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Common Mediterranean strategy and  
local practical Actions for the  
mitigation of Port, Industries and  
Cities Emissions

[www.apice-project.eu](http://www.apice-project.eu)





## THE PROJECT

Harbours represent a significant potential for the economic development all over the Mediterranean basin, but they also have a potential negative environmental impact due to multiple emission sources. The presence of competing activities in coastal areas can lead to potential conflicts which need to be managed by the institutional actors.

APICE - Common Mediterranean strategy and local practical Actions for the mitigation of Port, Industries and Cities Emissions – proposes a decision-making approach that assumes the impact of air pollution sources as driver for the coast management in port-cities. This model is based on a strong coordination of environmental and spatial planning policies, leading to curb emissions and preserving economic potentialities of port-cities.

Five harbour areas are represented in the project: Venice and Genoa, Marseille, Thessaloniki and Barcelona. For each “study” area both scientific and policies issues are taken into account, through the participation of one “scientific” and one “institutional” partner dealing with planning topics.

This vision enforces one of the basic concepts of Integrated Management of Coastal Zones: integration among disciplines. Only including both expertise a truly holistic approach towards management can be achieved.

## OBJECTIVES

APICE aims to establish concrete and long-lasting measures to tackle the air quality problem near ports and industrial sites, in order to guide meditated political actions in terms of territorial planning and management action plans.

This general objective is accomplished through the achievement of the following specific objectives:

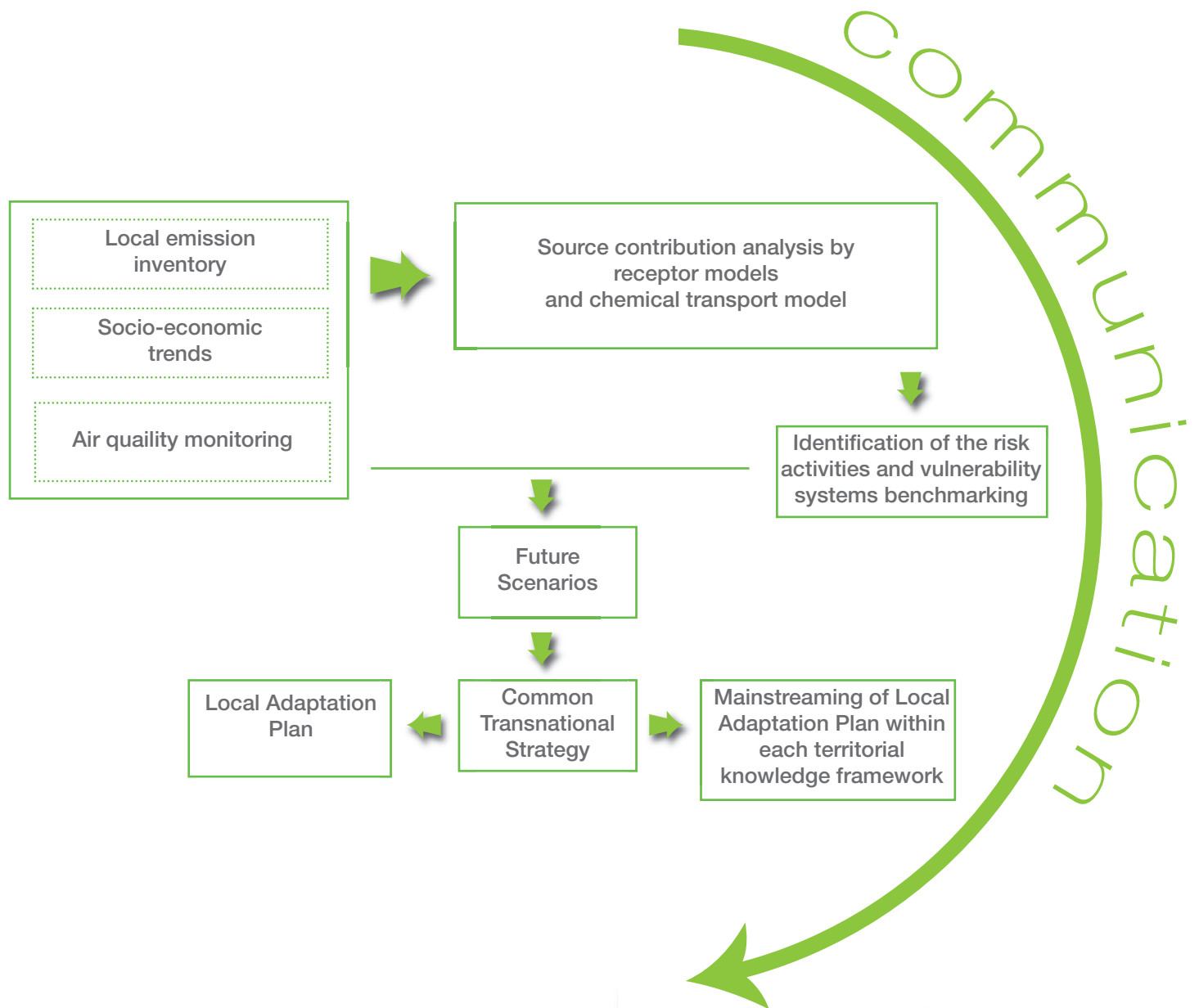
- Pinpointing the relative contribution to air quality of pollution sources in the five project harbour areas, by identifying differences/similarities among them and designing future scenarios.
- Strengthening the governance capacity to arbitrate between conflicting socio-economic and environmental interests by including the air pollution analysis and trend scenarios within the already existing Sectorial Plans (urban masterplans, port development plans, environmental regional strategies).
- Facilitating and promoting voluntary agreements between local administration, port authorities, ship owners and cargos' handlers to reduce air pollution caused by on berth vessels (“green ports” approach).



## PROJECT'S SCHEME

Apice is organized in 3 main project phases:

- air-monitoring campaigns, intercomparison and modelling to quantify the impact of the various pollutant sources to the air-quality in each territory.
- identification of the risk activities and vulnerability benchmarking to design intervention scenarios and shared strategies to mitigate air-pollution effects while preserving economic potentialities of port-cities.
- adaptation of the joint strategies at local level to improve the governance capacities in the coastline project areas and promoting effective interventions to anticipate/facilitate the implementation





## PILOT AREAS



### VENICE

The port of Venice is located in the Eastern Veneto Region, in the area of the Venice Lagoon: this is a polycentric area creating a strong urban and economical network and is characterised by a relevant commercial and tourist volume of traffic, by the presence of the “Marco Polo” airport and a complex transport system connecting the economical strategically corridor of the Venice-Mestre and Padua’s metropolitan areas.

In this area, APICE is expected:

- to give a guidance to drive port-district expansion in the frame of Regional Masterplan, strategic plan Venice – Padua and coastal urban plans;
- to promote agreements to mitigate emissions of docked-vessels in front of Venice
- to support the coordination with the sectoral plans (e.g. Air-quality and water-quality regional plans) actually in force in Veneto Region.



### GENOA

The Port of Genoa, with a trade volume of 58.6 million tones per years, is the first port of Italy and thanks to its position, it is the natural access to the sea of the north of Italy and Central Europe.

Commercial and industrial activities, airport, oil port and quays for passengers traffic are located in a port area of about 500 hectares of land and the same area on water. The port extends for 20 kilometres along the coastline, with 47 km of maritime ways and 30 km of operative quays.

In this area, Apice is expected:

- to support environmental assessment of the future partial electrification of the quays
- to evaluate the impact of the new highway / railway links from the western part of the harbour to the Po Valley.
- to assess the effects of an off-shore displacement of part of the oil terminal.
- to evaluate possible solutions to reduce the impact of the ferry boats traffic.



## **MARSEILLE**

The port of Marseilles, with a trade volume of 86 million tones per years, is the first port in France and the fifth in Europe, after Rotterdam, Antwerp, Hamburg and Amsterdam.

One of the strengths of the Port of Marseilles with its ideal geographical position for north/south and east/west trade is that all goods are conveyed by pipeline, gas line, land, rail or rivers

In this area, Apice is expected:

- to give inputs and scenarios to support a new project of setting electric power ground suppliers terminal within the strategic Plan of the Port Authority
- to include APICE deliverables in atmospheric, urban and health protection plan of PACA region
- to propel actions focused on mode transfer, promoting rail and inland waterway transport strictly bound to land management



## **THESSALONIKI**

The port of Thessaloniki is the natural gateway for the economic activities of the inland markets beyond Greece. The port is a vital element of the country's economy while it also plays a substantial role in the effort of Northern Greece and its centre city to be established as the economic centre of the Eastern Mediterranean.

The port enjoys a privileged position being located at the crossroad of land transportation networks, at a driving distance of 16 kilometers from the International "Macedonia" Airport and at a mere kilometres from the railway station.

In this area Apice is expected to give a roadmap for the improvement of the efficiency of the Region of Central Macedonia in urban development planning for eastern Thessaloniki city and implementing environmental policies in order to improve the citizens' quality of life.



## **BARCELONA**

The Port of Barcelona, with a trade volume of 43 million tones per years, is the main transport and services infrastructure in Catalonia, the second Spanish port in terms of total goods traffic and the first in terms of value. The port is being enlarged and its surface will result doubled, reaching 1.300 ha. The enlarged Port will be able to handle annual traffic of 130 million tonnes and 10 million containers

In this area, in the light of the Plan for Air Quality Improvement in the Metropolitan Area of Barcelona, Apice is expected:

- to promote rail freight transport
- to foster ships control and inspection
- to follow-up ships electric power supply at national and European level



## PARTNERS

APICE is developed in 5 study areas of 4 MED Countries and involves the territories of **Venice**, **Marseille**, **Thessaloniki**, **Genoa** and **Barcelona**.

### ITALY - Port of Venice



Agenzia Regionale per la Prevenzione e Protezione Ambientale del Veneto

#### **ARPAV- Regional Agency for Environmental Protection of Veneto Region**

ARPAV is a public body founded in 1996. The goal of the Agency is to control and preserve the environment in order to help the identification and elimination of risks to humans and to the earth. Its principal activities are: controlling of the environment including sources of pollution; monitoring of the state of the environment, particularly the quality of air, water, and soil; preventing risk factors and promoting an education aimed at favouring life styles, which respect the environment.

Website: [www.arpa.veneto.it](http://www.arpa.veneto.it)

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REGIONE DEL VENETO

#### **Veneto Region – Spatial Planning and Parks Department**

Veneto Region – Spatial Planning and Parks Department has the aim to protect and manage the regional territory to assure a balanced development and to improve regional competitiveness while mitigating the climate change effects. The Regional Coordination Spatial Plan (PTRC) is the roadmap for the development of local, provincial and urban plans in accordance with the regional socio-economic programming. Department's tasks are:

- design strategies to address regional spatial planning in coordination with the Provinces;
- European project management and promotion of best practices in the field of spatial planning, urban and environmental quality;
- coordination, management and valorization of regional parks and protected areas of Veneto

Website: [www.regione.veneto.it](http://www.regione.veneto.it); [www.ptrc.it](http://www.ptrc.it)

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### ITALY - Port of Genoa



PROVINCIA DI GENOVA

#### **Province of Genoa**

The Province of Genoa is a local authority that manages an area of 1834 Km<sup>2</sup>, with 900.000 inhabitants.

The main tasks of the Province of Genoa are concerned with territorial planning at provincial level, soil erosion prevention, education, water and waste management, promotion of rationale use of energy, pollution control. The Province of Genoa is the public body in charge of the management of the air quality monitoring system.

Website: [www.provincia.genova.it](http://www.provincia.genova.it)

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#### **Department of Physic of the University of Genoa -**

The Department of Physics belongs to the "Università degli Studi di Genova", which is the sole University in Liguria Region. The Department of Physics is composed by 70 Professor and Researchers and 30 technicians and administrative employees. There are active research groups in Theoretic Physics, Nuclear and subnuclear Physics, Material Science, Bio-Physics, Applied Physics to Medicine and Environment.

The Atmospheric and Oceanic Physics Group and the Laboratory of Environmental and Health Physics jointly participate to APICE.

Website: [www.fisica.unige.it/difi](http://www.fisica.unige.it/difi)

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## FRANCE - Port of Marseille



### Port Authority of Marseille

As the No. 5 port in Europe, Marseille Fos affirms its position as a major player in the Euro-Mediterranean domain, with the adequate infrastructure and space to accommodate all types of freight traffic, passenger traffic and cruise traffic. Marseille Fos port is constantly investing and innovating to satisfy the demand generated by international maritime transport development through its sustainable growth and development plan. For the development of the project APICE the Port Authority of Marseille collaborates with Atmo PACA ([www.atmopaca.org](http://www.atmopaca.org)) - a non-profit association created in 1982 that manages the air quality monitoring network in south-eastern France.

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### University of Provence

The University of Provence was founded in 1970 and is characterised by a strong multidisciplinary character. Research activities and academic training are mainly conducted in the cities of Aix-en-Provence and Marseilles. The research group Instrumentation et Réactivité Atmosphérique (Instrumentation and Atmospheric Reactivity - IRA) of the Laboratoire Chimie Provence (Provence Chemistry Laboratory - LCP), is research team of the University of Provence and CNRS (UMR 6264). It was established to better coordinate the atmospheric research effort in Marseille; with an overall staff of 15 researchers, it has been active in the atmospheric chemistry area for the last 15 years. Research activities of the group are focused on atmospheric organic aerosol including analytical studies, source apportionment, kinetics and mechanisms of heterogeneous and multiphase reactions.

Website: [www.univ-provence.fr](http://www.univ-provence.fr)

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## GREECE - Port of Thessaloniki



### Region of Central Macedonia

The Region of Central Macedonia is a local authority, representing seven former Prefectural Authorities. The main tasks involve Regional Planning and Development, Agriculture and Fishery, Natural Resources, Industry, Energy, Water and Waste Management, Tourism and Trade, Telecommunications and Transportation, Public Health, Education, Culture and Public Security.

Website: [www.pkm.gov.gr](http://www.pkm.gov.gr)

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Mrs. Hara Pырpasopoulou: [pyrpsop@hotmail.com](mailto:pyrpsop@hotmail.com)



### University of Western Macedonia

The Department of Mechanical Engineering, former Department of Engineering and Management of Energy Resources, was first established in 1999 as one of the three new departments of the Aristotle University of Thessaloniki (AUTH), in the framework of expanding the scope of higher education. The department is one of the founding departments of the University of Western Macedonia (UOWM) which was established in 2004. The Department is located in the city of Kozani which is the heart of energy production in the country. Nearly 70% of the electricity is produced in the power plants located in the broader area of Kozani.

Website: [www.uowm.gr](http://www.uowm.gr)

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### Aristotle University Thessaloniki

The Aristotle University of Thessaloniki (AUTH) is the largest university in Greece. In the past five years, over 3,500 Research and Technological Development Projects have been carried out at AUTH. In the past three years, AUTH has cooperated with 1,080 partners (universities, research centres and companies). Within APICE, AUTH is represented by the Laboratory of Atmospheric Physics (LAP) of the Department of Physics (<http://lap.physics.auth.gr>). The staff of LAP has expertise in many different scientific fields which are relevant to those investigated within the project, like the meteorological and photochemical modelling at urban and regional scales and the compilation of anthropogenic and natural emission inventories.

Website: [www.auth.gr/home](http://www.auth.gr/home)

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## SPAIN - Port of Barcelona



### Spanish Research Council- Institute of Environmental Assessment and Water Research

IDÆA is one of the research centres belonging to the Spanish Research Council (CSIC). IDÆA is devoted to the study of the natural and anthropogenic changes occurring in the ecosystems of the geosphere using chemical and geochemical tools. IDÆA is focussed on the changes related to climate and those involving toxicity increases for organisms and humans.

IDÆA has 174 researchers grouped in the Departments of Geosciences and Environmental Chemistry. They are expert in handling these problems using sophisticated analytical instrumentation and innovative environmental and geochemical methods. Among other facilities the institute has the Laboratory of Dioxins, the one with highest consolidated professional tradition in Spain, and a large number of chromatographic and mass spectrometric instruments which support the high international standard profile of the institute.

Website: [www.idaea.csic.es](http://www.idaea.csic.es)

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### EUCC Mediterranean Centre

EUCC is an association with 2700 members and member organisations in 40 countries. Founded in 1989 with the aim of promoting coastal and marine sustainable development by bridging the gap between scientists, environmentalists, site managers, planners and policy makers, it has grown since then into the largest network of coastal practitioners and experts in Europe. EUCC Mediterranean Centre, located in Barcelona, aims at carrying out the EUCC's mission in the Mediterranean region. EUCC is part of the ECNC Group. We work together towards a sustainable and beautiful Europe.

Website: [www.eucc.nl/medcentre/index.htm](http://www.eucc.nl/medcentre/index.htm)

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APICE: a MED project in accordance with the principles of  
Integrated Coastal Zone Management

**[www.apice-project.eu](http://www.apice-project.eu)**

**[www.programmemed.eu](http://www.programmemed.eu)**

**[www.ec.europa.eu/environment/ICZM/home.htm](http://www.ec.europa.eu/environment/ICZM/home.htm)**