitants and 5 of these exceed 2 millions. Also medium sized EU capitals are included, so varying between 150,000 and 750,000 inhabitants. The 2007 Report adapts the comparison and benchmarking exercise to these main differences.

The 25 indicators set

The set considers the main socio-economic data as a structural pattern that must be taken into account in interpretations and so the more conventional indicators (as Inhabitants, area, density, GDP, activity rate and unemployment) are used as "identity card" for the single city profle presentations. The UEE indicators set is based on the 10 Aalborg Commitments contents, but have been aggregated in 6 main themes (partially changing the AC order of presentation). The 2 Water Indicators are underlined **in bold**.

Local Action for Health and Natural common goods

1. Air quality: PM_{10} concentrations
2. Air quality: NO_2 concentrations
3. Noise map and noise reduction plan
4. **Domestic water consumption**
5. **Inhabitants served by water treatment plants**

Responsible consumption and lifestyle choices

6. Electric consumption variation
7. Amount of municipal waste produced
8. Municipal waste processed according to differentiated refuse collection schemes
9. Green public procurement procedures and purchasing

Planning, design and Better mobility, less traffic

10. Passengers travelling on public transport within the urban area
11. Underground and tram lines in the urban area
12. Number of registered cars
13. Cycle paths and lanes availability
14. Public green areas availability

Local to global: Energy and Climate change

15. Setting of an Energy Balance and a CO_2 reduction target
16. Solar power generation in public buildings
17. Inhabitants connected to a district heating system
18. Climate and Energy saving policies

Vibrant, Sustainable Local Economy and Social equity, justice and coesion

19. Demographic and old age dependency
20. Female employment
21. Population qualified at highest level of education

Local Management towards sustainability and Governance

22. EMAS and ISO 14001 certification of public authorities
23. Level of implementation of Agenda 21 processes
24. Electorate voting in city elections
25. City representatives who are women

The Report structure

The 6 chapters of the Report develop each of the above selected indicators, elaborating comments, data and graphs related to different city performances, organising them with reference to the main issues/commitments engaging European cities, summarising the main messages shown by the data analysis.

The Report is completed by Synthetic Profiles, that give the position of each city with respect to best and median values – for each indicator - registered by the other cities involved in the survey.

Water Indicators and benchmarking results

- **Domestic water consumption**

Water is a precious resource, but has been subject to increasing human pressures in the last few years. The sustainability of the water resource is threatened in many European regions, due to the lowering and salination of groundwater aquifers, reduction of the flows of surface waters and widespread pollution.

The Framework Directive on Water (2000/60/EC) requires that the member countries promote a sustainable utilization of water resources on the basis of a long-term protection policy and ensure a balance between extraction and recharge of groundwater for the purpose of achieving a good condition within 2015.

In 2003 in Europe urban water consumptions represented 18% of the total, preceded by energy consumptions (33%) and agricultural consumptions (37%). In 2003, approximately 40% of urban water consumptions were concentrated in the countries of southern Europe, followed by those of central Europe and northern Europe (35%), whilst incoming countries weighted in whole for 23%.

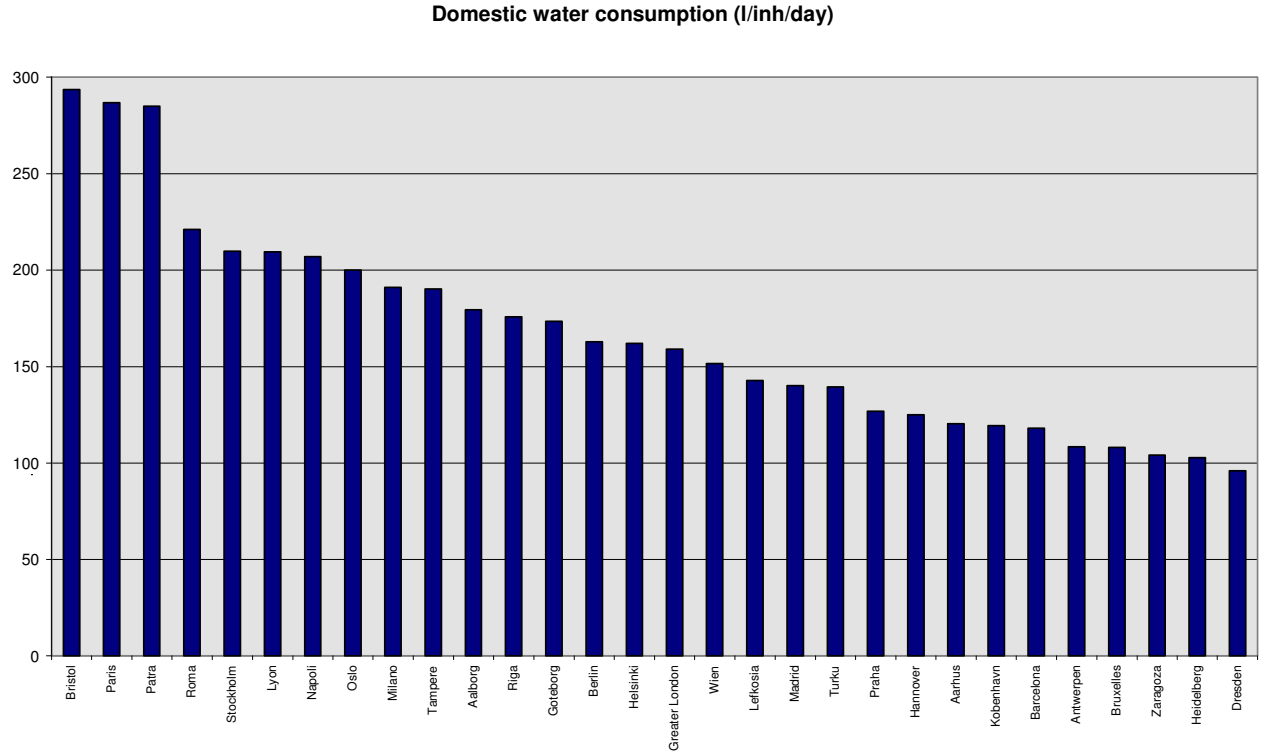
High water consumptions are often also a cause of further energy consumptions due to water collection, pumping, treatment, etc.

In the 31 European cities taken into consideration, the per capita water consumption goes from 100 litres per day recorded in Dresden. Heidelberg and Zaragoza to exceeding 280 litres/inhabitants Bristol, Paris and Patra.

These are data whose variability is due to water management policies, individual behaviours and life styles, the economic structure of the city and the presence or not of large tourist flows.

Most of the cities (77%) show values ranging from 120 to 220 litres/inhabitant/day.

Central Europe cities show average values (123 l/inh daily) which are lower than the northern ones (167 l/inh daily) and the southern ones (168 l/inh daily). The size factor seems not to be very important, even if smaller cities – on average - tend to record lower consumption (about 145 l/inh daily) than the bigger ones (about 160 l/inh daily) .



- **Inhabitants served by wastewater treatment plants**

Another important pressure on water resources in urban areas is undoubtedly the large volume of sewage water produced, one of the main causes of eutrophication and pollution of surface waters.

The EU countries, which first engaged in policies for reducing eutrophication and improving the quality of waters are those in the north. In these countries, the largest part of the population is now connected to a treatment plant whilst only half of the population in southern and eastern countries is currently connected to a treatment plant.

The picture arising from our 32 cities is definitely better: quite all their inhabitants are connected to a wastewater treatment plant, even if some differences in the kind of treatment to which the sewage is subject, still remain. More than a half of the cities (17) have all the population connected and 7 more cities exceed 95%. The three cities with lowest values are all from the south: Napoli (72%), Lefkosia (50%) and Patra (45%).

The plants may be differentiated depending on the treatment to which the sewage is subject; there are primary treatment plants which have the objective of removing suspended solids, secondary treatment plants which, in addition to the above, permit the removal of the organic biodegradable substances and separate non-subsiding solids and, finally, there are plants with tertiary treatment, which add to the preceding phases also a reduction in the load of nutrients, such as phosphorous and nitrogen, which contribute to the eutrophication of waters.

Among the cities with more than 95% of population connected, 20 use exclusively or prevailingly tertiary treatment plants and 6 use secondary treatment plants (London, Praha, Barcelona e Zaragoza, Turku and Tampere)[1].

[1] No data for Helsinki.

The re-use of treated water is not widespread yet: only Milano (37%), Aalborg (1%), Madrid (1%) and Antwerpen use the waters coming out of treatment plants for agricultural or industrial purposes or to wash the streets.