

Sustainable Urban Planning in Florence

Report of the Community of Practice (CoP) meeting
of BRIDGE researchers and Florence experts

October 16th 2009

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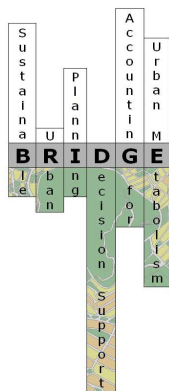
Osservatorio Ximeniano

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Contents

1	Programme	3
2	Participants	4
3	BRIDGE project (Nektarios Chrysoulakis)	5
4	Sustainability in Florence (Riccardo Pozzi)	7
5	Green areas management in Florence (Alberto Giuntoli)	10
6	Discussion on potential case studies	12
7	Urban Planning in Florence (Kalomira Galiotou)	13
8	Planning priorities, objectives and indicators (Ainhua GonzÁles Del Campo)	14
9	Priorities	14
10	Objectives	15
10.1	Objectives for priority TRANSPORT	15
10.2	Objectives for priority GREEN SPACES	15
10.3	Objectives for priority ENERGY	15
10.4	Which objectives do we select?	16
11	Indicators	17
12	Evaluation of the first Florence CoP and follow-up	18

Explanation of picture on page 1: Osservatorio Ximeniano

In 1756 the Jesuit Leonardo Ximenes founded, on the upper floor of the monastery of San Giovannino, a small astronomical observatory. At the death of Ximenes, in accordance with his will, two chairs were instituted, one in astronomy, the other in hydraulics, which remained active up to the middle of the 19th century. In 1813 the activity of weather forecasting was begun. Today the Observatory is an independent scientific body of measurement and research, which conducts scientific research in the geophysical and meteorological fields.

This report is a working document prepared in the context of the BRIDGE project (EU Grant Agreement number: 211345)

1 Programme

- 10.00 - 10.10: Welcome and explanation of today's programme (Franco Miglietta, Faculty Member of the Institute of Biometeorology, Consiglio Nazionale delle Ricerche (CNR); Florence CoP coordinator)
- 10.10 - 10.30: Short introduction of all participants: name, affiliation, work topics, expectations of today's programme
- 10.30 - 10.45: Introduction of BRIDGE project (Nektarios Chrysoulakis, FORTH – Hellas; BRIDGE project coordinator)
- 10.45 - 11.00: Questions and discussion among all participants.
- 11.00 - 11.15: Riccardo Pozzi, responsible for the Agenda 21 sustainability programme, discusses criticisms, problems and hot topics for Firenze.
- 11.15 - 11.30: Questions and discussion among all participants.
- 11.30 - 12.00: Coffee / tea break
- 12.00 - 12.15: Alberto Giuntoli/Cecilia Cantini [responsible for urban green policies] will discuss problems and hot topics for Firenze.
- 12.15 - 12.45: Questions and discussion among all participants. Also on question: what are possible projects / new developments in Florence for a case study?
- 12.45 – 14.00: Lunch
- 14.00 - 14.15: Explanation on use of objectives and indicators in BRIDGE (Ainhoa Gonzales del Campo, researcher at Trinity College Dublin)
- 14.15 - 15.45: Discussion on challenges, planning objectives and indicators relevant for Florence.
- 14:15-14:45 Objectives sustainability, energy, water, CO₂, air pollution.
14:45-15:00 Indicators air pollution
15:00-15:15 Indicators CO₂
15:15-15:30 Indicators water
15:30-15:45 Indicators energy
- 15.45 - 16.15: Follow-up, including possible projects / new developments in Florence as case study discussion on meetings in the future as Florence Community of Practice.

2 Participants

Franco Miglietta, Researcher CNR, Bridge Florence coordinator
Nektarios Chrysoulakis, Bridge project coordinator
Judith Klostermann, Social scientist, Bridge responsible for COP
Ainhoa GonzÁles Del Campo, Bridge Development of indicators

Lorenzo Genesio, CNR Agronomist
Francesco Vaccari, CNR, Flux measurement
Beniamino Gioli, CNR, Flux measurement
Piero Toscano, CNR, Flux measurement
Alessandro Zaldei, CNR, flux measurement

Valentina Grasso, Communication scientists, climate change and communication
Federica Zabini, Communication scientists, climate change and communication
Martina Petralli, CBIC, Interdepartmental University Centre of Bioclimatology, urban climate and thermal comfort threshold for human wellbeing
Serena Marras, CMCC Sardinia, Flux measurements

Alberto Giuntoli, Green - Urban Park City Council of Florence, Plant physiologist
Riccardo Pozzi, Municipality of Florence, responsible for Agenda 21
Kalomira Galiotou, Urban Planning Offices Municipality of Florence
Francesco Matteini, Urban Planning Offices Municipality of Florence
Massimo Del Bono, professional urban planner (in the afternoon)



Participants of BRIDGE community of Practice, 16th of October 2009 in Florence

3 BRIDGE project (Nektarios Chrysoulakis)

Nektarios introduces the BRIDGE project. The BRIDGE project (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. It is funded by the European Commission under the Seventh Framework Programme, Theme 6: Environment (including climate change).

The concept of urban metabolism is used as a metaphor to develop a systems approach at the local scale. A city is a dynamic system, therefore it is important to understand trends in energy and material flows over time. Urban metabolism is considered to be the exchange and transformation of energy and matter between a city and its environment. An example: In Tokyo heat fluxes were calculated and divided over energy from the sun and anthropogenic heat (heat from buildings, from transportation and from human metabolism); half of the urban heat was caused by anthropogenic sources.

The main objectives of BRIDGE are:

- To define urban metabolism by means of energy, water, carbon and air pollution fluxes on the **local scale**.
- To examine how the change of land use and resources use affects the fluxes of the above components of urban metabolism.
- To develop indicators to quantify the environmental impacts of these components.
- To develop a DSS based on these indicators.
- To use this DSS to evaluate planning alternatives in several case studies.
- To devise sustainable planning strategies based on these evaluations

BRIDGE will exploit measurements and models simulations at micro scale (metres) and at meso scale (1 km) and provide outputs at the local scale (residential block - neighbourhood) within the boundaries of the following components of urban metabolism:

- Energy
 - Optimise energy efficiency of the urban structure.
 - Minimise energy demand of settlements.
 - Maximise efficient use of energy through building services and energy supply.
 - Maximise share of renewable energy sources.
 - Maximise the use of eco-friendly and healthy building materials.
- Water
 - Minimise primary water consumption.
 - Minimise impairment of the natural water cycle.
- Carbon and pollutants
 - Minimise the emissions to the atmosphere.
 - Maximize pollutants sinks.
 - Stabilize and manage contaminated land.

Goal of the project is the development of a DSS / Decision Support System for sustainable urban planning. A DSS is a computer-based information system that may assist urban planners in decision-making. The results of the DSS have to assist urban planners to evaluate planning alternatives towards a sustainable city. For example, in Helsinki a new settlement is planned, and three alternatives will have different outcomes on energy fluxes and water balance. In Athens the bio-climatic redesign of a central road in the Municipality of Egaleo was elaborated; its effects can be calculated. The DSS uses models for some well recognised relations between urban metabolism and urban structure. BRIDGE will also incorporate new quantitative measurements in the five cities to adapt the models to specific locations.



Demonstration of measurements on the roof of Osservatorio Ximeniano.

What is a sustainable city? Cities across Europe have different problems and different possibilities to improve. The role of end users of the DSS is important: BRIDGE wants to involve real-life projects in the research process, and involve end users in the development of the DSS. Therefore, case studies are planned in 5 cities. Through a Community of Practice (CoP) in each city we define objectives and indicators. Then we develop the DSS and then planning alternatives in each city can be evaluated through the DSS.

The BRIDGE project will use Communities of Practice to organize the interaction between professionals in the field of urban planning and urban research scientists. The intention is to launch BRIDGE Communities of Practice in five case study cities i.e., Athens, London, Florence, Helsinki and Gliwice. The Communities of Practice will create a learning environment for professionals and researchers in the field of city planning.

See also the project website:
<http://www.bridge-fp7.eu/>

Discussion:

Valentina: Will the indicators be the same for every city?

Nektarios: There will be a core set of indicators which are the same, and other indicators which are specific for a city. For example, in Athens cooling is more important, and in Helsinki heating is more important.

Franco: Real life problems will be implemented in the DSS, so for example traffic in Florence?

Nektarios: The DSS will have an analytical component at the level of the whole city which produces a baseline, and a design component which analyses a real life alternative in a specific area, and this is compared with the baseline. Unfortunately this will not encompass socio-economic modeling, however a multicriteria cost/benefit analysis will be employed.

Ainhoa: With the DSS you can also analyze the whole city and assess the alternatives for the transport system.

Franco: However, we will not assess traffic in Florence because it is too politically sensitive.

Alessandro: We do have interesting measurements though, because buses were redirected to another road recently and the difference from 3000 buses per day to much less is clearly visible.

Nektarios: We also have models to simulate such changes.

4 Sustainability in Florence (Riccardo Pozzi)

Agenda 21 was adopted in 9 towns and cities in Tuscany, including Florence, to solve critical environmental issues (e.g. energy consumption, climate change, water resources, waste, emissions, etc.). There is a number of actions planned and implemented, including:

- Green Resources Plan: tackles climate change related issues (temperature, etc.) and management of the urban water cycle.
- Common Building Code for 9 towns for sustainable building and energy saving.
- Energy Plans and Energy politics to promote energy efficiency and use of renewable sources.

- Green public procurement, sustainable public accounting, sustainable public budgeting
- The key opportunity that Agenda 21 brings is the integration and coordination of politics for sustainable development (e.g. ENVIPLANS and CHAMP projects that train and support local authorities in responding to climate change).

In Florence is some research on subjects that may be of interest to BRIDGE:

- Research on Solar Energy and Hydrogen production using organic waste.
- Research on the effects of albedo and vegetation on temperature.
- MOTO project at Siena University: to see how people move around/through and utilize green areas, using mobile phone signals.
- Research on the relationship of climate, environmental impacts and health (Martina of CNR involved).
- GREEN Project: measures surface/air temperature before and after measures have been implemented – This would be very useful data for BRIDGE.
- There are sustainability indicators for Tuscany.
- EU Life project with indicators, ISPRA eco-efficiency & efficacy indicators

The situation with regards to Agenda 21 is critical at the moment: credibility is lost because politicians made a lot of promises but there was very little action; Italian saying: “Appearances have short legs”. There is low participation in Agenda 21 activities; less funds available for staff and initiatives. The indicators and the measurement/ monitoring results are not used to inform plans, they are disregarded. There is no communication between departments (e.g. environment and urban planning). Town planners make decisions internally and these are not shared until adopted.

The aim is to raise sensitivity of public technicians and employees. There are two main streams:

1. To prepare and to try to implement suitable means and actions for sustainability:
 - a) Sustainable indicators for Tuscany: Participation in environmental management. Initiative to show how environmental indicators are used and taken into consideration in each municipality. Staff training on bio-architecture and promotion of interdepartmental/ inter-municipal relationships in Tuscany.
 - b) Sustainability means to save money, to achieve more health and to improve the environment – this line is given to motivate politicians as the environment only is not enough to convince them on adopting sustainable principles.
2. To move conscience and get citizen awareness on sustainability and change in behaviors when using natural resources
 - a) Involving citizens with website and postcards
 - b) Agenda 21 works also with school involvement
 - c) Ecological footprint to explain sustainability

On the web sites of Tuscan Agenda 21 you find all information on projects developed.
www.enviplans.net / www.a21italy.net / <http://ag21.comunne.fi.it>).

Discussion:

Nektarios: I agree with the goals. Is an ecological footprint the right tool? BRIDGE can develop indicators to gain more knowledge about this specific city. Could we provide that kind of knowledge to the CHAMP project?

Riccardo: CHAMP is for coordinating the politics in the area and to train the technicians with documents and data about climate change. It uses the work done by Martina.

Martina: We are measuring air temperature to know how the temperature changes depending on surfaces such as streets, gardens and buildings. We also measure relative humidity and how it depends on height of buildings and size of green areas. We do not measure albedo yet, only heat releases of surfaces. We want to make planners and architects aware that it is not enough to think about energy saving, because buildings are already heat producers.

Riccardo: We try to create collaboration between research, municipality and sustainability projects, to push environmental aspects into town planning. For example, if the municipality wants to realize a new green area, we want to do measurements before and after the temperature changes. The problem is that planners do not communicate with environmental and sustainable development offices.

Nektarios: Do you have examples of indicators for Tuscany?

Riccardo: I have many of them, it is better to discuss them later.

Ainhoa: Are these indicators used in the planning process?

Riccardo: No. We try to do creative projects with good results for both the environment and humans; not only from a technical viewpoint but also from a social viewpoint; and with an open mind. The administration usually is rigid and respects administrative rules. How can we open up their minds? How can we convince politicians to take responsibility for the environment? We also try to fulfill a role between the public and the administration.

Ainhoa: Are EU rules about Strategic Environmental Assessment applied here?

Riccardo (and others): No! It is not the culture of the departments to use EU regulation, we do not consider it.

Nektarios: Most of what you told us is at the level of buildings, how about urban plans at a larger scale, is there any collaboration?

Riccardo: No, as far as I know there isn't anything.

Nektarios: The only way then is to show the advantages of sustainable planning.

Riccardo: Yes, so that everyone knows the difference.

Nektarios: The DSS will have components for environmental impacts and socio-economic implications.

Riccardo: We have to create a new culture to elaborate put all the components of sustainability into the planning process. Now energy plans are made separately from urban planning.

Nektarios: A compact city can be more sustainable, but sometimes it is not. Public transport is also an important factor.

Riccardo: At the moment sustainability is not part of the decision making process, it is only based on economic choices. There is a reactionary approach to planning: environmental problems are solved as they arise once the plan has been implemented. The municipality is always remediating errors. A new culture and awareness is needed in plan-making.

Nektarios: There also are constraints because of the cultural heritage in Florence, it is different in a city like Helsinki. BRIDGE also shows economic and health benefits. Energy saving and improving the environment can also save money.

Riccardo: Psychological, cultural and political factors are very important.

Judith: Will the DSS be culturally sensitive?

Nektarios: No, but the alternatives will be culturally sensitive.

5 Green areas management in Florence (Alberto Giuntoli)

The situation of green management in Florence is quite complicated. The total area of parks and gardens run by the city council (not state or private owners) is 5.100.000 m² which is 70% of the total of green spaces. There is a high presence of public historical gardens like the one of Chiostro di Santa Maria Novella. It also includes the Arno river basin and children's playgrounds. The gardens run by the city council are 4,9% of the total urban area (the total area of Florence municipality is 100Km²) so it is around 13,8 m² per person. If you include private green spaces it is a bit higher. In the city centre there are more private gardens than public gardens. The cost of maintenance is annually 1,2 euro per m² per year (including everything).

Management model is a mixed model:

1. Public tenders for vegetation, fences etc;
2. Direct management for specialist gardens.

Problems:

- Decrease of human and economic resources for maintenance and care;
- Increase of new green areas without new resources;
- Development of new gardens with high cost of maintenance and without sustainability criteria;
- High pressure due to touristic fluxes especially on some gardens in the city centre;
- High bureaucracy and separation of responsibilities;
- High percentage of historical green areas which are expensive to maintain. Tight regulation from the state level so interventions require a lot of permissions before they can be implemented.
- High percentage of old rows of trees (planted end of 19th century) along the streets that would require to be replanted on short term (more than 40% of trees)
- A low level of control by police on vandalism;
- High rate of urban growth in the last 10 years without an adequate growth of green areas;
- Uneven distribution of green areas compared to population density; a GIS for green

spaces is currently being prepared to assess this in more detail.

- No good communication with citizens;
- GIS system not yet completed;
- The Landscape Ordinance for parks is very old (1989) and does not contain objectives for sustainability, no technical standards, no general master plan for green areas.

Conclusions:

- Florence green spaces management needs reorganization
- A new master plan and ordinance are needed.

Discussion:

Ainhoa: Is tree cutting an issue that could be addressed in BRIDGE?

Alberto: You would lose a lot of leaf surface.

Francesco: Is the cost of management high or low?

Alberto: The cost of maintenance is very low compared to other cities, if you make the right calculation, it's important that everything is included.

Ainhoa: Is there any link between park management and Martina's measurements?

Alberto: There should be links, there is going to be a project, we did not find funding yet.

Nektarios: There will be similar measurements by a Greek partner of the BRIDGE project.

Franco: It's important to consider the role of vegetation in sequestering dust and particulate matter. Would such a tool about dust be relevant for you?

Alberto: I did some research myself with a preliminary model from the US (UFOR?) to calculate the vegetation capacity of absorbing particulate matter. We also did modeling work for the new industrial plant of the county showing the impact of a large park reducing the dust.

Franco: If the DSS would contain this element, would it be relevant for you?

Nektarios: The DSS will be able to calculate such effects: vegetation, air pollution, and energy exchange.

Alberto: It is a hot topic for Florence city management, we would be interested.

Franco: For example in taking decisions about substitution of street trees?

Alberto: I tried assessing the consequences of tree felling, pruning and/or replacement of the 40% of street trees. There are significant problems with the data. The main problem is to have the right data for the DSS.

Judith: What do you want to know ?

Alberto: What the effect of the remaining plants is on air pollution.

Franco: And what amount of dust each tree can collect.

Martina: There is an environmental model developed in Germany that underlines the effect of green areas on thermal comfort. This can do the things that Franco suggests, e.g. line a square with trees and calculate thermal comfort for people.

Alberto: It's important to identify the right areas and evaluate the alternatives (planting new trees or mature trees?).

Nektarios: BRIDGE also includes a socio-economic component: cost and thermal comfort. We should find a real project in Florence to integrate these elements.

Ainhoa: We could identify a main road, calculate the environmental effects of replanting trees, as well as the socio-economic effects, and provide a comparison between replanting the section straight away or pruning it.

Valentina: Green areas are important in the perception of citizens. We did some qualitative research in focus groups on perceptions of climate issues and the environment in general. Of the environmental issues, traffic is on top of the list: traffic and city management are out of control, too many cars. Green areas are related mainly to quality of life, and there are few green areas to enjoy yourself. Cutting trees is always controversial for citizens. The DSS output in terms of dust removal could help to explain the activity of replanting old trees.

Alberto: We could show calculations to show that tree cutting is healthy, but still there will be different perceptions; e.g. from people who remember when a tree was planted.

Ainhoa: There is a difference between replanting new trees and replanting mature trees. So trees are an issue, transport is an issue, green spaces are an issue. Wouldn't it be better to remove traffic instead of replanting trees?

Nektarios: We can simulate that in the DSS.

6 Discussion on potential case studies

For the BRIDGE project we would like to know about one specific issue where we can put the whole DSS together, for example a new garden. This would make clear what tools planners of green spaces need. A new park could be a good real life project.

Potential case studies:

- **Replacement of 40% of mature street trees** throughout the city. The case study can look at the effects in carbon sequestration and pollutants, as well as thermal comfort derived from pruning/felling/replanting an avenue of trees (considering 40% of them are ready for replacement).
- **San Donato Park** – Already finished so not feasible as a case study.
- **Castello Park** – 140 hectares, 80 of which are planned to be a public urban park, as results of planning obligations like parking and green areas. The park has been planned by a famous landscape architect, Prof. Giraud. It would be ideal but it is controversial: the design doesn't match the Regulations with regards to species and biodiversity. Moreover, the initial landscape design (greenery) is being replaced with hard surfaces. City Council offices have examined and corrected some things of the proposal regarding selected trees species in order to give a priority to local species. The office collaborated also with WWF to protect local animal species of the area and protect local biodiversity, like for example the green toad (*Bufo viridis*). The project is on hold at the moment. Franco shows the park under construction with Google Earth: a park next to a densely populated area and next to a highway.

- **Cascine Park** – Existing park where many trees have to be cut; the effects of pruning, felling and replanting trees or changing some species on the quality of air could be analyzed here. (suggested by Alberto)
- **Violet city**: a new stadium for the local football team and the area around it. The old stadium is too close to the city centre and not accessible for cars. A good example, but too sensitive.

Cascine is selected as the most suitable option for the purpose of BRIDGE. Alberto can provide all the relevant data. A significant amount of information is available for this existing park, which is in need of regeneration. Therefore, the assessment could address the effects of a number of alternatives for Cascine Park, such as pruning and/or felling of a number of trees and their replacement with varied tree species.

7 Urban Planning in Florence (Kalomira Galiotou)

Discussion:

Nektarios: We do not have involvement of urban planners now.

Ainhoa: What are the effects of political change on the planning systems?

Franco: The problem remains how we can involve the city planners. Is there no urban planning activity? Is it outsourced?

Nektarios: What is the procedure to make a new garden or green area?

Alberto: Maybe not urban planning but a landscape organization.

Nektarios: Where do planning practices take place? Who decides? The mayor?

Alberto: There is a master plan for the city; the new one has to be approved within 1 or 2 years and now everything is under discussion. To change it is a long process through the city council.

Nektarios: Does it define land use? Like: this is residential area etc?

Alberto: Yes: how many new roads and details for land use in each area. It consists of two documents. It does not use sustainability indicators.

Kalomira decides to explain in Italian, translated by Franco:

The master plan has a long history, it includes the overall strategies related to the City of Florence. It missed a viewpoint and an information frame concerning the environment. Due to all the criticisms that emerged during public forums, it was changed and readopted and it was not yet approved. During 2007 it has been modified again, integrating some environmental components and it went through an integrated evaluation following a Tuscany Region legislation framework that is quite advanced. The VAS (??) has not yet been done but there are some studies on the sustainability of the plan in harmonization with the upper level of the regional plan. Recently, the new City mayor declared that the plan should be changed again. We don't know yet if the plan will be approved or not.

It's important to understand that there are 2 levels concerning urban planning: firstly there's is a *strategic plan* with a duration of 15 years. Secondly there is an *urban code*

(abiding to the Strategic Plan)) that lasts only 5 years, and inside the urban code there will more specific evaluations concerning impacts on environment, economy and health.

Another important thing is that the strategic plan doesn't contain any specific locations, it only contains numbers (e.g. how many cubic meters should be made available for housing, but not indicating where) to avoid speculations. Localization is done by the urban code regulation. Public works and infrastructure plans do not follow these rules (schools, trains, parks), they can be realized at any time without special permission. The current strategic plan is that of 1998.

There is a time mismatch: the strategic plan takes so long to be approved (now a discussion since 1998) that political changes are much faster, and so changes keep coming.

8 Planning priorities, objectives and indicators (Ainhoa González Del Campo)

Ainhoa briefly explains the afternoon session. The BRIDGE project uses models and data on energy, water and air into a DSS. This DSS can evaluate planning alternatives. BRIDGE mixes science and planning by incorporating objectives and indicators, proposed by end users, in the models. Therefore, the ideas of the afternoon session will feed into the DSS as planning priorities, objectives and indicators.

- A *planning priority* is a key issue for a specific city. For example: air quality.
- For these issues we formulate aims for improvement, which are the *objectives* to make the city more sustainable. For example, an objective is to improve air quality.
- Finally we try find *indicators* to measure progress towards the established objectives. For improving air quality, an indicator could be: the amount of particulate matter.

9 Priorities

The afternoon session allowed participants to discuss and analyze the planning priorities in Florence. There are many issues: Florence is a medium sized city with the problems of a big city. Planning priorities as summarized by Franco before the meeting and confirmed during the morning session:

- Air Quality,
- Green Spaces: there are 2-3 big areas but there is no network, no corridors, problems also also due to the existence of many historical gardens with specific maintenance requirements, and to the uneven accessibility to open green areas;
- Transport: a key priority due to emissions, accidents and congestion; lack of coordination.

Other suggestions:

- Putting sustainability higher on the agenda (Judith) This will be hard to incorporate into a DSS.
- Human well-being: hard to measure
- Energy efficiency (Nektarios). Franco confirms but asks how we can address it. Massimo: There is a regional regulation (code) but it's applicable only to new buildings.
- Water is not an issue because of the presence in the last 20 years of the artificial lake of Bilancino which regulates the water flux. The last flooding was in 1904.

We decide to work with the priorities transport, green spaces and energy. Both green spaces and transport are related to air quality.

10 Objectives

In this paragraph we first present the results of a brainstorm on objectives, and then a discussion on what we actually consider to be objectives and which ones we will select.

10.1 Objectives for priority TRANSPORT

Possible objectives for the priority Transport:

- To reduce private mobility (every day more than 150.000 people commuting and 30.000 tourists; formally there are car-free areas, but there are so many exceptions that it is not enforced anymore, and now cars are everywhere in Florence's city centre, also in pedestrian areas which endangers bikes)
- To improve public transport, including introduction of different kinds of public transport.

10.2 Objectives for priority GREEN SPACES

Possible objectives for the priority Green Spaces:

- To optimize benefits of green spaces: shading; temperature; species with better carbon sequestration; air quality
- To optimize maintenance of green spaces: water use
- To promote green roofs/walls
- To expand green areas, to increase the number of trees
- To improve existing green spaces: more trees; more services like concerts, sports; better access/public transport /parking

10.3 Objectives for priority ENERGY

Possible objectives for the priority Energy:

- To increase use of renewable energy resources (indicator kWh)
- To improve energy efficiency; problem: regional guidelines for energy use are not compulsory for Florence, because 90% of old buildings is protected as a monument, some areas may be suitable though; (indicator: money per kWh saved)
- To reduce anthropogenic heat from buildings and transport
- To improve building insulation
- To develop passive heating in new buildings
- To increase the amount of hot water produced by solar energy
- Use organic waste for bioenergy
- To reduce energy consumption of public buildings, also as a way to motivate citizens (indicator: bills for town council)
- Zero emissions of new settlements

10.4 Which objectives do we select?

A discussion develops with Franco: what do we consider to be a priority, and what as an objective? What are the means, and what are the ends? What is problem, what solution? Actually, improving air quality is the main priority and green spaces, building materials and reduction of traffic are ways to achieve this. Energy efficiency is a different priority. All these aspects are linked in complex causal relationships and to put a label of 'objective' on it is arbitrary. The division over priorities, objectives and indicators is a way to start the discussion.

Finally, the participants agreed on the following set of core sustainability objectives for the city:

- **Improve mobility:** improve public transport services and efficiency; reduce private-car dependency; minimize through traffic; and provide safe cycle-ways.
- **Improve energy efficiency:** reduce energy consumption; improve insulation in old buildings (especially windows); promote the use of solar energy and other renewable sources; and use better building materials.
- **Increase green areas:** improve their management; create a network of green areas; provide new open spaces; provide additional tree planting on streets and open spaces; create more green roofs/walls (where feasible); enhance public services in green areas and improve maintenance practices.
- **Improve air quality:** minimize emissions, particularly dust (PM₁₀) and CO₂ but also NO_x, SO_x, and CO; reduce humidity (through more efficient public transport systems, reduced private-car use, and tree planting).

These objectives will be used to determine sustainability targets (mainly based on European Directives and requirements) and indicators.

11 Indicators

Linked to the objectives for the city, indicators were proposed by participants, which were as follows:

Sustainability Objective	Indicators
Improve Mobility	<ul style="list-style-type: none"> • Car ownership. • Public transport use (%).
Improve Energy Efficiency	<ul style="list-style-type: none"> • Kw (or %) produced from renewable sources (solar panels and biofuels in particular). • % of energy consumed (and saved) per capita. • Number of properties fitted with passive heating. • Number of properties where insulation improvement has taken place. • Urban temperature indoors/outdoors (compared to rural temperatures).
Increase and Improve Green Space Areas	<ul style="list-style-type: none"> • Number of trees/per person/hectare (and number of trees planted). • Density of green areas (m²/inhabitant). • Number of green roofs/green walls. • Accessibility (distance and number of public transport links). • Number of services per person in the green area. • Volume of irrigation (or %) coming from rainwater.
Improve Air Quality	<ul style="list-style-type: none"> • Concentration of pollutants (PM₁₀, CO₂, NO_x, SO_x, CO, etc.).

Note that the indicators above are preliminary only. These will be validated with the Agenda 21 sustainability indicators available for the Tuscany region and the Florence area. They also will be discussed further at the second Community of Practice meeting and related to the BRIDGE components (i.e. water, air quality and energy). Note that the availability of data for the proposed indicators was not explored due to time constraints.

Notes on access to the Indicators Website

- ‘Indicatori di sostenibilit ’: it contains regional indicators (>1000 indicators) that can be selected and used for specific projects/purposes.
- AG21 – contains approximately 90 core indicators – Indicated as CORE SET in the document.
- Link access route: Rete Agenda 21 Toscana (yellow tab) – Indicatori di Sostenibilit  – Allegato 1 – Core Set. Revise this document to identify the indicators that apply to urban sustainability.
- Another relevant link: Rete Agenda 21 Florentine (blue tab) – Strumenti – Documenti. This provides the real measurements undertaken in Florence (ladta data from 2007)

12 Evaluation of the first Florence CoP and follow-up

Evaluation round: what went well today, what needs to be improved?

Valentina:

- language is a problem: better to switch to Italian
- we need to involve municipality and especially planners more
- interesting to use a CoP as a social community to integrate with science

Federica:

- we have to involve more planners
- otherwise it was OK

Serena:

- very interesting and a good opportunity to integrate knowledges

Alessandro:

- I understand the meeting now: a roundtable with discussions among different professions; we are getting a lot of information from other fields.

Riccardo:

- I did not know about BRIDGE, we should not just discuss ideas but also link the wealth of related projects: energy plan, air quality plan, schools project, there is a lot of material available. I spoke with Alberto and Kalomera about how to put it all together for the city.

Massimo:

- Still difficult to understand what the objective of the DSS are and for what it will be useful.
- If it deals with public decisions you should also involve public decision makers.
- Planners are the link between public and private interests; you should also include different services e.g. water and waste services.
- Are you also going to compare cities?
- A workshop on concrete cases may be interesting.

Martina:

- I agree with Massimo: we do not know about any public transport plan now; we need to involve such organizations.
- Other than that I think we have a good group of people here.

Francesco:

- Interesting meeting, also Kalomera's presentation to understand planning processes
- Language is a key aspect
- We need urban planner and counsellor involvement

Piero:

- Interesting to share ideas from different administrative parts
- Good to talk about Florence and learn about future projects

Nektarios:

- More planners needed in the process
- Next time we will not start from scratch
- Input from CMCC is important
- Next CoP 2/3 december?

Franco:

- We will not discuss the same issues next time.

Ainhoa:

- Monday I will be in Poland, after that I can put together a report of all the case study cities and make a list of preliminary indicators, relating them to what is already being measured
- In the second CoP we can discuss the case study in more detail.

The second CoP meeting will be held on the 3rd of December (linked to the general Bridge Meeting). At that meeting:

- More planners and public decision-makers are needed, as well as representatives from the water, energy and services sectors.
- It is decided that the next meeting will be in Italian to attract and facilitate communication with local planners/sectoral representatives.
- Franco's concern is how to attract decision-makers. What do they get in return?
- Valentina: it is not easy to understand the output of the DSS, we will have to show what kind of output it is.
- Ainhoa: what they get is free consultancy for 2 years.
- Massimo: Florence has a lot of problems because it cannot afford assessments; free consultancy is interesting to politicians and policy makers; but it must be linked to an actual plan or programme
- Ainhoa: yes: a specific case study.
- Nektarios: and the DSS can be used by consultants.
- Riccardo: I have a lot of proposals and environmental issues. We have a new government and this is an opportunity to improve and to involve local politics. Also interesting to link to other EU towns.

Franco closes the meeting: I hope everyone enjoyed today's meeting; I'll be happy to organize the next meeting.