# agya add



# Deploying the added value of water in local and regional development





#### INTRODUCTION

European regions and cities face important challenges related to water management: storage and discharge after (heavy) rainfall, quality, periodic water stress, etc. To address these challenges, it is evident that water must become an integral part of spatial development policies and their implementation.



Unfortunately, until now, water management issues are often secondary. Although dealing with water does not seem urgent on the short term, it is clear that implementing measures at the short term is important to prevent problems in the future.



However, to achieve the long-term water management goals at the short term, the partners noticed that there are many obstacles to take. Water issues compete with other public concerns resulting in insufficient public and political support. The general idea is that implementing water in spatial plans costs money.

The partnership has observed that stakeholders in the public area are often not aware of the added value that efficient water management can bring to spatial developments.

While it may bring added cost, it also allows areas to be better protected against flooding and becoming more attractive, it enables development of recreational facilities, and contributes to quality of life. In the end this will avoid high costs on the long term and will result in higher housing/real estate prices.

Partners of Aqua-add aim to improve their strategies and instruments for a better implementation of water in spatial planning and to raise stakeholders' awareness of the added value of water. This, to achieve that the potential of water is better deployed.

The main objective of the project is to better deploy the potential of 'water' (economically, socially and environmentally) in urbanised landscapes and to improve the implementation of water measures in local and regional spatial development. The relevant sub-objectives concern the exchange of experiences and good practices, including soft testing on stakeholder involvement, the added value of "blue space" in urbanized landscapes, achieving better informed decision making as well as practical and successful business models for 'water-projects'.

## **PARTNERS**





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Centre for Environmental

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University of Genoa, Italy





Bremerhaven Municipality, Germany

City of Copenhagen, Denmark





Municipality of Sofia, Bulgaria

Aveiro Region Intermunicipal Community, Portugal





University of Aveiro, Portugal

Greater Lyon, France

# **Municipality of Eindhoven**

The City of Eindhoven (app. 220.000 inhabitants, app. 2.500 inh/km2) is the main city of the Eindhoven metropolitan area (app. 750.000 inhabitants) and the fifth-largest city of the Netherlands. Eindhoven is sometimes called the 'City of Light' of the north, because the city's explosive growth since the end of the eighteenth century has been closely linked to that of Philips. Following the establishment of Philips, workers from all over the Netherlands came to Eindhoven to work in the company's factories.



Nowadays, the Eindhoven region is a strongly innovation and technology driven area. Over the last twenty years this region has become an important player at European level on research and development. Around forty percent of Dutch investments in Research and Development are spent in this region. Eindhoven is home to many knowledge-intensive companies such as ASML, NXP, Philips Medical and microscope maker FEI. The region is well-known for its firm cooperation between utilities, businesses and research institutes and there is a strong believe that a strong interaction of this 'triple-helix' is a condition for the achievements in this city, now and in the future. The Dutch national government allocated this region as the most important area, 'Brainport region', for R&D in our country.

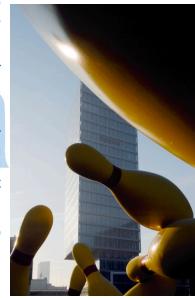
But Eindhoven and the surrounding region is not only an excellent place for innovation. It is also the place to study, to work and to relax. The Technical University ranks among the best worldwide. We have exquisite facilities for art and culture such as the renowned Van Abbemuseum for modern arts and Muziekcentrum Frits Philips with its superb acoustics. Besides, in Eindhoven you can practice over 70 different kinds of sports and Eindhoven is a green city, with outstretched parks and far more trees than the four largest Dutch

An important driver to start the AQUA-ADD project is linked to the challenges the city faces. Eindhoven wants to provide businesses and employers an attractive place to live, work and study. And the city is generally appreciated by its inhabitants as a pleasant area for living.

But there are some major concerns for the nearby future. This area has had a strong increase in population over the last fifty years, and the urban water management system did not keep track with this growth. We put a lot of effort in improving the sewerage system, storm water infrastructure, drinking water supply, waste water treatment plant and management of groundwater levels. Water on streets after heavy rainfalls, groundwater entering houses, poor surface water quality due to effluent of the waste water treatment plant and outlets from storm water and combined sewer outlets were and are our concern. On top of that, we'll have to cope with the consequences of a future climate and build resilient systems, preferably in the most cost-effective way.

AQUA-ADD is a window of opportunity: there is a sense of urgency to take action to have a resilient urban water system and there are opportunities to make it also economically profitable.

The three main themes of AQUA ADD are deploying the added value of water, involving stakeholders and exploring business models to balance costs and benefits of future water management solutions. We believe water management is one of the driving forces to contribute to a stronger urban development in periods of economic decline. And we think AQUAADD can give us the tools to do so.



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# Trans-Tisza Region Environmental, Nature Protection and Water Inspectorate

Located in the middle of the Great Plain (with 250.000 inhabitants) in the Eastern part of Hungary, Debrecen is the cultural, economical center of the North Great Plain region. The city and it's flat surrounding is poor in watercourse. On the west side of the city runs the Tócó creek, on the east side the Kondoros creek.

The city is growing continuously and new areas are built-in. The city hardly keeps up with this trend. Earlier the pipeline supplying the city with drinking water was developed which complete the groundwater extraction with water from the East Main Canal (originated from river Tisza).

The growth of the city toward west has reached Tócó creek, at certain area the building has started on the other side of the creek. This raised the necessity of an overall plan for the Tócó creek's future role and status.

The City's and project's goal is that due to the development of the Tócó creek's inner belt section a new, valuable blue space will come into existence. This will provide a special added value for a City poor in water.





The Trans-Tisza Region Environmental, Nature Protection and Water Inspectorate as one of the 10 regional Inspectorates in Hungary has full responsibility to implement, monitor and evaluate the relating existing measures and has long-term and rich experiences in the field of water management and environmental/nature protection issues. It has direct influence on policy development: participation in development, control and monitoring of regional, national water management strategies, programmes, policies, plans.

The Inspectorate provides its long term experience in the field of management of surface and groundwater sources concerning both quality and quantity; regional planning and policy; co-operation with other water management related actors and institutions at local, regional and national level. The Inspectorate participates in the development, control and monitoring of regional and national water management programmes and policies.

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# University of Debrecen, Centre for Environmental Management and Policy

The Centre for Environmental Management and Policy, University of Debrecen (UD CEMP) has a long-term experience in the field of water management, environmental protection and regional development focusing on: wetland rehabilitation program of water management both on river floodplains and earlier floodplains; development of water management, biodiversity conservation, lake management, tourism plans/studies, rural development programme, cross-border water and fishery development, agri-environmental activities, habitat development, water supply policy and flood protection.

UD CEMP has special experience, knowledge in the involvement of and communication with stakeholders. UD CEMP is active participant and contributor of regional development as well.

UD CEMP has long term co-operation with the Trans-Tisza Region Environmental, Nature Protection and Water Inspectorate. The two institutions jointly implement the Aqua-add activities.





The main objective of the Debrecen case in the Aqua-add project is the preparation of a Tócó basin development project which focuses on mainly the inner belt section of the creek not neglecting the upper and down sections (eg. danger of potential pollution of agricultural activities).

The subject of the case is the runoff rate, water quality examinations, rainfall and wastewater partition, area use (eg: increase of pitched area), alternatives, stakeholder involvement, different solutions for creek sections with different characters (inner belt section: housing, shopping and leisure function, outer belt area: mainly nature protection and agricultural function).

UD CEMP contributes concerning environmental (ecology, climate change), social (recreation, public space) and economic (housing and land prices) values development, the evaluation of the new Toco River blue space district providing its relevant applicable knowledge, information on methodology, the experiences gained in local/regional spatial development, strategy and tools to promote the potential/concrete added value of "water" in urbanised landscape and local/regional spatial development. UD CEMP coordinates the dissemination and communication tasks of the project.

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# **Municipality of Imperia**



Imperia is a coastal city, located in the western side of Region Liguria in northern Italy, and it is the capital of the omonymous Province. The city of Imperia was created on 21 October 1923 by the union of Porto Maurizio and Oneglia and the surrounding village communes of Piani, Caramagna Ligure, Castelvecchio di Santa Maria Maggiore, Borgo Sant'Agata, Costa d'Oneglia, Poggi, Torrazza, Moltedo and Montegrazie. The two historical main districts lie on either side of River Impero:

- Porto Maurizio stretches along the coastline on a peninsula to the West of the river and it is the richest and most colorful district of the city being a popular tourist destination.
- Oneglia lies to the East of the river on an alluvial plain, and it is the more modern and industrial of the 11 districts



In the past, the town was split in a rural area in the hinterland and a coastal industrial area, well known for the strong settlement of food industries (olive oil and pasta) such as for trading and harbour activities. After the II W.W. Imperia has been converted as service centre and now-a-days the seaside tourism represents its main goal.

Because of both its particular orography and the urban growth suffered during the last fifty years, the town is dealing with troubles for water quantity and quality, mainly due to insufficient capacity of the urban drainage combined with the transformation of the streams into culverts.



So, our aim in Aqua\_Add project is to gain experience on and improve our knowledge about the assessment of flood risk in the urban environment and the related prevention measures.

he main contribution of the Municipality of Imperia to the Aqua-Add will be to provide input data to the DST in order to process the case study.

The Municipality of Imperia takes part in the team Stakeholder's Involvement and in December 2013 will host the Aqua Forum.

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# **University of Genoa**

The unit from the University of Genoa has a wide experience in water quality and quantity management in the urban areas, having developed research and collaboration projects with municipalities, and other local authorities on this and related subjects.

Also, a relevant contribution to the project activities is derived from the availability of one experimental site for water quantity control and the results of various water quality monitoring campaigns performed all over the regional territory at residential, industrial, commercial and infrastructure sites. The experimental site is constituted of a fully monitored green roof system obtained after renovation of the existing green coverage of one of the main buildings of the university, therefore a very controlled and easily

manageable situation.



The contributions of the University of Genoa to the content of the Agua-Add project:

- The University of Genoa organises the 6th Aqua-Forum, together with Imperia.
- The University of Genoa will support the University of Aveiro in the collection and organization of the Data/information related to the case study that each partner intend to address in the DST model.
- The University of Genoa will carry out a feasibility study on the transferability and

potential reproduction of blue spaces in urban areas characterized by Mediterranean climate and complex morphology of the territory. Indeed, in the Italian territory and in other Mediterranean areas, the morphology of the territory is more complex than in other northern European regions and therefore the scarcity of available surfaces/spaces within the high densely urbanised areas is a constraint in including blue spaces within the urban environment. However alternative solutions in terms of blue spaces for example more compact and distributed solutions need to be



investigated to promote a sustainable urban development. Furthermore, if the climate is characterized by a significant seasonality, the maintenance of blue spaces across the whole hydrologic year is difficult thus reducing the acceptability of these strategies to the different stakeholders such as local inhabitants. Therefore, taking into account these climatic and morphologic differences, the University of Genova will examine and develop alternative sustainable strategies about water management in Mediterranean urban areas. Furthermore, the University of Genoa will support Greater Lyon in the organization and analysis of strategies and tools, individuated by each partner, in order to promote the added value of water to other stakeholders.

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# **Bremerhaven Municipality**



Bremerhaven lies in the north of Germany as a city of the free citystate of Bremen, a state of the Federal Republic of Germany. This is the largest German city at the north sea coast with a unique situation as the federal state of Bremen consists of two cities: Bremen and Bremerhaven.

- 60 km distance
- Connected by the river Weser
- Surrounded by state of Lower Saxony
- Founded in 1827

Size: 93,82 km²

Inhabitants: 113.500 (Sept. 2011)

Originally planned and built as 'Bremer haven' = 'port of Bremen'

Bremerhaven today is a city in its own right (own constitution). The district of "Geestemünde" is located in the centre of Bremerhaven where the river Geeste mouths into the river Weser. The district of Geestemünde needs to be revitalised.

The area needs a concept using the potential of the river in order to become more attractive, contribute to quality of life, and encourage SMEs and shop owners to stay in and/or move to the district.

As Aqua-Add partner, the City of Bremerhaven would like to initiate and support testing strategies to improve the integration of water in our spatial development processes.

Through activities together with local stakeholders, we are planning to make significant water-places visible and accessible. In order to achieve the objectives, a cross-cutting approach and the increase of local networks, business improvement districts, etc. is necessary.



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# City of Copenhagen

The City of Copenhagen is the capital of Denmark and is localizes near the sea with app. 500.000 Inhabitants. (Metropolitan area app. 1,500.000 Inhabitants)

The local government of Copenhagen consists of a governing body, called the City Council, and an administrative branch. The City Council is divided into seven committees: the Finance Committee and six standing committees, each of which has its own specialized field of responsibility.

The Technical and Environmental Administration as the partner of the Aqua-add project carries out the tasks for the project.

The City of Copenhagen has in February 2011 decided to implement a climate adaptation plan for the city. The Copenhagen Climate Adaption Plan identifies two primary focal issues and three secondary areas which have to be addressed, to secure a resilient and "climate proof" city structure now and in the future.

The primary focal issues are Increasing rainfall, increasing rise in sea level while secondary focal issues are increasing temperatures and risk of urban heat island effect (UHI). Climate change and groundwater, indirect consequences of climate change are also key issues addressed.

The city of Copenhagen's participation in the Aqua-add project is part of the overall strategy of The Copenhagen Climate Adaption Plan.



The pilot projects main objective is to develop and implement good examples and best practice on;

- How to innovate and integrate climate adaption in an existing urban structure, with special attention on how to handle and manage increasing rainfall and cloudburst, due to climate change. With respect to the structure, history and architecture in the area.
- How to assess the benefit and potentials from intense investment in water management the implementation of the climate adaption strategies as described in The Copenhagen Climate Adaption Plan
- How to develop and implement appropriate decision making tools which include potential spin off effects, avoided cost, social economics, and added value from water resources in dense populated urban areas.

The City of Copenhagen works internationally to improve the service to our citizens and companies. It is our aim to create an attractive city through the exchange of best practices at both a European and international level. As the Capital in Denmark Copenhagen has special international obligations and possibilities. The target of international effort is to emphasize Copenhagen's position as a regional center in Northern Europe and to strengthen our image as a center of a sustainable development of the human, cultural and economic resources. Copenhagen participates in several international networks and organizations.

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# **Municipality of Sofia**

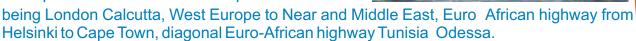
Sofia city is a place of rich historical past and is a center of the Bulgarian cultural, political, social and economic life.

The Sofia region is the most dynamic one in the country in economic relation and is characterized with high labour force efficiency and high gross domestic product per capita.

Sofia is the major university and scientific center in the country.

A range of cultural sites and facilities are available within the city as plenty of them being of national importance.

Sofia is the genuine city, geographical, transport center of the Balkans. The city is located at the cross point of four worldwide transport directions



The development of Sofia Municipality implies creation of favourable and qualitative habitation and business medium through providing of infrastructural services corresponding to the European quality standards. The development of the transport system as well as the urban engineering infrastructure have a direct impact upon the whole social-economic development of the municipality.





In most cases the availability of a constructed urban engineering infrastructure is a crucial factor for attracting of investments in the field of construction, tourism and industry.

Sofia valley is crossed by a number of rivers which flow into Iskar river, a tributary to Danube. Specific measures are outlined in Sofia Master plan for the completion of the riverbed realignment that ensures the riverbanks stability, water flow conductivity and creation of public amenities for the citizens.

One of the principal factors for a city investment growth is the adequate structuring and development of up-to-date service centers, spaces and urban engineering infrastructure.

The systems of the urban engineering infrastructure which encompasses transport, communication, energy and water economy have an integral impact and determine to a significant rate the general development of Sofia Municipality by ensuing and governing the proceeding of a number of processes and phenomena within them.

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# **Aveiro Region Intermunicipal Community**

The Aveiro Region Intermunicipal Community (CIRA) is a public institution of an associate nature and geographical scope and aims the realisation of common interests of its municipality's members.

The Aveiro Region Intermunicipal Community (CIRA) is a public institution of an associate nature and geographical scope and aims the realisation of common interests of its municipality's members. After the formal birth to 16 October 2008, lived with an intense commitment and reiterated the important work of the Association of eleven municipalities that want to make known, by





Aveiro Region, building up new avenues of development for this region where they live about 430,000 people, and where many more working and/or spend their leisure time and culture.

Activities of CIRA include promoting and fostering regional and local development, tourism, urban planning and management, water management, environment protection and energy efficiency. CIRA provides its services to municipalities, regional/local development agencies, NGOs. CIRA works with a.o. Aveiro Region Water Company, Aveiro Port Authority, Ocean XXI Sea Knowledge and Economy Association, Institute of



Development, Coastal Polis Programme of Ria de Aveiro and University of Aveiro. Specifically CIRA collaborates in promoting and implementing good practices on sustainable water use and efficiency. Implementation of the Portugal Aqua Case will enable CIRA to test and promote intelligent future data gathering/scenario development.

Data/scenarios will be used as input for regional policies and plans, i.e. on urbanization, to qualify the Ria de Aveiro landscape and for development and promotion of the Port of Aveiro.

#### Contribution/Aqua-case:

The Aqua-case in Aveiro (Ria de Aveiro, coastal lagoon) is one of the 2 front runner cases. This region is coping with many flooding events. The question is, how urbanization needs can best be integrated with blue space preservation/rehabilitation requirements for flood and storm-water control. The Decision Support Tool is used to generate spatially explicit information on: the added value of blue space preservation/rehabilitation scenarios, e.g. on land value and flood control, and cost-benefit indicators for the scenarios.

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# **University of Aveiro**

The Centre for Environmental and Marine Studies (CESAM) at the University of Aveiro (UA), brings together leading researchers in the fields of hydrological, environmental, geological and social-economic sciences. The Integrated Watershed Management research line (IWM) integrates knowledge and data from these sciences into approaches that aid planners and policymakers in designing and implementing scenarios for sustainable development. Population growth and climate change pose challenges on water management in urbanizing landscapes, affecting quality of



life, economic development and ecosystems. To this end, the IWM develops, links and applies scenario and simulation approaches for sustainable resource management.





The IWM's social and policy impact is evidenced by the development and execution of research projects with local, regional and national stakeholders, resulting in the development of:

- 1) innovative resource and pollution management technologies,
- 2) environmental impact assessments,
- 3) local, regional and national sustainable resource management actions and plans.

The IWM works in close collaboration with stakeholders and policy makers, evidenced by the close research relationship with, for example, the Portuguese Environmental Agency, Regional Hydrographical Authorities, Intermunicipal Authorities, and Municipalities.

The IWM has lead as well as participated in a wide range of projects on e.g. water management in urbanizing landscapes, socio-economic and environmental impact assessment, and sustainable community development.

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# **Greater Lyon**

Lyon Urban Community is a public establishment for cooperation between local authorities.





Grand Lyon, an institution:

- The urban community of Lyon was created by law in 1966.
- 52,500 hectares and a 1.3 million-strong population.
- The second largest agglomeration in France.
- 58 communes, represented by 156 elected officials, 4,700 local government employees,
- Grand Lyon has exclusive and shared skills: urban and regional planning, locally available public services, economic development, sport and culture, city policy.



Grand Lyon, a territory:
Grand Lyon, is also 52,500 ha:
54% urban space, 43% non-urban space,
including:
- 55% agricultural space,
- 30% woodland,
3% water (rivers, lakes etc.)



For over 40 years, Lyon has developed a culture of innovation, research and development in the water sector, in which scientists, industrial companies, local authorities and public bodies have worked together. Lyon's areas of excellence are urban hydrology, rainwater management, resource protection and purification.

Today, Grand Lyon uses an array of highly diverse management methods. It has its own research resources, enabling it to produce all master plans resulting from strategic thinking concerning operational projects.

The Sanitation Department is operated directly by the Urban Community with public servants ensuring the running of networks and treatment plants. The same applies to rainwater collection and treatment.

The production and distribution of drinking water is delegated to an outside provider through a "farm-out" arrangement. Other management methods used include concessions for treatment plants and operating agreements.

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# **Activities and expected results**

Aqua-add project partners will co-operate through interregional meetings, workshops and events for exchange and analysis of good practices; masterclasses/workshops, site visits, consult and (combined) team meetings (added value of water, stakeholder engagement and business models) will be organized to achieve the project goals.

To contribute to the success of the project, participation and dissemination of good practices and Aqua-add outputs in European networks and events will be provided.

Good practices will be identified in each region and thematic teams.

Project participants will elaborate implementation plans (one in each region); regional and local policies as well as instruments are expected to be improved.

As concerns good practices, activities cover the field of business models (e.g. taxes and pricing), stakeholder engagement, the added value of water, transnational AQUA-portfolio on the added value of water (with images, facts and figures).

A Decision Support Tool (DST) will be formulated: a computer model that can show the added value and impact of water, to be used in policy making processes with multiple stakeholders, based on a scientific model. The model will be piloted in partner regions and the approach will be disseminated to other regions.

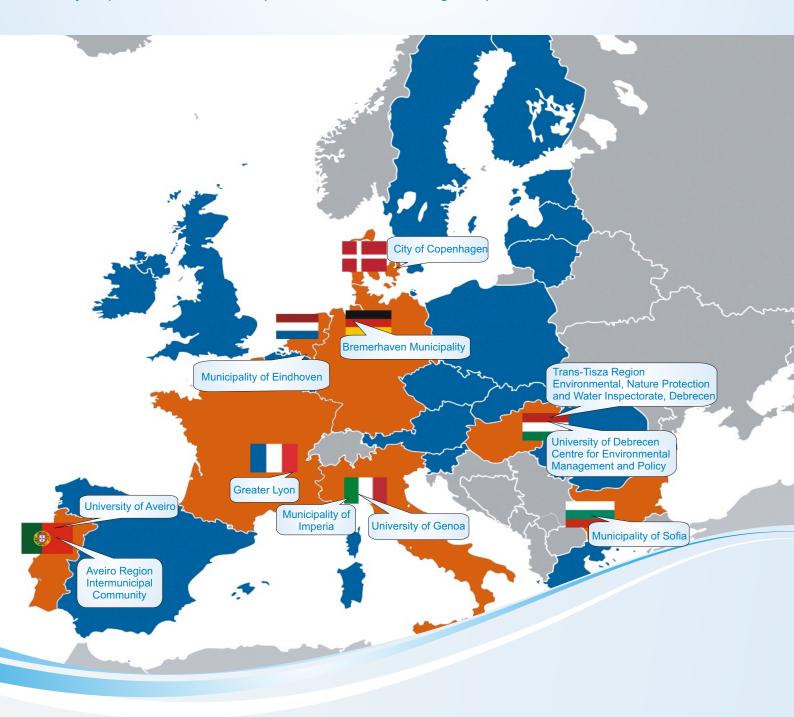
Team meetings will support the joint work of partners; staff members with improved capacity are expected to use DST to promote the added value and impact of water in decision-making processes with other stakeholders.

Local and regional stakeholders are also expected to have an increased awareness on added value and impact of water, capacitated for decision-making, via the good practices and aqua-cases.



# European Regional Development Fund 2007-2013 European Territorial Cooperation Interregional Cooperation Programme INTERREG IVC

**INTERREG IVC programme** provides funding for interregional cooperation, its aim is to promote exchange and transfer of knowledge and best practices across Europe. It is implemented under the European Community territorial co-operation objective and financed through the European Regional Development Fund (ERDF). The overall objective of the INTERREG IVC Programme is to improve the effectiveness of regional policies and instruments. A project builds on the exchange of experiences among partners who are ideally responsible for the development of their local and regional policies.







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