

URBAN EMPATHY – Working Package 3

RESULT INFORMATION FILE – Phase 1

Description of the result to be capitalized in URBAN EMPATHY

1. Partner's description

(Summary information of the partner presenting the result to be capitalized in URBAN EMPATHY)

Name of the institution presenting the result	Province of Lucca
Type of institution (city, region, agency, tech institute...)	Public Territorial Body (NUT S III administrative level)
Main contacts	<p>Name: Chiara Martini Position: Operational Contact – Sc Specialist in Local Development Planning of the European Policies Bureau of the Province of Lucca Telephone: 00 39 0583 417756 Mail: c.martini@provincia.lucca.it</p> <p>General Coordinator – ScC Arch. Francesca Lazzari Chief executive responsible of the project f.lazzari@provincia.lucca.it</p> <p>Vice General Coordinator – ScC Monica Lazzaroni Responsible of the European Policies Bureau of the Province of Lucca M. Lazzaroni will provide support to the General Coordinator (Lazzari) and when necessary she will be delegated for attending the ScC representing Mrs Arch. F. Lazzari.</p>

2. Project description

(Summary information of the project corresponding to the result)

Name of the project	High energy efficiency schools in Mediterranean Area: Multi-issues platform as interactive Network for technical regulations management, technologies data base and best practice dissemination activity.
Acronym of the project	Teenergy schools
Starting date	May 2009
Ending date	April 2011
Project status (finished, execution...)	Finished
Project type (standard, targeted, strategic, ...)	Standard project First MED programme call for proposal (2008) Axe 2, Priority-Objective 2-2.
Lead partner of the project	Province of Lucca
Project website	http://teenergy.commpla.com/
Programme (MED, Interreg...)	MED 2007 - 2013
Programme Priority	Protection of the environment and promotion of a sustainable territorial development
Programme Objective	Promotion and renewable energy and improvement of energy efficiency
EU 2020 Strategy (choose the most suitable one from the following options)	<input type="checkbox"/> Smart growth <input type="checkbox"/> Inclusive growth <input checked="" type="checkbox"/> Sustainable growth <input type="checkbox"/> Economic governance

Description of the **PROJECT**. Main topic and objectives. (300 words aprox.) *(Describe in more detail the project's main thematic and objectives, providing relevant information about the contents addressed in it and where does the result to be capitalized come from)*

The thematic of the project is Energy Efficiency in School Buildings. The project aims at solving 2 common problems of the Mediterranean Area: the lack of energy saving benchmarks focusing specifically to South European climate and the low energy efficiency of existing school buildings.

For local administrative governments school buildings represent a priority considering the sustainability of a territory. In Italy the maintenance of High Level School Buildings is a competence of the Province, whereas Primary and Secondary Schools Buildings depend on Municipalities.

The Province of Lucca counts around 30 High schools Buildings located in different territorial areas: plain, mountains and coast. Consequently they are characterized by three different climatic conditions.

The necessity of reducing the energy consumption on one side (related to the new European regulations and to the State revenue cuts) and the urgency of planning several interventions of refurbishment in existing school buildings, the construction of which dates back to '50ies or '60ies, on the other ,bring the Province to base its planning of retrofitting or new construction on the application of architectural solutions for low energy consumption and high internal comfort for students and teachers.

TEENERGY SCHOOL project tried to solve the lack of technical information and of effective cost-benefit analysis that are useful for the implementation of architectural solutions. In particular, energy consumption is also not always monitored. Most of energy rules at European and National level focus on heating energy demand such as in Centre and North Europe and they are not targeted for the Mediterranean climate.

The specific problems that characterise the Med area are:

- Overheating problems during summer period
- Low indoor temperatures due to bad heating systems and/or insufficient insulation during the winter period;
- Bad general microclimate of school buildings, specifically inappropriate indoor air quality due to the lack of correct ventilation and consequent high level of CO₂ during the lessons;
- General high level consumption for heating and artificial lighting.

TEENERGY SCHOOL project started from these considerations and it has been elaborated and implemented by 7 partners belonging to 4 MED countries: Italy, Greece, Spain and Cyprus. The international partnership gathered 5 territorial governments: the Province of Lucca - as lead partner - , the Province of Trapani, the Regional Agency for the Protection of the Environment of Sicily, the Province of Athens and the County Council of Granada and three scientific partners guaranteeing the research: ABITA inter university research centre of Florence, IASA of National Kapodistrian University of Athens and the Cyprus University of

technology.

Particularly the Teenergy Schools partnership has worked together to:

- Improve the energy efficiency level in School Buildings
- Demonstrate Best practices for future construction
- Adopt a Common Transnational Strategy at Med level, based on the 3 typical climatic models that characterize the MED area: coast, mountain and city.
- Close the existing gap with other European areas.

The main activities implemented by partners have been:

- Realisation of Energy schools Audits, End users Surveys and Benchmark
- Redaction of an Action Plan
- Concept Design for 12 Pilot Projects,
- Organisation of 3 thematic workshops and 1 international Campus that have involved experts, designers, students, enterprises and decision makers
- Creation of a virtual platform that works as an interactive operational tool and provides information by which energy schools performances can be compared;
- Gathering of laws, best practises and existing technologies available by the
- Guidelines of the MED Strategy for energy management;
- Promotion of the guidelines to local authorities and decision makers, schools, technicians, private operators and all citizens interested in the construction sector and energy issues;
- Development of Pilot Projects and of tools for testing and standardizing the transnational strategy aiming to integrate and improve the energies policies and rules at local level in the MED area.

3. Result description

(Summary information of the result to be capitalized in URBAN EMPATHY)

Name of the result to be capitalized in URBAN EMPATHY	Guidelines for Energy Efficient School Buildings in the Mediterranean Region.
Type of result (operational tool, recommendations, good practices, guideline, ...)	Guidelines/ Technical document
Current status of the result (under development, completed, not started...)	Completed
Type of deliverable (document, website, database, ...)	Brochure of 16 pages and a document of 50 pages
Specific URL link	<p>Web site of the original project (TEENERGY SCHOOL): www.teenergy.eu</p> <p>URL link of the Brochure entitled: "Guidelines for Energy Efficient School Buildings in the Mediterranean Regions" - containing the Decalogue http://teenergy.commpla.com/index/brochure/teenergy_guidelines.pdf</p> <p>URL link of the Technical Guidelines (Materials and Construction Technologies): http://teenergy.commpla.com/index/brochure/05_GUIDELINES.pdf</p>
Publication date	2011
Language	English

Description of the chosen **RESULT** to be capitalized in URBAN EMPATHY. Result objectives. Utility and purpose. (200 words approx.) *(Brief description of the result's most relevant characteristics, pointing out the main objectives and purpose.)*

The result the Province of Lucca wants to capitalize by Urban Empathy is a guide entitled: "Guidelines for Energy Efficient School Buildings in the Mediterranean Regions".

The guide aims at providing local administrators with useful decision support instrument to implement retrofitting and revitalization action of existing school buildings in the Mediterranean area. It includes examples of potential strategies to reduce energy demand of school buildings and it suggests how to achieve energy saving by different points of view: exploring financial issues, implementing the use of renewable technology elements and optimising comfort, day-lighting design and air quality.

The Guide is composed by two parts:

1. The Decalogue for Local Administrators
2. The Concept Design Guidelines for the implementation of Sustainable Schools in the Mediterranean Area.

The Decalogue illustrates the "best path" towards a low energy efficient retrofitting of school buildings in the specific Mediterranean context providing a shared governance and taking into account new aspects such as bio-climatic technologies, solar architecture, passive cooling, intelligent windows for natural ventilation, energy efficient facades, including sun shading, cool or green roofs and last but not least material from natural local resources with positive LCA evaluation.

The "Concept Design Guidelines" provide pragmatic technical indications and criteria to be considered when a new school building is to be planned. In order to increase energy efficiency in the Mediterranean schools buildings, projects are based on the Mediterranean climate specific necessities; during the summer ensuring passive cooling and high ventilation rate, in the winter period ensuring a cost-effective insulation for the improvement of heating.

List of keywords related to the result (10 words max.) *(Please provide a short list of keywords related to the result to be capitalized in Urban Empathy, e.g.: urban planning, sustainable growth, mobility, energy efficiency, renewable energies, governance...)*

Innovation, Sustainable Development, Green Economy, Energy Saving, Energy Efficiency, School Building, Costs Decrease, Renewable Energies, Innovative Materials, Heating and Passive Cooling.

Describe the potential benefits or improvements that the result may generate through the capitalisation process (200 words approx.) *(Describe improvements either in your result or those that it may generate due to the capitalisation process)*

The transnational capitalization of the Guidelines for Energy Efficient School Buildings in the Mediterranean Region, developed by TEENERGY SCHOOLS project, will foster the know how and the awareness of local actors in the field of sustainable urban models and climate change in the Mediterranean area.

The implementation of the n. 2 Workpackage (WP) of URBAN EMPATHY, entitled "Information, awareness raising and capitalisation", will allow the Province of Lucca to disseminate guidelines in a wider way at local, regional national and among the other European territories involved in URBAN EMPATHY partnership. On the other hand, the Province will enrich its urban planning tools receiving back a sustainable urban model that is supposed to be global and multi - sectorial.

The n. 3 WP of Urban Empathy entitled "Involving decision makers, transforming results into policies" represents for the Province of Lucca the opportunity to enforce the involvement of local policy makers in the framework of energy efficiency of public building in general. On the other side Urban Empathy outputs (results of the other partners capitalized) will be promoted at local level and in some cases adapted and transferred.

The Province will benchmark the Guidelines working with other European partners and locally it will involve decision makers and key actors, facilitating the mainstreaming of the Decalogue in the territorial sustainable urban policies. The major need is ensuring a strong link between technical human resources and politicians.

On the other hand, the Province will contribute providing its European relationships, networks and Know how, developed during the last 5 years of European projects experience; being part of the process of editing of the next Mediterranean Operational Programme, it will give effort to ensure the inclusion of the Energy Efficiency of public buildings theme, in the new European Regional Policy, in order to guarantee funds for the issue.

4. Result evaluation

According to your own criteria, which are the main strong points of your result?
Which are the weak ones? (300 words approx.) *(Describe the strengths and weaknesses of the result to be capitalized in Urban Empathy)*

Strong points

- The guidelines are a tool for policy makers; they provide complete information about energy efficiency of school buildings, concerning scientific, normative and quantitative aspects, i.e. energy efficiency and innovative materials, together with qualitative issues such as indoor comfort and psychophysical wellness in the Mediterranean territories.
- In addition, partners of the original project signed the Memorandum of Intent of TEENERGY SCHOOL project, thus assuming the responsibility for sharing, applying the Guidelines at local level and transfer them in the regional legislation on public housing, local plans and public procurement tenders.
- Guidelines can be transferred potentially to all school buildings in the Mediterranean area.

Weak points

- The mainstream during TEENERGY SCHOOLS project has been without success, Guidelines for Energy Efficient School Buildings in the Mediterranean Region have not yet been included in the legal framework of the public building sector.
- The high costs of new material in addition to the shortage of government resources and lack of know-how make it difficult to implement.

How do you think your result can affect the main aspects to be considered in a sustainable urban model?

(300 words approx.) (Describe the capacity of the result to fulfil the sustainable urban model main principles)

Cross - cutting aspects

- Territorial management and urban design
- Social and Economic cohesion

Sectorial aspects

- Sustainable mobility
- Energy efficiency

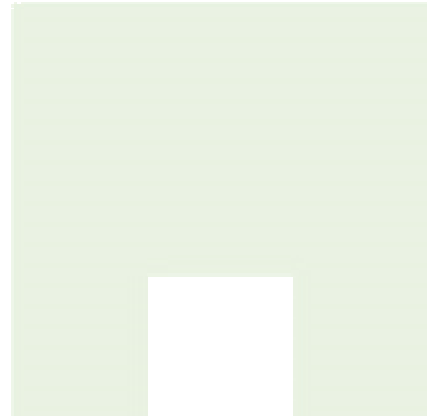
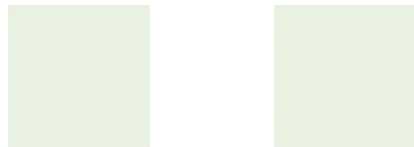
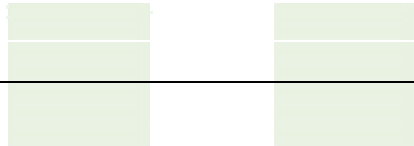
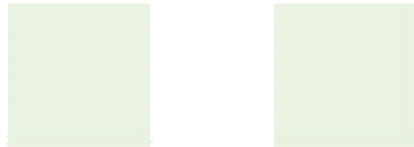
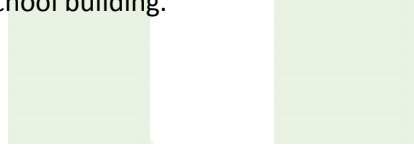
Guidelines affect the following three aspect of sustainable urban model:

1. Energy efficiency: This is the main concern of the Project. Guidelines offer new building energy saving integrated solutions that have the potential to reduce the energy use in new and existing schools buildings by a large percentage. Their adoption increases the use of renewable energy technologies. They contribute to the EU goal of energy savings and significant reduction of CO-emissions.
2. Territorial management and urban design; guidelines provide what design criteria and architectural strategies should be adopted when a new school building is going to be planned or in case of retrofitting to reduce energy consumption and environmental impact. The strategy takes in to consideration soil exploitation, low impact building, avoiding negative phenomena, contributing also to better the wider sector of the urban design. Guidelines support the introduction of new integrated energy technologies including on site production and use of renewable energy in building.
3. Social and Economic cohesion; the first part of the guidelines related to the Decalogue for Administrators contributes to enforce the governance of energy efficiency in public body; a close co-operation with major decision makers, such as building owners, territorial public bodies, government agencies, private enterprises, etc. will facilitate its increase.

From an economic point of view, the measures illustrated in the Guide can be applied both in case of designing a new building and in case of refurbishing old ones. In the case of retrofitting, energy efficiency measures can often be incorporated at a marginal extra cost. These measures have the advantage of not requiring capital investment, because they are financed out of the annual maintenance budget. Energy saving measures, incorporated into maintenance, provide very good pay-back returns, some costing no more than the conventional solution.

Finally, the guide takes in to account not only quantitative aspects but also qualitative ones such as indoor comfort and psychophysical wellness that contribute to social inclusion and cohesion and effectiveness of the education system. A healthy productive learning environment and a comfortable

environment means improved teacher retention and economic advantages in running the school building.



What influence do you consider that your project result could have on environmental governance and what could be its impact on urban policies? At which level? (Local, regional, national, MED or European level...) (300 words approx.) *(Describe the level of influence of the result and its applicability on EU policies)*

Guidelines for Energy Efficient School Buildings in the Mediterranean Region may solve 2 common problems of the Mediterranean area: the lack of energy saving benchmarks targeted specifically to South European Climate conditions, and, the low energy efficiency of current school buildings. Some points could be transferred to the wider public buildings sector.

The part of the Guide dedicated to the “Decalogue for local administrators” provides a Common method of decisional support, giving the basic indications for the implementation of existing schools retrofitting action. The target of the Decalogue is public authorities who must set themselves up as promoters of the process and the scientific experts in charge for the coordination and implementation of the necessary interventions. A stronger relationship between politicians and technicians is needed in order to increase the energy efficiency level in urban planning framework.

Guidelines dissemination and endorsement will increase public awareness about Green Architecture, in particular the following issues: standards and regulations; research and new technologies and European Funding for investment in the future.

The qualitative lines will enforce the common sense of energy management that is strongly combined with energy production, efficiency, sustainability and well being (During TEENERGY SCHOOLS project has been done an energy audit together with pupils and teachers – the Province of Lucca could provide the questionnaire used).

What is the main target group the result is addressing to? (public administration, public sector, private sector, research groups, ...) How does it enhance public participation? (200 words approx.) *(Describe the target audience that could use the result and if citizen participation processes have been considered)*

Guidelines' main target is:

Public local authorities of the Mediterranean area, which must behave as promoters of the sustainable urban process and scientific expert, in charge of the coordination and the management of the increase of energy efficiency level of school buildings.

The main problem to tackle is that public local authorities suffer not only of a lack of knowledge of innovative techniques and materials but also of a suitable governance; there is not cooperation between policy makers and technicians with innovative approach and high level know how, there is not input for private enterprise to propose themselves with innovative items, there is low competitiveness and high prices, this is a scenario that doesn't capture private and public consumers to invest money in the energy efficiency field.

Nevertheless, the process of empowerment of the issue at local urban policies needs the involvement of other local actors: pupils, teachers, parents of pupils, architects, policy makers, building enterprises, ecc.

Teachers, pupils and parents should be convinced to develop a critical view in front of bad energy performances of existing school buildings and to adopt low energy impact virtuous behaviours.

Is the result currently in use in the Europe/MED area? (150 words aprox.) *(Please provide further information on the usability of the result, pointing out if it has already been implemented or in use)*

No, this is one of the goals the Province of Lucca would like to reach by the Urban Empathy project (WP3). During the original project the province of Lucca, as lead partner started contacts at national level with the Italian National Observatory School Building for the widest dissemination of the guidelines, anyway the guide needs to be disseminated and promoted in a stronger way at local level and at European level, capitalising the ongoing projects' partnerships in the INTERREG IV C, Italy-France Maritime and MED programme's area.

According to your own criteria, what are the main innovative aspects of the result? (150 words aprox.) *(Please provide further information on the level of innovation achieved by the result to be capitalized in URBAN EMPATHY: new methodologies, etc...)*

The main innovative aspect of the result is the issue tackled: energy efficiency of school buildings.

The guide has a high level of technological and scientific value due to the Universities and experts involved in the original project partnership.

The measures illustrated by the guide can be applied when designing a new building as well as refurbishing existing ones. The guide represents an answer to a need of the Mediterranean climate that is the necessity of combining the research for a cost effective insulation for the improvement of heating in winter period with the necessity of ensuring in summer passive cooling and good indoors conditions. Nowadays, secondary high schools are opened until the end of June when temperatures have already risen.

How do you think your result could be implemented? Through which means? Do you think it is easily transferable? Estimated costs, resources, time needed for implementation, key actors involved... Please include any other relevant criteria you may consider important (300 words approx.) *(Please provide further information on implementation and transferability requirements of the result)*

The issue of energy efficiency of school buildings (TEENERGY SCHOOLS Action Plan), such as the more general category of public building is one of the political priorities of the Province of Lucca.

The guide is easily transferable, by taking part to WP3 and WP4 of Urban Empathy, the estimated resources are that one fixed in the URBAN EMPATHY budget. In order to success the mainstream of the result it will be necessary 2 or 3 years. At the beginning activities will be done within the framework of urban empathy project.

Key actors are: local level policy makers, public authorities, schools (teachers and pupils) some enterprises and citizens. At European level the other partner and public authorities involved in Urban Empathy project.

The provincial administrative level is going to be reformed in Italy that is why there are not specific financial funds allocated for the implementation of the result. Certainly the Province will participate to future eventual European, Regional and National tenders focusing on the theme of energy efficiency. For this reason the European Funds will become more and more important in order to enforce the issue within the urban policies.