



**E<sup>2</sup>STORMED**

*IMPROVEMENT OF ENERGY EFFICIENCY IN THE WATER CYCLE BY THE USE OF  
INNOVATIVE STORM WATER MANAGEMENT IN SMART MEDITERRANEAN CITIES*



**OPEN DAY**

**Royal capital Cetinje**

**6<sup>th</sup> – 7<sup>th</sup> June, 2013**



**Partner P4 Municipality of Pisa, Italy**

Dott. S. Bertini, arch S. Ciabatti, arch G. Berti, dott. M.Redini

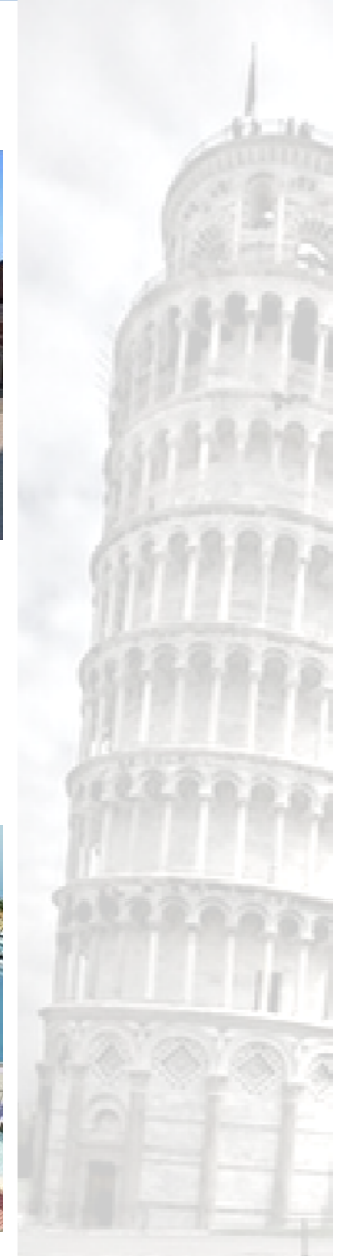


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# The Pilot city





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## The Pilot city location



Surface (km<sup>2</sup>): 185,18 km<sup>2</sup>  
Inhabitants: 92.250  
Population density: 498,16 hab/ km<sup>2</sup>

**The Pilot area**

## Problems

Inability to implement wastewater treatment plants

Unsustainability of new growth forecasts

## Actions

Cognitive framework of flood risk

Plan for the reduction of risk and consequent reduction of the levels of dangerousness

Check methodology and integration with E2STORMED







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# The planning tools: the strategic plan

## Objectives and actions

Improvement and restoration of the water net with the aim to reduce the losses

Rationalization of the consumptions of drinkable water through :

- The realization of separated nets (drinkable / other uses)
- The reemploy waters purified
- The water-raising and the reemploy of some meteoric waters

## Limits for interventions

Are not considered admissible physical and functional transformations that gives uses place with superior water consumptions to 10.000 mc / year

Are not considered admissible physical and functional transformations that forese the overcoming of the availabilities of existing resources or in the area of reference.

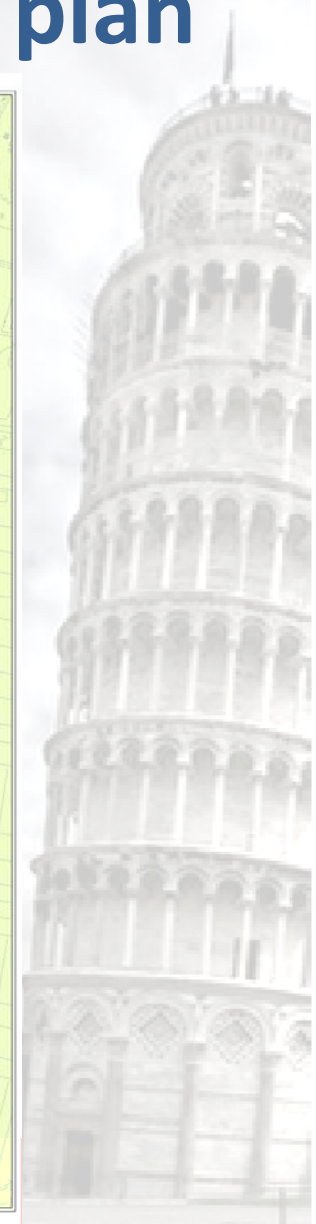
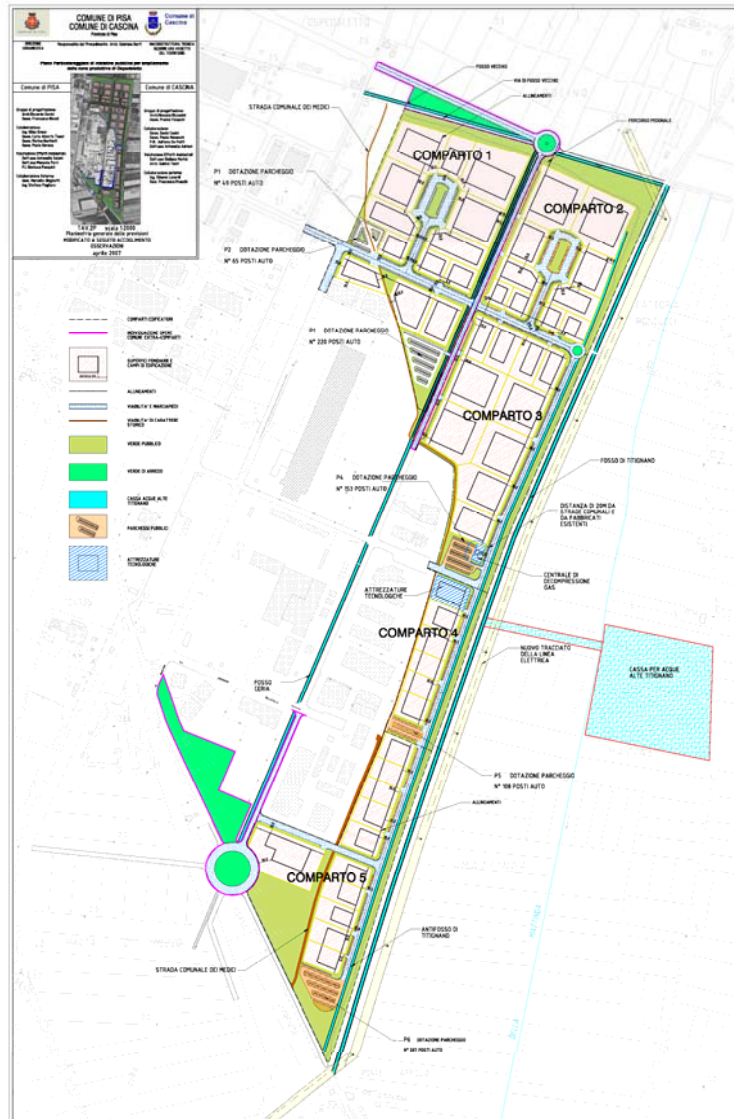


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## The planning tools: the operational plan





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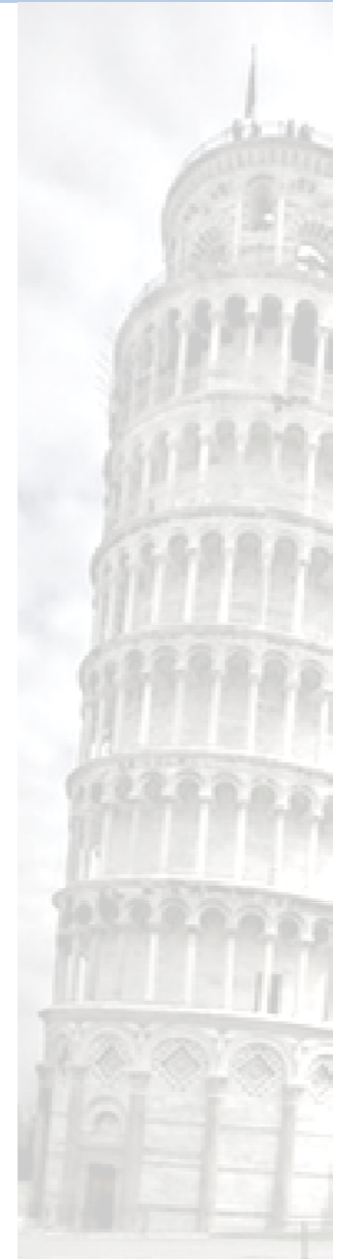


## **Art.17**

The arrangement of the uncovered areas must ensure the collection, conveyance and drainage, preventing any stagnation and water logging.

## **Art. 22 Attuazione di opere di messa in sicurezza idraulica**

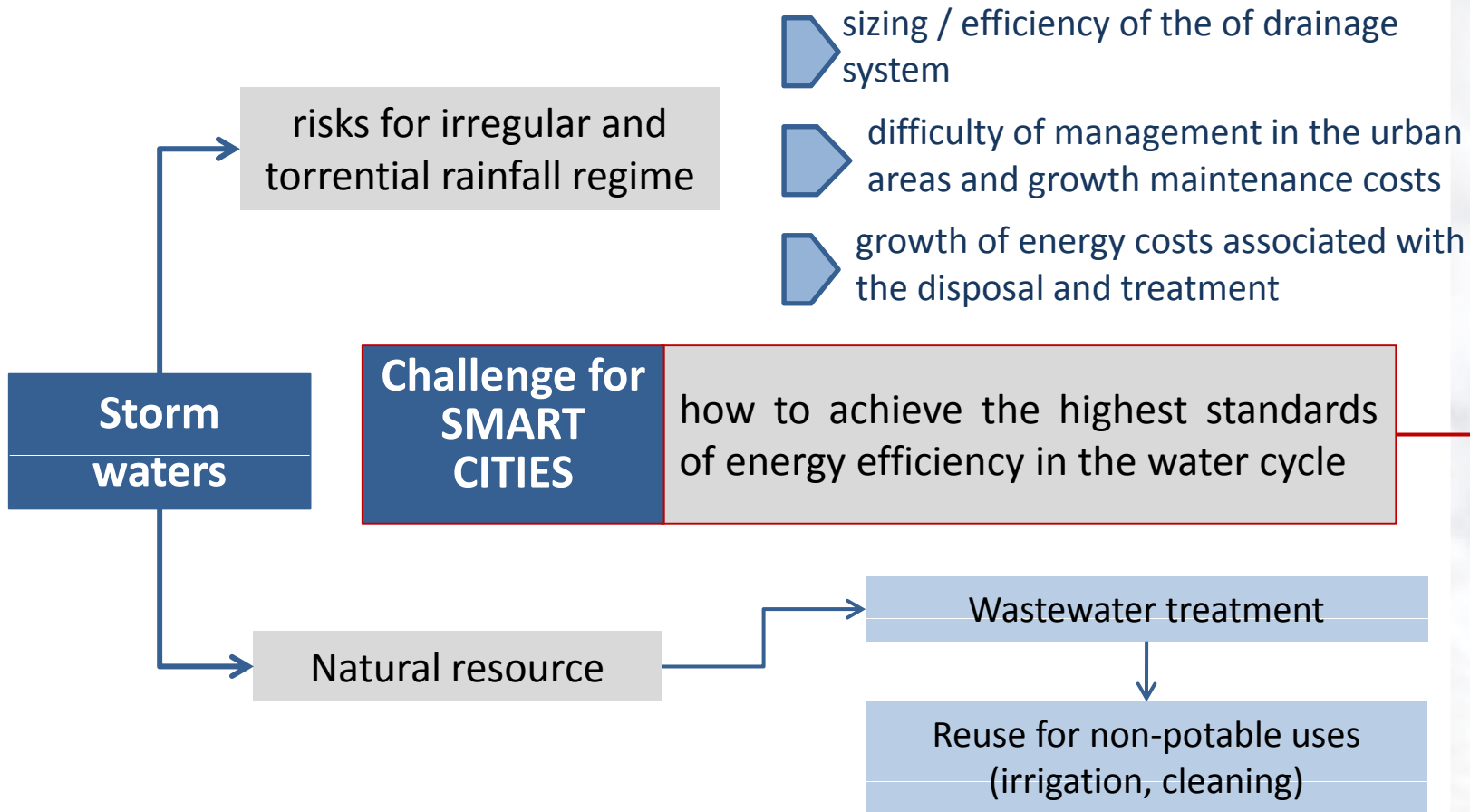
Depending on the settlement development within the production area ..... must be carried out works to ensure hydraulic safety under the project of reclamation and improvement of the hydraulic network ..... as the adjustment of the sections and reshaping of antifosso di Fosso di Titignano, del Fosso di Ceria, del fosso di Oratoio e del fosso di Titignano and the establishment of an area of expansion for the shallow waters of Ceria north of road no. 206 Emilia and rolling of a reservoir for the high waters of the Titignano through the functional recovery and environmental depressed area due to mining activity in the depletion phase .....





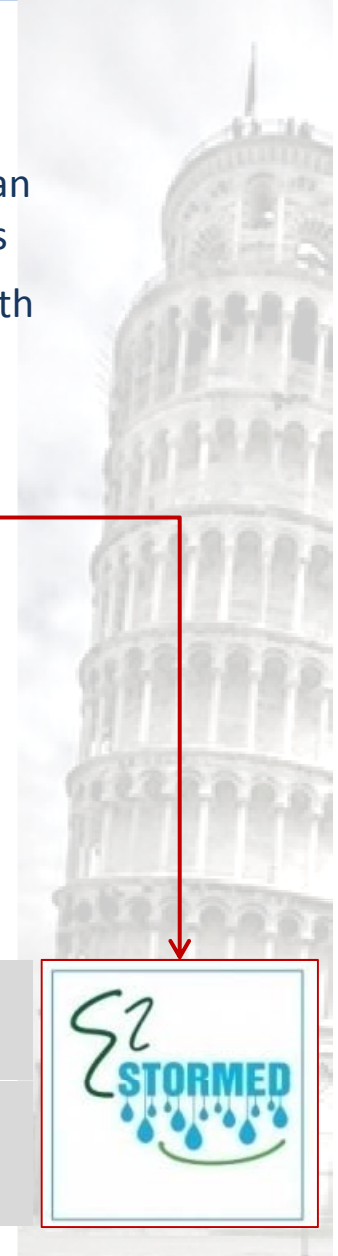
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**new methods and systems** to achieve a sustainable significant savings in energy: increase of green areas with high permeability able to lighten the sewer system, increase the wetlands, green roofs and rainwater recycling systems in buildings.

**public urban policies and related tools**







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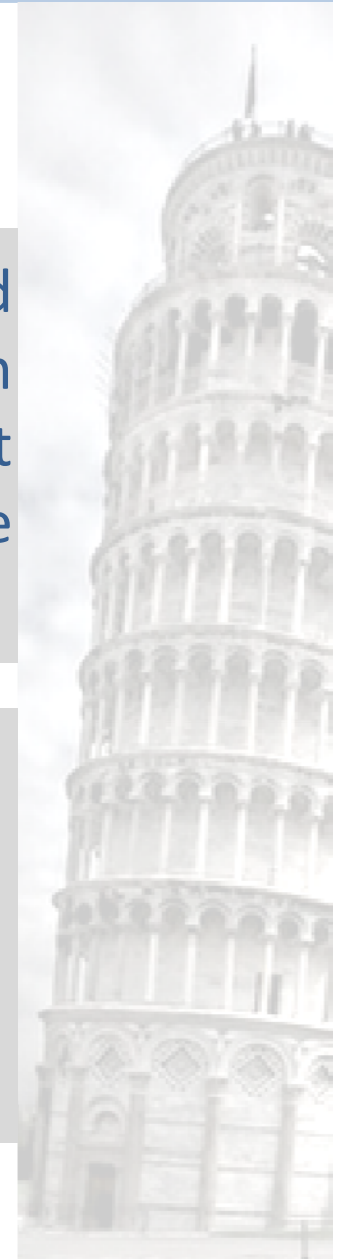
# The objectives to reach in the project

**1**

to codify the results of the activities of study, search and exchange in operational manuals and orientation documents, revolve to the public authorities, that promote the energetic efficiency in the cycle of the waters both to urban level that house-building;

**2**

to promote the transfer of the operating and managerial indications in to the town-planning tools and other actions of communal programming through the indication of performance requirement, transformability conditions, evaluation indicators.







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# Links to other projects



**E<sup>2</sup>stormed** *improvement of energy efficiency in the water cycle by the use of innovative storm water management in smart mediterranean cities*

The final aim of the project is to improve existing integrated management tools incorporating energy efficiency indicators for storm water management in urban areas, adapting them to, and testing them by, MED cities.



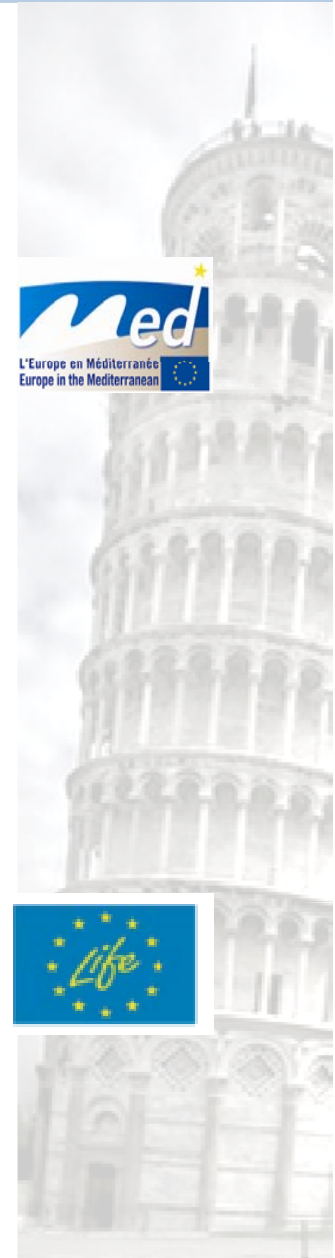
→ **RWGEE member**

→ **Project partner**



**WIZ – WaterIze spatial planning:** *encompass future drinkwater management conditions to adapt to climate change .*

The overall objective of the WIZ project is the integration of protection and sustainable management of water in the process of urban planning and the built environment in general, taking into account the impacts of climate change.





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## RWGEE group: who we are involving.



Subject to public and private capital which is submitted the management of the integrated water service of the Lower Valdarno. (57 municipalities, of which inhabit more than 750,000 inhabitants).

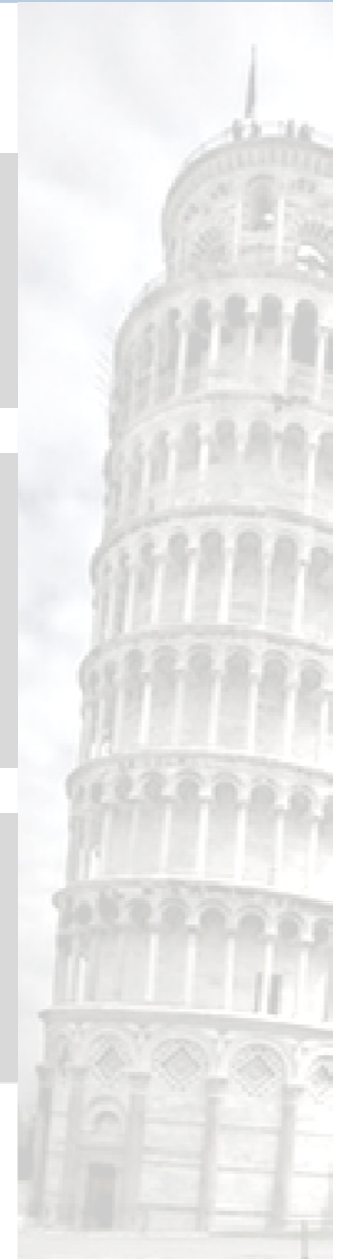


Economic public agency that has as its primary objectives the hydraulic protection, water drainage, environmental protection and irrigation. the Consortium covers an area of 66.030 hettars, crosses the territory of 17 municipalities:



Department of Hydraulic Engineering

Department of Engineering-Architecture





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## The Working group of Pisa Municipality

Mis. Sandra Bertini – member of the Steering Committee

[s.bertini@comune.pisa.it](mailto:s.bertini@comune.pisa.it)

Mr. Marco Redini – member of the Pilot Committee

[m.redini@comune.pisa.it](mailto:m.redini@comune.pisa.it)

Mr. Gabriele Berti – member of Pisa working group

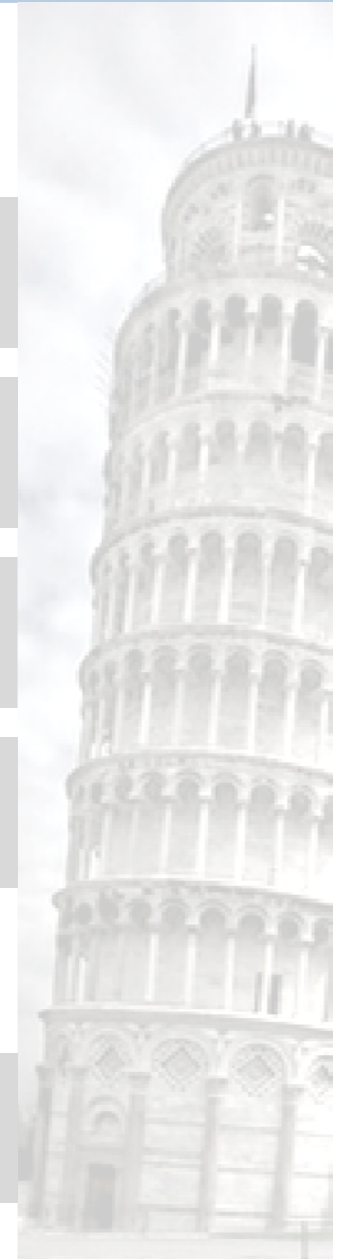
[g.berti@comune.pisa.it](mailto:g.berti@comune.pisa.it)

Mr. Sandro Ciabatti – member of Pisa working group

[s.ciabatti@comune.pisa.it](mailto:s.ciabatti@comune.pisa.it)

## Our web-site

<http://www.comune.pisa.it/it/ufficio/7154/Pianificazione-Urbanistica-d-Area.html>







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# thanks

