Programme cofinancé par le Fonds Européen de Développement Régional
Programme cofinanced by the European Regional Development Fund

Strategic Environmental Assessment

Second version (V2), based on the V3 PO

March 2014

Parcourir L'Europe
Sandra Ungemach-Bensaid, Jeanne Geoffroy, Charlotte Guérin Guillaud, Daniel Poulenard

9 rue de la Laque
31300 Toulouse / France
www.reseau-parcourir.eu

L'Europe en Méditerranée
Europe in the Mediterranean

Table of Contents

1. Introduction

The Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain programmes on the environment requires certain programmes, which are likely to have significant effects on the environment, to be subject to an environmental assessment. This assessment specifically enables environmental considerations to be integrated in the preparation and adoption of these programmes. It also contributes to sustainable development.

Since 2006 and the reform of European Structural Funds, all public programmes adopted after 2006, require an environmental assessment, while they are being shaped and before their adoption. The programmes co-financed by the European Regional Development Fund (ERDF) are concerned by this directive.

This assessment will include:

- Realisation of a report on the environmental effects (describing potential significant effects on the environment as well as reasonable corrective measures).
- Realisation of a consultation with the authorities in charge of environmental issues on the area concerned by the programme.
- Realisation of a public consultation in the area concerned by the programme.

The environmental report, the opinions expressed by the relevant authorities and the public must be taken into account before the programme is adopted. When a programme is adopted, all concerned parties which have been consulted are informed and can consult any relevant documents. A monitoring on the significant effects on the environment will be implemented to determine as soon as possible negative and unexpected effects.

The **environmental report for the 2014-2020 programme** will contain the following information:

- The contents of the programme and its main objectives and links to other relevant plans and programmes;
- The existing environmental situation and its likely development if the plan or programme is not implemented;
- The environmental characteristics of any area likely to be significantly affected by the plan or programme;
- Any existing environmental problems which are relevant to the plan or programme, specifically those relating to zones in the Natura 2000 network;
- The national, Community or international environmental protection objectives which are relevant to the plan or programme in question;
- The likely significant environmental effects of implementing the plan or programme;
- The measures envisaged to prevent, reduce and offset any significant adverse effects on the environment;
- An outline of the reasons for selecting other alternatives (final version of the report);
- A description of how the assessment was carried out (final version of the report);
- The envisaged monitoring measures (final version of the report);
- A non-technical summary of this information.

2. Regulatory framework and environmental objective

Outline of the programme

The MED programme is one of the instruments for the implementation of the EU **cohesion policy**. With this policy, and the "Europe 2020" strategy, EU pursues harmonious development across the Union by strengthening its economic, social and territorial cohesion to stimulate growth in EU regions and participating countries, with a special focus on:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

The MED programme is directly linked to different regulations, directives or conventions aiming to support the 2020 strategy objectives:

- Territorial Agenda for the European Union (May 2011)
- Framework programme for research and innovation «Horizon 2020» (2014-2020) (COM(2011) 809),
- Programme for the Competitiveness of Enterprises and small and medium-sized enterprises (2014–2020) (COM (2011) 834),
- Roadmap for moving to a competitive low carbon economy in 2050 (COM(2011) 572),
- Programme for the environment and climate action 2014-2020 (Programme Life) (PE-COS 70/13, 16103/13 ADD1)
- Innovation for a sustainable Future - The Eco-innovation Action Plan (PAEI) (Eco-AP) (COM(2011) 899),
- Blue growth: opportunities for marine and maritime sustainable growth maritime (COM(2012) 494).

Among the 11 thematic objectives described in the Common Regulation[1], the regulation on European territorial cooperation[2] and the common strategic framework[3], the MED programme chose to focus on the following investment priorities and specific objectives:

- TO 1 – IP 1b – "Strengthening research, technological development and innovation by promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector, in particular promoting investment in product and service development, technology transfer, social innovation, eco-innovation, public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation, and supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular in key enabling technologies and diffusion of general purpose technologies»

  Specific objective: ***To increase transnational activity of innovative clusters and networks of key sectors of the MED area***

- TO 4 – IP 4c – "Supporting the shift towards a low-carbon economy in all sectors by supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector"

  Specific objective: ***To raise capacity for better management of energy in public buildings at transnational level***

- TO 4 – IP 4e – "Supporting the shift towards a low-carbon economy in all sectors by promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures"

  Specific objective 1: ***To increase the share of renewable local energy sources in energy mix strategies and plans in MED territories***

[1] Article 9 of Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund

[2] Regulation ETC , considering(6), article 2(2)

[3] Common strategic framework, Annex II – Priorities for the cooperation

Specific objective 2: ***To increase capacity to use existing low carbon transport systems and multimodal connections among them***

- TO 6 – IP 6c - "Preserving and protecting the environment and promoting resource efficiency by conserving, protecting, promoting and developing natural and cultural heritage"

Specific objective: ***To enhance sustainable development policies for more efficient valorisation of natural resources and cultural heritage in coastal and adjacent maritime areas***

- TO 6 – IP 6d- "Preserving and protecting the environment and promoting resource efficiency by protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000, and green infrastructure"

Specific objective: ***To maintain biodiversity and natural ecosystems through strengthening the management and networking of protected areas***

- TO 11 – IP 1 "Enhancing institutional capacity of public authorities and stakeholders and efficient public administration by developing and coordinating macro-regional and sea-basin strategies"

Specific objective: ***To support the process of developing multilateral coordination frameworks and strengthening the existing ones in the Mediterranean for joint responses to common challenges***

Regulatory framework and environmental objectives

These investment priorities are linked with the European objectives regarding environment protection.

In the Mediterranean area, the Mediterranean Action Plan is the main legal document aiming to protect marine and coastal environment. In 1975, 16 Mediterranean countries, from southern and northern shores, and the European Community adopted this plan. In 1976 these Parties adopted the Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention). Seven Protocols addressing specific aspects of Mediterranean environmental conservation complete the MAP legal framework. It has been replaced by the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention, 1995); the amendments came into force in 2004.

The Barcelona Convention' main objectives are "to prevent, abate, combat and to the fullest extent possible eliminate pollution of the Mediterranean Sea Area" and "to protect and enhance the marine environment in that Area so as to contribute towards its sustainable development." Under the Barcelona Convention, protection of the marine environment is pursued "as an integral part of the development process, meeting the needs of present and future generations in an equitable manner."
In applying the Barcelona Convention, the Contracting Parties are bound by the precautionary principle, the polluter-pays principle, the commitment to undertake environmental impact assessment of activities likely to cause significant adverse impact on the marine environment, the obligation to promote cooperation amongst states in environmental impact assessment procedures related to activities with transboundary effects, and the commitment to promote integrated management of the coastal zone. Today all 21 countries surrounding the Mediterranean Sea, as well as the European Union, are Contracting Parties to the Barcelona Convention. The latter now has a total of seven associated Protocols:

- The Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft or Incineration at Sea (Dumping Protocol, adopted 1976, in force in 1978, amended in 1995),
- The Protocol concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and other Harmful Substances in Cases of Emergency (Emergency Protocol, adopted in 1976, in force in 1978), replaced by the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (Prevention and Emergency Protocol, adopted in 2002, in force in 2004),
- The Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-based Sources and Activities (LBS Protocol, adopted in 1980, in force in 1983; amended in 1996, in force in 2008),
- The Protocol Concerning Mediterranean Specially Protected Areas (SPA Protocol, adopted in 1982, in force in 1986) replaced by The Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA & Biodiversity Protocol, adopted in 1995, in force in 1999),
- Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol, adopted in 1994, in force in 2011),
- Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal (Hazardous Wastes Protocol, adopted in 1996, in force in 2008),
- Protocol on Integrated Coastal Zone Management (ICZM Protocol, adopted in 2008, in force in 2011)

In 2009, during *the16th Meeting of the Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Marrakesh, 2009),* the **Plan Bleu Regional Activity Centre** has been dedicated to "contribute to raising awareness of Mediterranean stakeholders and decision makers concerning environment and sustainable development issues in the region, by providing future scenarios to assist in decision-making. In this respect and through its dual functions as an observatory of the environment and sustainable development and a centre for systemic and prospective analysis, the PB/RAC's mission is to provide the Contracting Parties with assessments of the state of the environment and development of the Mediterranean and a solid basis of environmental and sustainable development data, statistics, and indicators to support their action and decision making process."

The Barcelona Convention is completed by the **Blue Growth strategy**[4], which is the long term strategy to support sustainable growth in the marine and maritime sectors as a whole. It recognises that seas and oceans are drivers for the European economy with great potential for innovation and growth. It is the Integrated Maritime Policy's contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth.

The 'blue' economy represents 5.4 million jobs and a gross added value of just under €500 billion a year.[5] However, further growth is possible in a number of fields which are highlighted within the strategy.

The strategy consists of three components:

1. Specific integrated maritime policy measures

- Marine knowledge to improve access to information about the sea;
- Maritime spatial planning to ensure an efficient and sustainable management of activities at sea;
- Integrated maritime surveillance to give authorities a better picture of what is happening at sea.

2. Sea basin strategies to ensure the most appropriate mix of measures to promote sustainable growth that take into account local climatic, oceanographic, economic, cultural and social factors

- Adriatic and Ionian Seas
- Arctic Ocean
- Atlantic Ocean
- Baltic Sea
- Black Sea
- Mediterranean Sea
- North Sea

3. Targeted approach towards specific activities

- Aquaculture
- Coastal tourism
- Marine biotechnology
- Ocean energy
- Seabed mining

The Mediterranean dimension of the integrated maritime policy[6] focuses on improved cooperation and governance whilst fostering sustainable growth in the region. It is currently facilitated by the following measures and tools:

- The **Marine Strategy Framework Directive** (directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008) which establishes a framework for Community action in the field of marine environmental policy and is the environmental pillar for the European marine integrated policy. This legal framework shall reinforce the coherence between different policies and foster integration of environmental concerns in other policies, such as the Common Fisheries Policy.
- A **Working Group for the Integrated Maritime Policy in the Mediterranean** (Maritime Forum) to develop common approaches on maritime policy-making in the Mediterranean.
- **Initiatives** to inform on maritime affairs, European funding and benefits from an integrated policy, in the framework of the "SOUTH" programme of the European Neighbourhood Policy.
- A **Project of a three-party cooperation**, in association with the European Investment Bank and the International Maritime Organisation.
-The **definition of a maritime strategy for the** Adriatic-Ionian sea basin in cooperation with the concerned coastal States.

[4] Communication from the Commission: Blue Growth opportunities for marine and maritime sustainable growth (13.09.2012)
[5] http://ec.europa.eu/maritimeaffairs/policy/blue_growth/index_fr.htm
[6] ***For a better governance of the Mediterranean with an integrated maritime policy,*** Communication of the Commission. 11.11.2009

More generally, the EU establishes a legal framework for the main environmental issues. The following table highlights the main regulations of these issues.

Environmental issues relevant for the Programme	European environmental objectives and legal framework
Coastal and marine ecosystems	Solving environmental problems of Europe's coasts and seas requires a policy response that operates across policy domains related to water, nature, pollution, fisheries, climate change and spatial planning. Historically these have been considered separate policy domains, but with the adoption of **the Marine Strategy Framework Directive (MSFD)** in 2008, an integrated response is being pursued; the management approach considers the entire ecosystem and sets the objective of achieving good environmental status for many specific environmental aspects. The MSFD is supported by the **Water Framework Directive** (WFD) which regulates ecological status in coastal and transitional waters by considering nutrient, chemical and hydromorphological pressure and by the Habitats and Birds directives that set conservation objectives for some marine and coastal habitats and species. Growth of the maritime, agriculture and tourism sectors is expected to continue; an important future objective for the MSFD will be to ensure that this growth is environmentally sustainable, via management strategies. Such strategies can be supported through the implementation of planning principles in line with Integrated Coastal Zone Management (ICZM) and Maritime Spatial Planning (MSP)**.**
Air quality	This legislation has established health-based standards and objectives for a number of air pollutants and includes: **The Air Quality Framework Directive (96/62/EC).** This describes the basic principles concerning the assessment and management of air quality in the Member States. The Directive also lists the pollutants for which air quality standards and objectives have been developed and specified in subsequent legislation The 'Exchange of Information' Decision, which establishes a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the EU Member States. The **thematic Strategy on Air Pollution** (COM(2005) 446): Compared with the situation in 2000, the Strategy sets specific long term objectives (for 2020): - 47% reduction in loss of life expectancy as a result of exposure to particulate matter; - 10% reduction in acute mortalities from exposure to ozone; - reduction in excess acid deposition of 74% and 39% in forest areas and surface freshwater areas respectively; - 43% reduction in areas or ecosystems exposed to eutrophication. The strategy is completed by the EU's new air quality directive: the **Directive on Ambient Air Quality and Cleaner Air for Europe** is one of the key measures in place to address air pollution under the Thematic Strategy on Air Pollution. It is the first EU directive to include limits on ambient concentrations of PM2.5 (fine particulate matter). It also consolidates various existing pieces of air quality legislation into a single directive. Governments had been given two years (as from June 11, 2008) to bring their legislation in line with the provisions of the Directive.
Soils quality	Different EU policies (for instance on water, waste, industrial pollution prevention, nature protection, pesticides, agriculture) are contributing to soil protection.

	But as these policies have other aims and other scopes of action, they are not sufficient to ensure an adequate level of protection for all soil in Europe. The communication of the commission (COM(2006) 231) describes the **thematic strategy regarding soils protection**.[7] The **overall objective** is protection and sustainable use of soil, based on the following guiding principles: - Preventing further soil degradation and preserving its functions; - Restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil. To achieve these objectives, action is required at different levels – local, national and European. Action at European level is a necessary addition to the action by Member States This communication is completed in 2011 by the **Roadmap to a Resource Efficient Europe** (COM(2011) 571): By 2020, EU policies shall take into account their direct and indirect impact on land use in the EU.
Water quality	**The WFD provides a framework for water protection and management** in the European Community (Directive 2000/60/EC). Under its implementation, Member States must first identify and analyse European waters, by individual river basin and district. They shall then adopt management plans and programmes of measures to protect water bodies in all European river basins. The adoption of the WFD has completed earlier EU water policies that are still in place, such as those concerning urban wastewater or bathing water. In 2012, the Commission published **the communication A Blueprint to Safeguard Europe's Water Resources** (COM(2012) 673). It focuses on policy actions that can help improve implementation of current water legislation, and on the integration of water policy objectives into other policies. The Blueprint enhances water policies related to water quantity and water resource efficiency for sustainable water management in the timeframe of the EU's 2020 Strategy up to 2050. Besides the WFD and the Blueprint, four water directives contribute to measures ensuring the good status of Europe's waters (the Urban Waste Water Directive (91/271/EEC), the Bathing Water Directive (2006/7/EC), the Nitrates Directive (91/676/EEC) and the Drinking Water Directive (98/83/EC). The Floods Directive (2007/60/EC), which aims to foster flood risk management plans, also significantly enhances the WFD objectives.
Biodiversity	In its 2001 **Strategy for Sustainable Development**, the EU sets itself the target to halt the loss of biodiversity and restore habitats and natural systems by 2010. The European Commission's 2006 Biodiversity Communication has provided the main policy framework up to 2010. EU nature conservation policy is based on two main pieces of legislation: ▪ the Birds Directive[8]

[7] The communication (modifying the Directive 2004/35/CE) is an important component of the strategy, it will allow the Member States to adopt measures adapted to local realities. It plans to implement measures allowing identifying issues, to manage soil degradation and to rehabilitate polluted or degraded soils.

	▪ the Habitats Directive[9] Both directives provide the basis for the Natura 2000 network, a network of nature reserves which extends across the Union to safeguard species and habitats of special European interest. EU nature conservation policy benefits from a specific financial instrument, the LIFE-Nature fund. In May 2011, the European Commission adopted a new strategy that lays down the framework for EU action over the next ten years in order to meet the 2020 biodiversity headline target set by EU leaders in March 2010 (COM(2011) 244). According to the strategy and by 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – should be protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided. Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss are priority objectives. Specific objectives: - Full implementation of EU nature legislation to protect biodiversity - Better protection for ecosystems - More sustainable agriculture and forestry - Better management of fish stocks - Tighter controls on invasive alien species - A bigger EU contribution to averting global biodiversity loss
Climate change	The threat of climate change is being addressed globally by the United Nations Framework Convention on Climate Change (UNFCCC). The long-term objective is to stabilise atmospheric greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. The UNFCCC's Kyoto Protocol sets binding emission targets for developed countries that have ratified it, such as the EU Member States. It is a first step towards achieving more substantial global emission reductions. **A EU Strategy on adaptation to climate change** (COM(2013) 216) The overall aim of the EU Adaptation Strategy is to contribute to a more climate-resilient Europe. This means enhancing the preparedness and capacity to respond to the impacts of climate change at local, regional, national and EU levels, developing a coherent approach and improving coordination.[10]
Cultural heritage, assets	**Treaty of Lisbon 2007** Article 3.3. "(…) The Union shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced".

[8] **Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.** This Directive replaces Directive 79/409/EEC of 2 April 1979 (more commonly known as the "Birds" Directive), by integrating successive amendments and codifying it.

[9] **Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora**

[10] On January 22, 2014, the European Commission has released a proposal for a new EU framework on climate and energy for 2030. This 2030 framework should replace the existing 'climate and energy package' of targets for 2020, which are: reducing by 20% the greenhouse gas emissions, increasing by 20% the share of renewable energy and improving the EU's energy efficiency by 20%. The Commission has proposed to State Members to reduce by 40% the greenhouse gas emissions by 2030.

	European Convention on the Protection of the Archaeological Heritage (Revised), Valetta, 16.I.1992 The new text aims to make the protection of the archaeological heritage an objective in urbanism and land planning policies. It focuses on the modalities of the coordination between archaeologists and land planners in order to ensure the best protection of archaeological heritage.
Energy	Energy is increasingly a policy priority; it constitutes one of the five main development areas that the Europe 2020 strategy targets in its aim for: - 20% of Europe's energy consumption to come from renewable energy - 20% increase in energy efficiency. Alongside the specific targets of the 2020 energy strategy, additional interest areas are tackled by various policies of on the European Commission. The policies include: - Improving security of supply; - ensuring the competitiveness of the European economy and the availability of affordable energy; - encouraging the development of a competitive internal market for energy; - setting minimum levels of energy taxation.

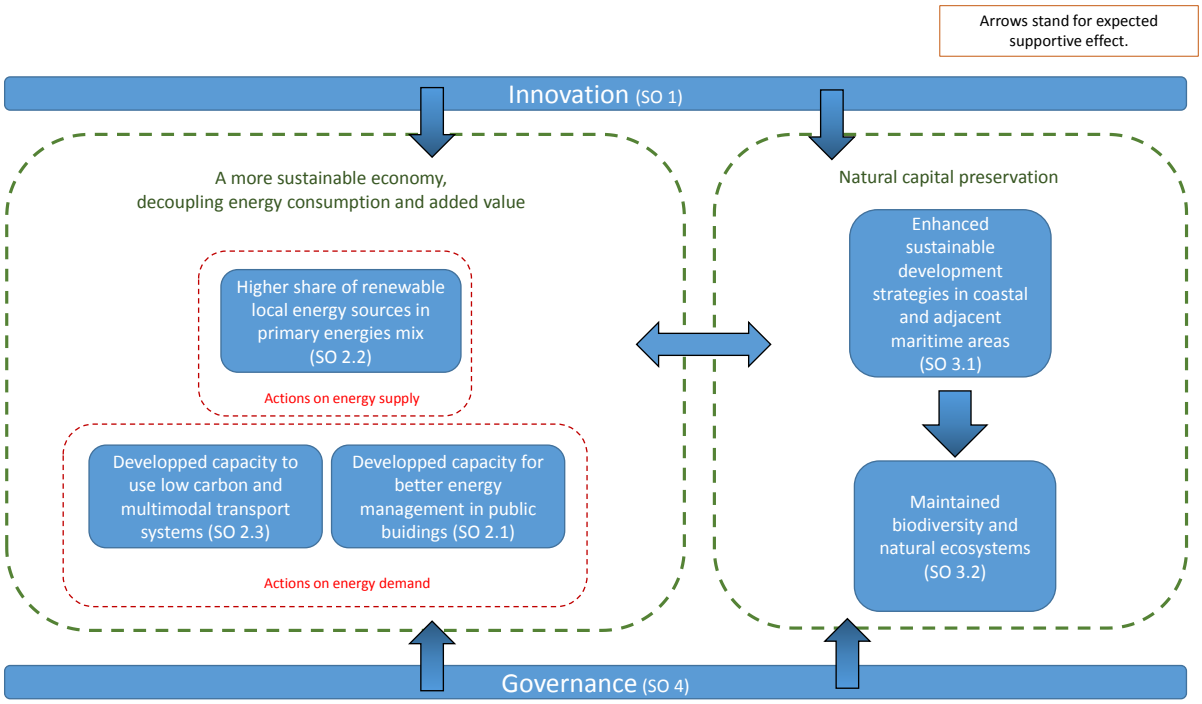
All thematic objectives of the Programme must respect this regulatory framework.

Highlighting of interactions between Programme interventions and their environmental objectives

Strategies of certain objectives align more specifically with the European strategies described in the previous chapter:

Environmental issues relevant for the Programme	How the Programme environmental strategy takes into account these questions, per specific objective					
	SO 1 SO 4	SO 2.1	SO 2.2	SO 2.3	SO 3.1	SO 3.2
Coastal and marine ecosystems						
Air quality						
Soils quality						
Water quality						
Biodiversity						
Climate change						
Cultural heritage, assets						
Energy						
Legend :	*Targeted potential impact*		*Non-targeted potential impact*		*No targeting*	

The following figure sketches out the internal environmental logic of the Programme as well as the interactions between the different fields of actions:



3. Relationship with other relevant plans and programmes

Regional Programmes: the Programme implementation shall ensure effective respect for coherence and complementarities with ERDF regional programmes. For the 2014-2020 period, the transfer of experiences and practices is presented as a goal in itself. To achieve this, the MED programme implementation measures state that the National Contact Points will be asked to get informed about the implementation of ERDF regional programmes and, where relevant, will transmit to the Managing Authorities basic information that could be useful for the MED programme (needs, gaps, success and failures, change in strategic orientations, etc.). National Contact Points will also disseminate information about the MED programme to the Managing Authorities of regional programmes, to let them know about activities and projects outputs that could be useful for them. The MED programme can also be used to finance preliminary studies for the preparation of projects that could be further developed with the support of regional programmes.

The coordination with ESF[11] programmes will be less systematic.

Regarding the EAFRD[12] and EMFF[13], the MED programme is not developing significant activities dedicated to agriculture or fisheries. However, certain fields of action constitute relevant issues for MED projects (e.g.: use conflicts for water).

Thematic Programmes: the Programme implementation shall ensure effective respect for coherence and complementarities with EU's thematic programmes, such as : Horizon 2020, LIFE +, COSME or the Programme for a Social Change and Social Innovation (PSCI), Erasmus for all, Creative Europe, Connecting Europe Facility (CEF) and Civil Protection.. The MED programme will use specific mechanisms to highlight potential synergies, avoid duplication and identify fields where additional financial support would be needed (a specific identification provided by the in-itinere evaluation of the relevant programmes, instruments and policies that represent an interest according to the orientations of the MED programme, specific "capitalization" calls to implement in the MED Territory with relevant achievements coming from EU thematic projects, specific MED calls as first step of larger projects that would be financed by other thematic programmes, etc.).

Coordination with other territorial, transborder or neighbourhood cooperation programmes: Among these programmes are especially the ENI CBC Mediterranean programme and the creation of the Adriatic-Ionian programme whose territory is also partly covered by the MED programme, as well as the South East Europe, SUDOE or Alpine Space.

Other plans:
The first Mediterranean action plan has been replaced by the **Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II)**.
The contracting States benefit from the support from the Secretariat of the Barcelona convention, performed by the UNEP and its coordinating unit, as well as from regional activity centres (RACs) (among which the Blue Plan Centre in France or the Cleaner Production RAC in Spain, for example).
Key MAP priorities for the coming decade are:

- to bring about a massive reduction in pollution from land-based sources;
- to protect marine and coastal habitats and threatened species;
- to make maritime activities safer and more conscious of the Mediterranean marine environment;
- to intensify integrated planning of coastal areas;
- to monitor the spreading of invasive species;
- to limit and intervene promptly on oil pollution;
- to further promote sustainable development in the Mediterranean region.

[11] ESF: European Social Fund
[12] EAFRD: European Agricultural Fund for Rural Development
[13] EMFF: European Maritime and Fisheries Fund

The **Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem** (« Med Partnership ») is being led by UNEP/PAM and the World Bank. It is a collective effort of leading organisations and States sharing the Mediterranean Sea towards the protection of its marine and coastal environment. It is financially supported by the Global Environment Facility (GEF), and other donors, including the EU and all participating countries.

Other works are also led by the **FAO**[14] (in partnership with the Blue Plan in particular) which released in 2013 a first State of Mediterranean Forests.

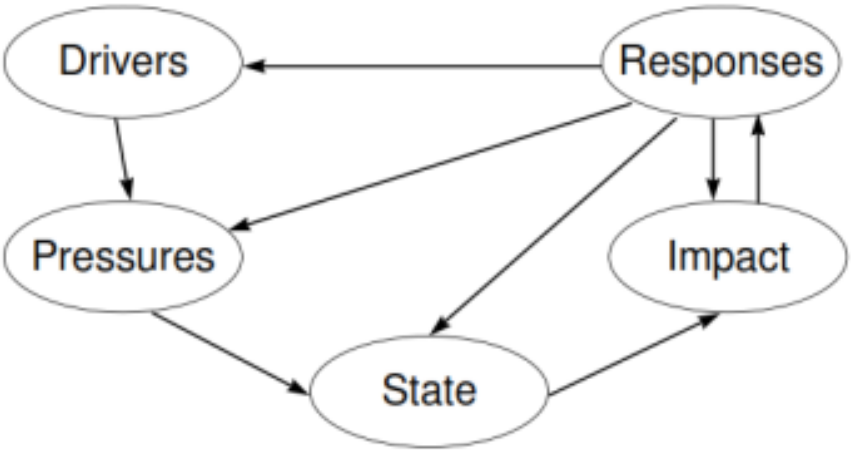
4. Assessment methodology.

The methodology followed for the realisation of this report is in conformity with the approach of the Operational Programme (« OP »), the choice has been made to realize the initial state of the environment on the whole area of MED programme, without any focus on each Member State (« MS »).

The directive requires a precise logic of analysis based on the description of the initial state of the environment, before the adoption of the OP. The objective of the OP is at least to avoid degrading this initial state, by identifying, before its definitive adoption, the potential negative impacts. The logic of environmental European policies encourages promoting the definition of measures allowing to improve this initial state, when it is possible.

In order to respect the logic of this directive, we chose to follow the DPSIR methodology used by the European Environment Agency[15] , that will allow to give a clear picture of the initial state of the environment: in this methodology, the State of the environment (« S ») is the result of positive or negative Pressures (« P ») exerted by all the Drivers (« D »), and Impacting (« I ») the environment. These impacts assume appropriate Responses (« R ») in order to limit negative effects (including cumulative negative impacts) and emphasize the positive effects.

Figure 1 : The DPSIR Framework for Reporting on Environmental Issues



Particular attention will be focused on the analysis of the impacts thanks to a specific grid, in order to give elements to think about, and thus to propose comments on the responses elaborated by the OP and bring recommendations for its improvement. These recommendations could be a corrective action on drivers, on pressures and their intensity, or at least on the mitigation of the impacts.

[14] Food and Agriculture Organisation
[15] http://www.eea.europa.eu/publications/TEC25

This report is based on documents available from the European Environment Agency, ESPON and EUROSTAT programmes, and on the SWOT analyses realized before the elaboration of the OP, and on different specific studies (see the bibliography).

Ref: http://www.eea.europa.eu/publications/environmental-indicator-report-2012/environmental-indicator-report-2012-ecosystem/part1.xhtml#chap1

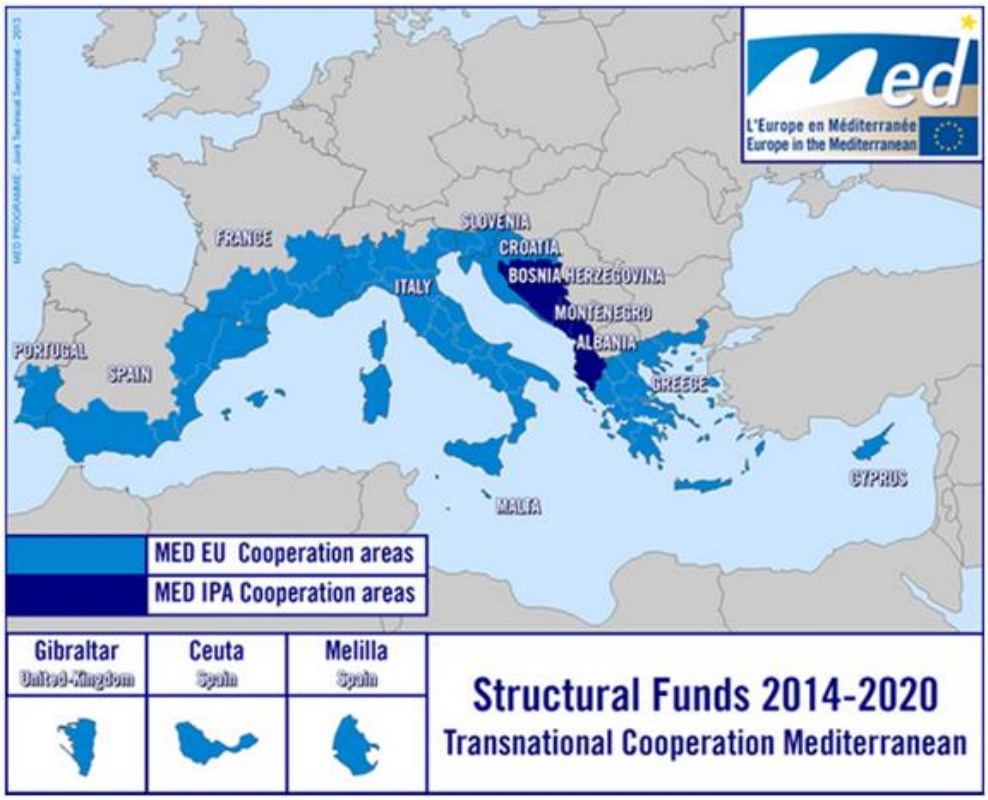
5. Initial status: description of the current environmental situation of the programme area; likely evolution if the programme is not implemented (option 0).

Wide and quite diversified, the MED programme area presents a considerable heterogeneity. Nevertheless, the different regions members of the programme also present common characteristics, making the MED area a specific territory regarding other European regions.

The analysis of drivers and pressures that determine the initial environmental status of this area must then focus on these common characteristics, in order to highlight the main components of vigilance on the territory ; it will then target particular elements that represent weaknesses for the area.

5.1 Geographical framework and scope of the analysis.

The area of the MED programme is quite large; it extends from the Atlantic Ocean with the Portuguese regions of the programme (Algarve, Alentejo and the region of Lisbon) to mid-eastern borders of the Mediterranean with Cyprus. This area represents more than 25% of the European Union superficies.



Regions members of the MED programme

Cyprus: the entire country
Croatia: the entire country
Spain: 6 autonomous regions - Andalusia, Aragon, Catalonia, Balearic islands, Murcia, Valencia - and the two autonomous cities - Ceuta and Melilla.
France: 5 regions - Corse, Languedoc-Roussillon, Midi-Pyrénées, Provence Alpes Côte d'Azur, Rhône-Alpes
Greece: the entire country
Italy: 19 regions : Abruzzo, Apulia, Basilicata, Calabria, Campania, Emilia-Romagna, Friuli-Venezia Giulia, Lazio, Liguria, Lombardy, Marche, Molise, Piedmonte, Sardinia, Sicily, Tuscany, Umbria, Valle D'Aoste, Veneto.
Malta: the entire country
Portugal: 3 regions: Algarve, Alentejo, Lisbon
United-Kingdom: 1 region of the economic Programme - Gibraltar
Slovenia: the entire programme

Montenegro: the entire country (participating with the European funds of the IPA)
Albania: the entire country (participating with the European funds of the IPA)
Bosnia-Herzegovina: the entire country (participating with the European funds of the IPA)

The area of the programme presents quite diversified **natural, physical and geographical characteristics**:

- A coastline of more than 15 000 kilometres, including the north shore of the Mediterranean Sea, but also a small part of the Atlantic coastline with the Portuguese regions.
- High mountains areas (Alps, Pyrenees, Pindos, etc.).
- Huge areas of fertile plains, with intensive culture system.
- Areas dedicated to extensive breeding.
- Entire countries such as: Malta, Greece, Slovenia, Croatia or Cyprus, as well as associated States (acceding, candidates or potential candidates: Albania, Bosnia Herzegovina, Montenegro).
- Regional areas from bigger States such as Baleares, Corsica, Gibraltar, Portuguese and Italian regions.

In terms of demographic and economic components, the MED area presents quite heterogeneous situations.
In spite of this diversity, this territory presents a kind of unity on numerous aspects, making the MED area a specific territory regarding other European regions.

These common characteristics are what we can call the main « drivers » of the territory.

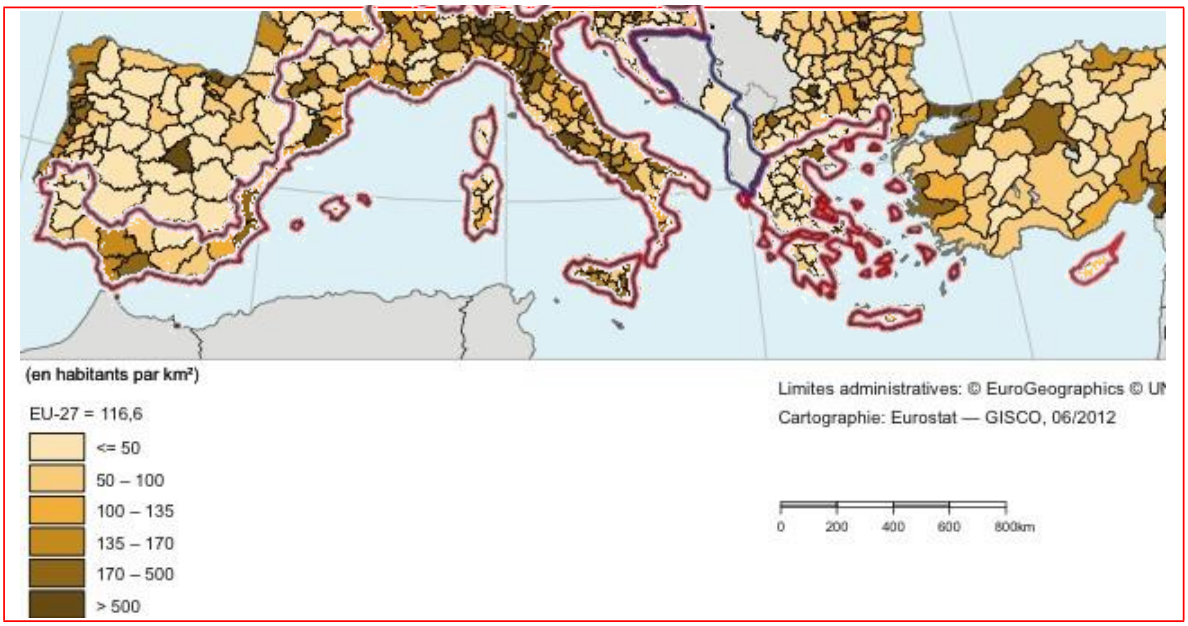
5.2 The drivers of the MED area

5.2.1 Demographical aspects

The MED area is an attractive area, with a very mixed density, and is composed of quite populated urban areas, sparsely populated rural areas, had-to-access areas, and nerve centres of the European economy, quite well equipped.
The concentration of population alongside the coastline is particularly high in the Western Mediterranean, on the West coast of the Adriatic Sea, alongside the Eastern coast and the coast of the Aegean-Levantine Sea.
Regarding the general repartition of the population, the number of coastal cities of more than a million of inhabitants is higher in the West Mediterranean basin, and on the coast of the Levantine basin[16].

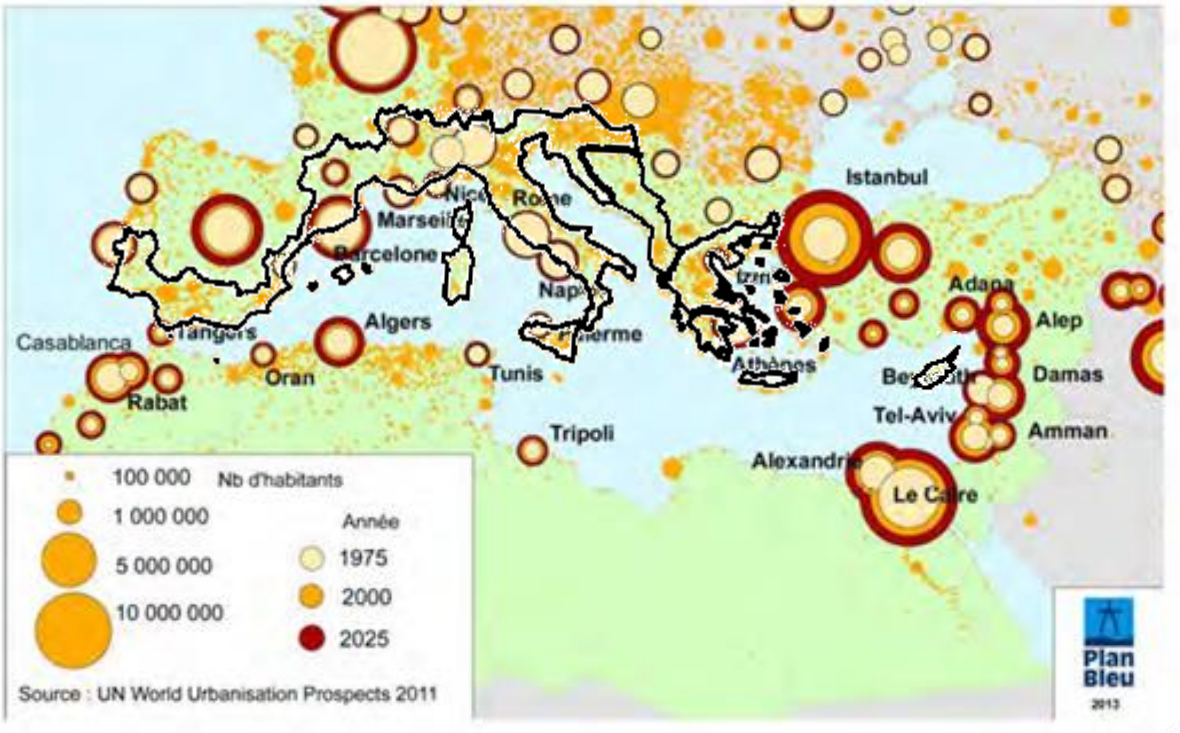
[16] Eastern part of the Mediterranean Sea

Density of population in the MED area



In absolute terms, the growth of population remains quite high, above all in urban centres, and the impacts on the environment may increase as the population of cities and coastal areas will keep growing.

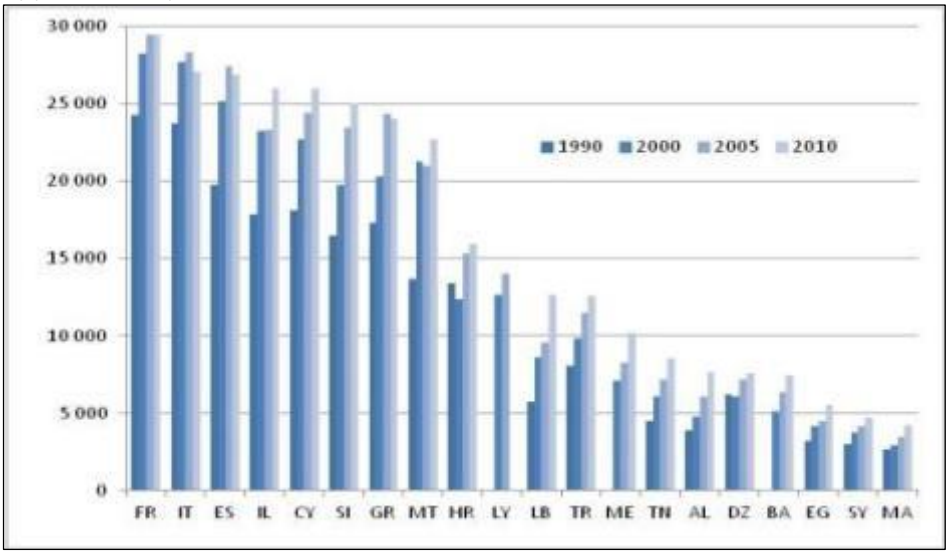
Distribution and growth of the population in urban centres or near coastal zones, in the Mediterranean area, 2011 (Blue plan)



5.2.2 Main economic activities

Introduction:

The following graph presents the Gross Domestic Product per capita in Mediterranean countries (South and East Mediterranean) (source UNDP)



The GDP is the value of all goods and services produced in a country in a year. The GDP can be calculated by adding up all the items of income – salaries, interests, profits and rents – or by calculating the expenditure – consumption, investment, public purchases, net exports, (exports less imports) – of an economy. Although insufficient to measure the development level of the countries, the GDP per capita remains an unavoidable indicator for comparing economic situations in terms of income.

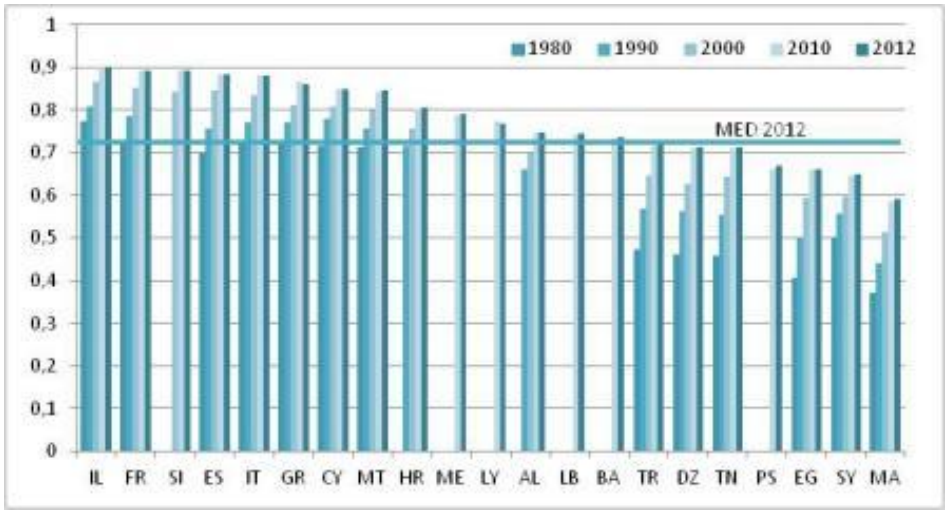
The share of the Mediterranean GDP in the world GDP has slightly decreased during 15 years, from more than 13.5% in 1990 to 11.5% in 2010. Meanwhile, the Mediterranean population remains constant in the world population (about 7%).

Along the GDP, the **human development index** (HDI) with its three components (health, education and income) enables us to identify and understand the social component of sustainable development.

The Human Development Index (HDI) is a composite index, developed by the UNDP, which measures the evolution of a country according to three basic criteria:

- Health and longevity, measured by life expectancy at birth.
- Knowledge and education, measured by the adult literacy rate (with two-thirds weight) and the combined primary, secondary and tertiary gross enrolment ratio (with one-third weight).
- Standard of living, indicated by GDP per capita (in US dollars).

The following graph presents the human development index of Mediterranean countries (including South and East Mediterranean) between 1980 and 2012 (Source UNDP).



The human development index has been constantly making progressed in the Mediterranean countries since 1980. With an average HDI of 0.767 in 2012, **the Mediterranean region was above the world average** of 0.694.

Main economic activities

Human economic activities have an impact on the structure and function of natural ecosystems and on the many services provided by these ecosystems such as recreation, climate regulation and provision of natural resources, either living, such as fish and molluscs, or non-renewable, such as oil and gas and minerals. Coastal areas and their landscapes, in particular, face significant pressures from heavy concentrations of population and economic activities. As the coastal population grows and urbanises, natural coastal habitats and landscapes get further fragmented, the land use changes towards more anthropogenic with the corresponding change in the landscapes leading to decreasing integrity of coastal landscapes and ecosystems.

Tourism

Tourism is a vital part of the Mediterranean economy, which has gradually been generalised during the XXth century, and an extremely important source of employment and foreign currency for all the states bordering the Mediterranean Sea. The amenities and recreational opportunities for tourism provided by the Mediterranean's marine and coastal ecosystems form the foundation for more than 68% of the total value of economic benefits provided by these ecosystems and about 17% of total international tourist spending.

International tourism is an important sector of economic development in the Mediterranean region, classified as the first tourist region worldwide. By providing currency exchange contribution and the induced cultural exchanges, it will be a factor contributing to sustainable development if the impact on the environment is minimized and the wealth that it brings is well spread.

Between 1995 and 2008 most of the Mediterranean countries experienced an overall increase in international tourism receipts; followed by a decline in 2009 that continues en 2010. However, when one compares these receipts to GDP, the situations are various.

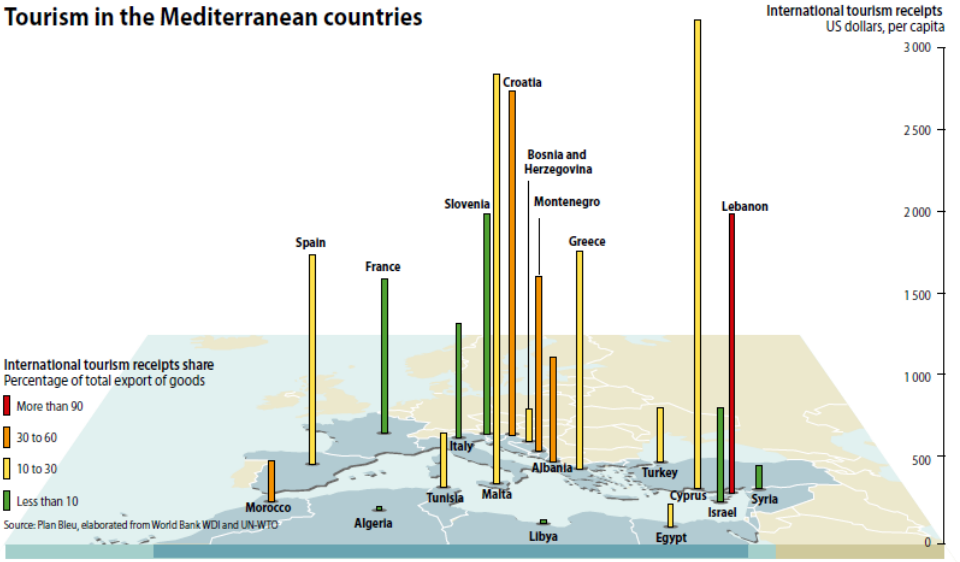
In the EU Mediterranean countries (ES, FR, IT and GR), this decrease in international tourism receipts has continued even in percent of GDP. The island-States (CY and MT), very much dependent on tourism, with receipts equal respectively to 22% and 23% of GDP in 1995, have had a significant drop in receipts before getting stabilized which is respectively around 10% and 15% in 2010.

The Balkan countries have had a great increase in receipts and their situation now is comparable with that of the 1970's. In Croatia, receipts reached 14% of GDP in 2010.

Within the MED area, receipts from international tourism represent about 5% of the total value of global exports of goods and services

The receipts per capita cover a wide range: receipts could be over 1000 dollars, reaching 2200 dollars in Cyprus and more than 3000 dollars in Malta.

The bulk of the tourists are of European origin (81.1% in 2010).



Mediterranean flows of tourists concentrate on coasts, for three quarters of them, and the "seaside" formula plays a capital role in almost all coastline countries. These destinations can be split into three groups: the seaside resorts "Sea, Sand and Sun" which propose an international standardized product, the "3S" resorts which are articulated with local specificities, and finally cities of character which propose a particular touristic product which valorises local specificities and heritage.
Finally, the Mediterranean touristic sector is by far dominated by small and medium enterprises.

Agriculture and fishery

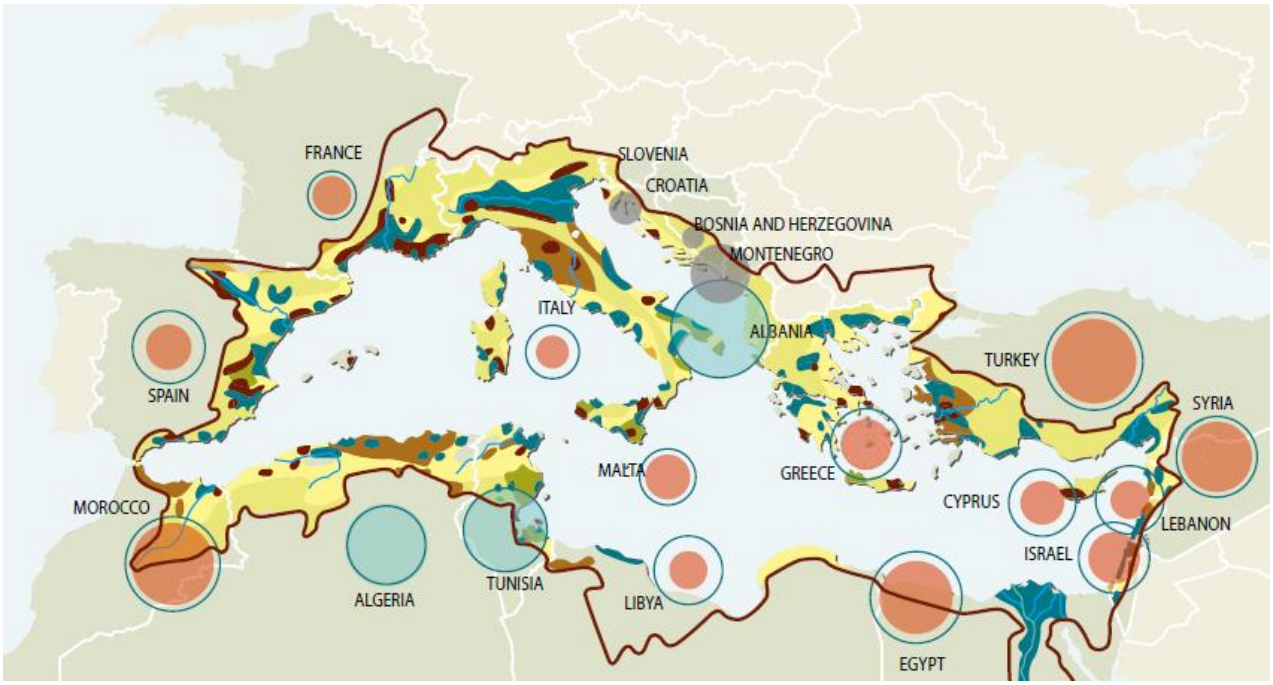
In the Mediterranean countries, agricultural populations are continuing to decline. In the northern Mediterranean countries, the rural and agricultural populations are falling down, especially the agricultural population. In France, for instance, the agricultural population went down from 10 million in 1961 to 1.2 million in 2012.The active agricultural population has fallen to a very low level (below 10% of the active population) in the MED countries (except in Greece 11%).

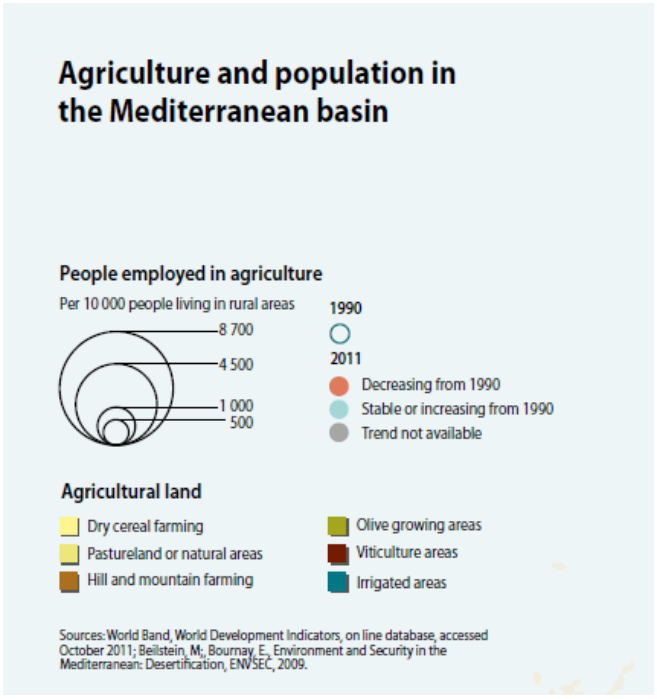
Regarding the production, and despite many different sub-climates, agriculture is mainly rain-fed, but does not exclude frequent use of irrigation (vegetables farms or fruit trees). Cultivation of other products, such as olives for olive oil and grapes for wine (perennial plants), occupies a significant amount of agricultural land. Cereals, vegetables, and citrus fruits account for over 85% of the Mediterranean's total agricultural production.

All agrarian systems faced the "modern era" choc: irrigated systems have, generally speaking, well succeeded into intensifying and spreading; but rain fed systems have not responded that well. On the northern Mediterranean shore, a transitory phase of overexploitation occurred frequently (for example in the XIXth century Mediterranean France); then a phase of abandonment often took place, sometimes in a large way.

Production of vegetables, cereals, and citrus fruits has increased to between 2.5 and 5 times the production levels of the 1960's. The total surface area of cultivated land in the Mediterranean Basin, however, has remained approximately stable over this period. The increase results from intensified production through greater use of irrigation (approximately 20 million hectares in 1960, rising to 38 million hectares in 1999).
Besides rain-fed or irrigated cultivation, other common agricultural land uses in the Mediterranean Basin are pasture, animal feed- lots, dairy farming, and orchards.
Aquaculture is also practised.

Agriculture and population of the Mediterranean basin (Blue plan source**)**





The rise in agricultural added value from the development, acknowledgement and marketing of top quality Mediterranean products is a real challenge for agriculture in the region.

The agriculture quality product is not sufficiently referenced in the Mediterranean countries, but the proportion of agricultural land used by organic farming is at least an indicator of the high quality development production.

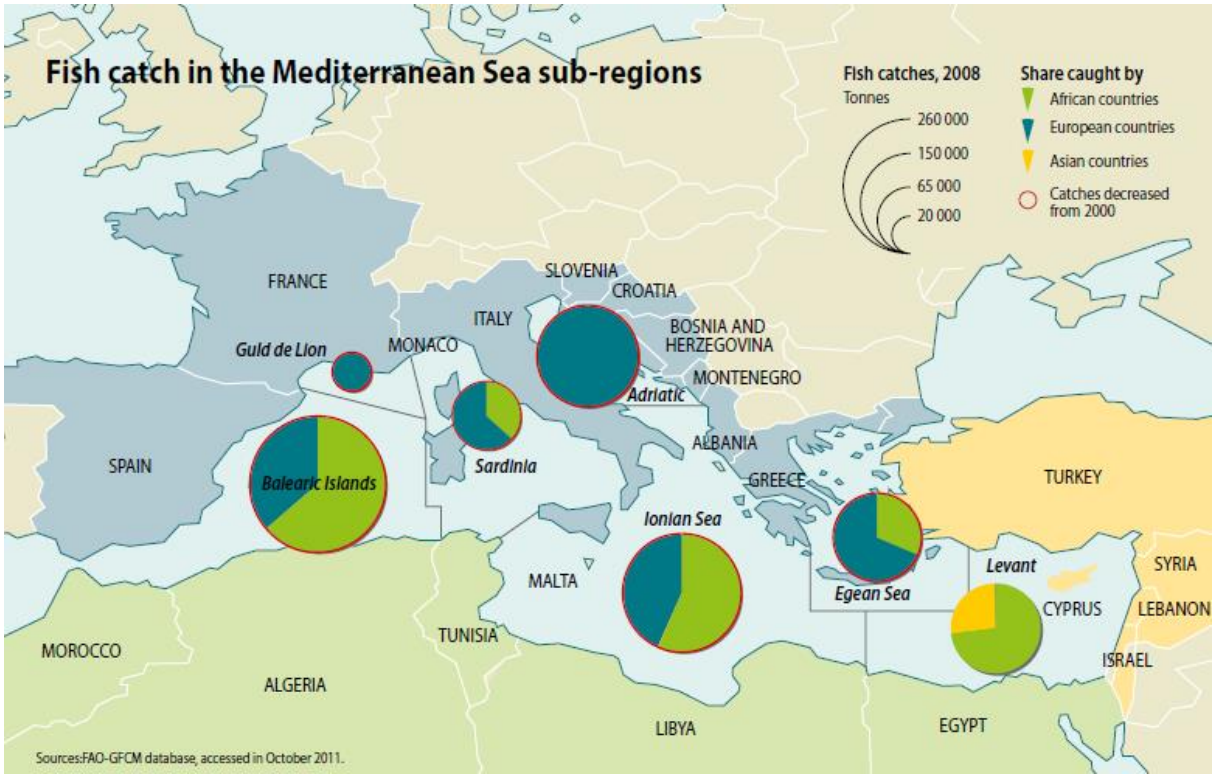
Organic farming is experiencing an unprecedented boom in the Mediterranean but only covers a small percentage of the agricultural land in 2011 (2.4%).

Except in Italy, Slovenia and Spain where organic farming represents respectively 8.7, 6.6 and 6.6% of agricultural land, it concerns between 3 and 4% in Greece and France, between 2 and 3% in Croatia, Cyprus and Egypt less than 2% in the other countries.

Spain and Italy, situated in the first positions in Europe for its organic farming, ranked respectively 19th and 23rd worldwide in terms of the proportion of land used for organic farming.

Fishing is an important issue for the Mediterranean Sea. Although it puts only a relatively small quantity of produce on the market compared with the demand, it is a significant source of employment and an important component of the Mediterranean cultural identity. The sustainability of fish resources (and, consequently, of fishing) is favoured by the diversity of water depths and by the presence of many refuge zones for spawning, two factors that can increase the resilience of fish populations to pressures. The exceptionally high proportion of small-scale operators engaged in commercial fishing is also an advantage in terms of sustainability. Small-scale inshore fishing operations target commercially valuable fish, have a high ratio of jobs created to the quantity of fish landed and are much more selective in

their catch than large-scale industrial fishing (trawl nets in particular). The percentage of the total catch that is from inshore fishing varies among countries pays (ex: 58% for Cyprus, 56% for Greece, 41% for Italy and 10% for Slovenia). Recreational fishing accounts for 10% of the total catch.



5.2.3 Main industrial activities

The lack of major iron and, especially, coal reserves within the Mediterranean Basin influenced the industrial development path of the MED area. Steel production has been concentrated in the north (Italy, France, Spain and Greece). Other mining activity focused on mercury (Spain), lead, salt, bauxite (Bosnia and Herzegovina, Croatia, France, Greece, Slovenia and Montenegro) and zinc (Spain).

The existence of oil and gas reserves located in South Mediterranean countries motivates the presence of more than 40 refineries and petrochemical installations around the Mediterranean. They produce ammonia, methanol, urea, ethylene, naphtha, propylene, butane, butadiene, aromatics, and other industrial chemicals.

In addition to the mining, petrochemical, and metallurgy sectors, a highly diverse industrial manufacturing sector includes the manufacture of foods, textiles, leather, paper, cement, and chemicals, including fertilisers. However, the geographical distribution of industrial activities in the Mediterranean Basin is uneven, with most industry concentrated in the northwest, particularly in Italy, France, and Spain. The environmental pressures on the Mediterranean coastal marine environment generated by this broad range of industrial activities are multiple and varied, including the use of territory and natural resources (both marine and non-marine), the generation of waste and the release of pollutants into the atmosphere and water bodies.

5.2.4 Strategies of energy production and consumption

Evolution of energy intensity

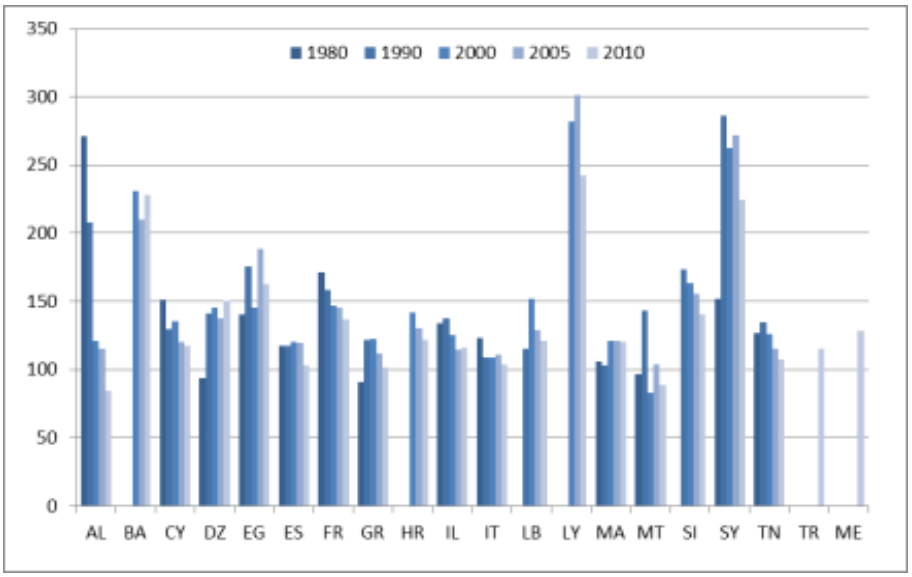
Energy intensity, both in total and from each activity sector, is the ratio of final commercial energy (energy being sold) consumption per GDP unit/year. It can be broken down into sectors: agriculture, industry, services, transport and households (residential).

It is linked to energy consumption allowing producing GDP (expressed in dollars).

Within the MED area, a more efficient energy use (energy necessary to produce 1000 dollars of GDP) should help to decouple energy consumption and economic development.

In 2008, the energy intensity of the Mediterranean countries reaches the European average (123 koe[17]/1000 dollars) and below the world average (183). However, disparities between the countries remain great, even between some countries with equivalent income levels. Energy intensity in Bosnia-Herzegovina is over 200 while it is lower than 100 in Albania and Malta.

The following graph presents the **evolution of energy intensity** 1980-2010 in koe/1000 dollars (source IEA)



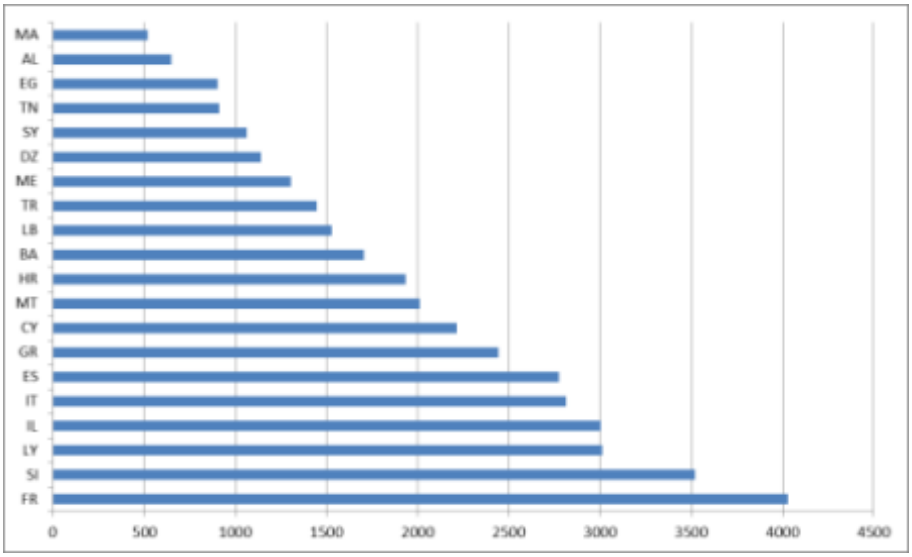
In the framework of the Mediterranean Strategy for Sustainable Development (MSSD[18]), the objective proposed for all of the Mediterranean countries was to reduce the intensity of energy by 1 to 2% per annum per GDP unit by 2015.

In the MED area, gains in energy intensity, if sufficient, could also result in a slower growth of energy consumption per capita. But consumption is still high in the European Mediterranean countries (3550 koe/cap) and even 4280 koe/cap in France.

[17] Koe = kilo of equivalent oil

[18] Adopted in 2005 by the contracting Parties to the Barcelona Convention

The following graph shows the **energy use per capita** in 2010, in koe per capita hab (source: IEA)



Share of renewable energies in energy balance

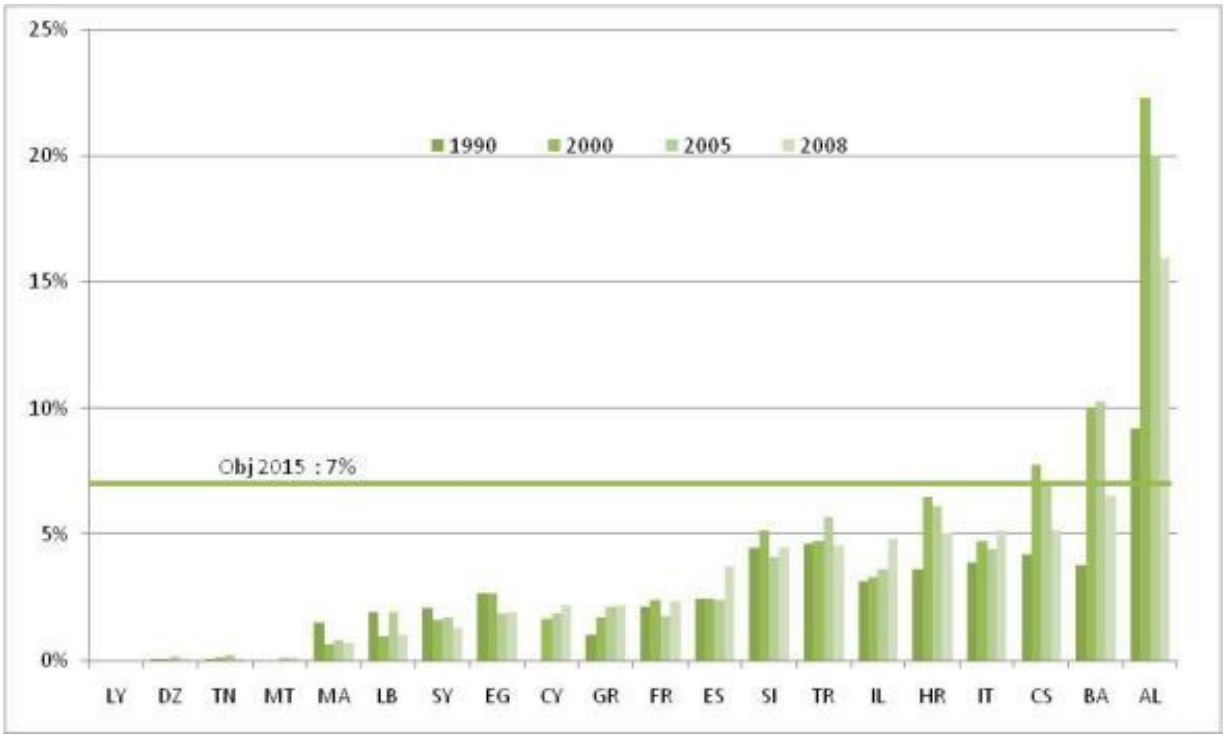
The objective announced in the MSSD was to explore the potential of renewable energy (RE) to meet 7%, excluding biomass, of the energy demand by 2015.

The share of RE in the primary commercial energy balance sheets is not increasing enough sufficiently. A sharp break in the current trends would be necessary to reach the objective of 7% by 2015.

Nevertheless, renewable energy production is making substantial progress in volume. RE represents about 3.2% of the total primary energy supply in the Mediterranean countries (Same figure in 2000). At a global level, renewable energy, excluding biomass, represents 3% of the total primary energy supply (6% biomass included).

The distribution of RE in the Mediterranean is 59% for hydraulic energy, 20% for geothermal energy and the rest 21% concerns solar, wind and other types of energy. During 1995 to 2008 in the Mediterranean, RE has been increasing with an average growth rate of +2.2%, slightly higher than the total primary energy supply (TPES) (2%).

The following graph represents the **part of renewable energies in total primary energy supply** (source: IEA)

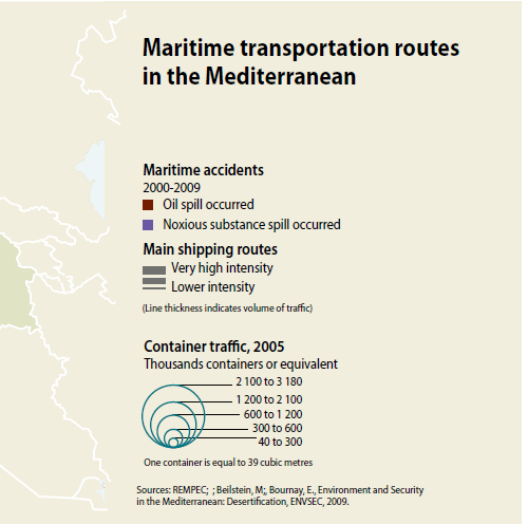


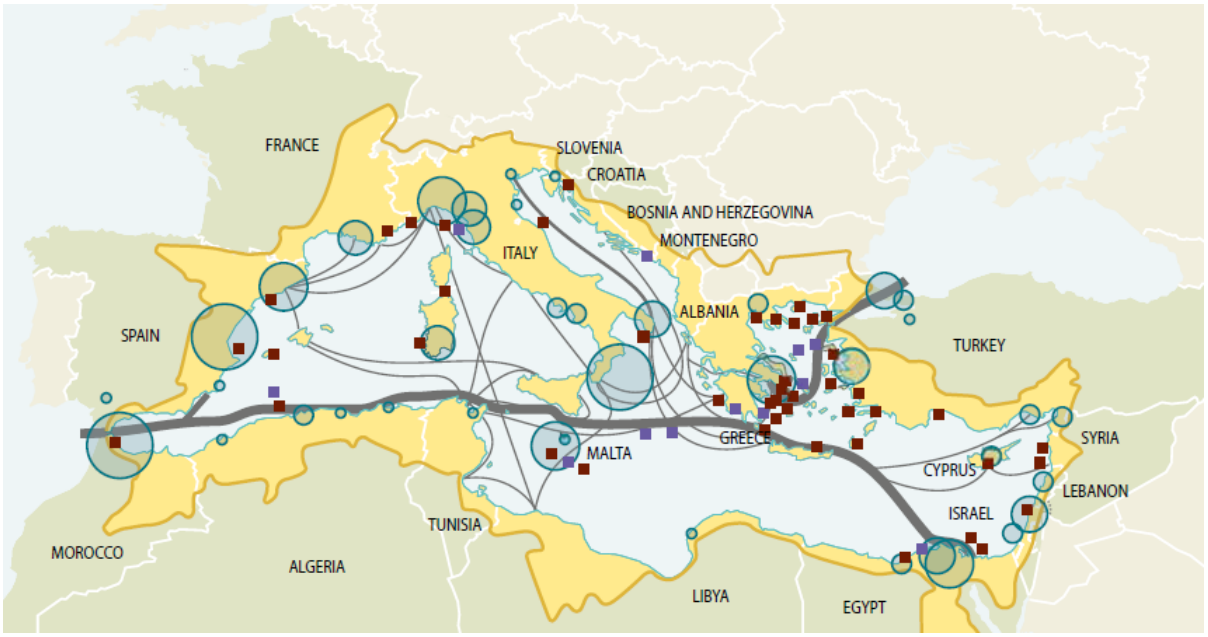
Regarding the total primary energy supplies, and for several decades, the share of coal has remained stable, nuclear energy has also stabilised and gas energy has been rising sharply meet de demand of petrol.
Generally speaking, fossil energy (petrol, coal and gas) dominated the energy supply in 2008 in the MED area with 72% of consumption. The rest was mainly made up with nuclear electricity (20%).

5.2.5 Transport

Maritime transport

Another strong traditional economic sector in the Mediterranean is transport, specifically maritime transport. The Mediterranean Sea is among the world's busiest waterways, accounting for 15% of global shipping activity by number of calls and 10% by vessel deadweight tonnes (dwt). More than 325.000 voyages occurred in the Mediterranean Sea in 2007, representing a capacity of 3.800 million tonnes. Almost two-thirds of the traffic was internal (Mediterranean to Mediterranean), one-quarter was semi-transit voyages of ships mainly of small size. The remainder was transit voyages, mainly by large vessels travelling between non-Mediterranean ports through the Mediterranean's various straits: the Straits of Gibraltar, the Straits of the Dardanelles, and the Suez Canal.





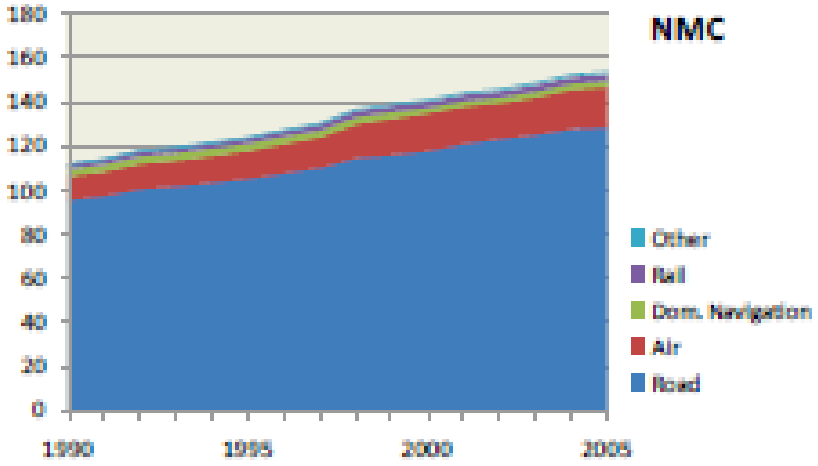
During the last ten years, merchant vessels operating within and through the Mediterranean have been getting larger and carrying more trade in larger parcels. Vessels transiting the Mediterranean average 50.000 dwt and are, on average, more than three times larger than those operating within the Mediterranean. Transit densities, measured in terms of ship voyages, are dominated by high-frequency, small-size intra-Mediterranean passenger traffic. However, the majority of trade, including petroleum oils and gases, is concentrated in larger vessels sailing less frequently.
The major axis, which sees 90% of total oil traffic, is from east to west, connecting the eastern passages of the Straits of the Dardanelles and the Suez Canal with the Straits of Gibraltar. This axis passes between Sicily and Malta and closely follows

the coasts of Tunisia, Algeria and Morocco. Traffic branches off as it moves westward to unloading terminals in Greece, the northern Adriatic, the Gulf of Genoa and near Marseilles.

Other modes of transport

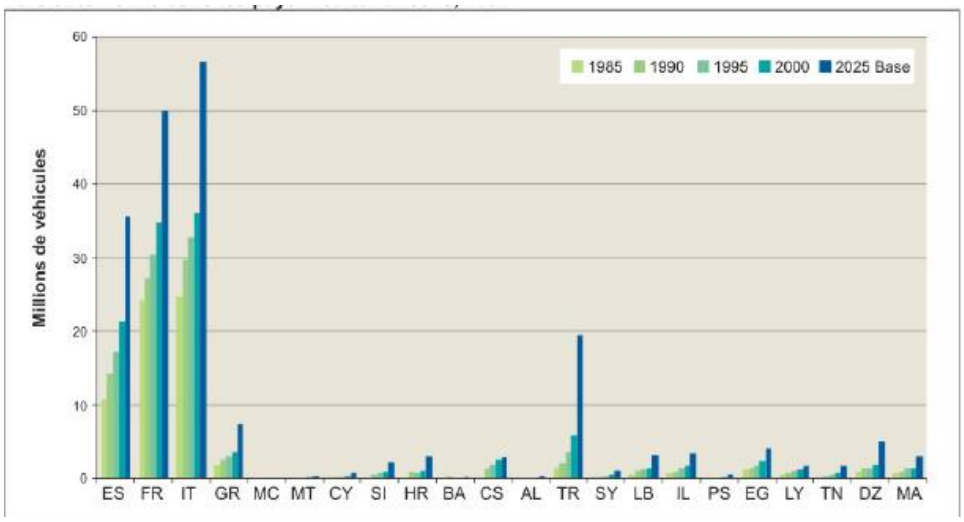
Despite the calls prompting a shift to low-fuel consumption transport modes contained in the sustainable development strategies, road and air transport have reported a steady growth since the 1990's.

Energy use per transportation mode in Northern Mediterranean countries, 1990-2005, Mtoe (source IEA**)**



In 2005, **surface transport remained largely dominated by road transport** which accounted for 98% of the final energy consumption of the sector. If road transport accounts for most of the increase in the final energy consumption of the transport sector, this is largely due to the increase in the use of the private car. The rate of car ownership continues to rise. The car has become a functional need for households.

The following graph presents the evolution of the number of cars in MED countries (Source motorsat**)**



Rail transport -largely absent in the Mediterranean area- is just stabilizing.

Air transport saw an accelerated growth since 1990, and energy consumption of this mode increased by 70%. These developments result from two concurrent phenomena: the number of passengers and the volume of goods carried continue to increase as well as the average route length. In the meantime, there have been significant technical advances with respect to consumption per passenger or ton carried (down from 8 litres of fuel for 100 km per passengers on

average to 5 litres in 2005), notably due to the commercialisation large carriers and enhanced engines. However, these technological advances have not been able to compensate the high increase in the use of this transport mode. As to the final energy consumption of inland navigation, it has decreased by 4% over the period 1990-2005.

5.2.6 Remarkable Cultural heritage

The term "cultural heritage" includes tangible cultural assets such as buildings, monuments, landscapes, books, works of art, and artefacts, intangible cultural assets such as folklore, traditions, language, and knowledge, and natural heritage including culturally-significant landscapes, and biodiversity.

The unique and recognizable Mediterranean coastal landscapes are the result of centuries of interplay among the diverse natural characteristics of the Mediterranean region and the equally diverse human activities, both past and present. The Mediterranean countryside is characterised by terraced slopes built for the mixed cultivation of vegetables, herbs, grains, grapes, olives, and fruit trees. Forests or small patches of forest also play an important visual, biological, and climatic role in the landscapes, even though forest is relatively scarce. Increasingly, mixed cultivation crops are being replaced by intensive plantations, and the traditional terrace pattern on the slopes is being displaced by the modern arrangement of large, dense farmlands in the flat areas. The terrace pattern remains, however, until natural vegetation gradually overgrows the terraces.
Mediterranean cultural landscapes are also shaped by human activity, above all by architecture and urbanisation. The locations of traditional settlements were influenced mainly by climate and were largely contiguous along large parts of the Mediterranean coast. Currently, the settlement pattern is shifting from contiguous settlements to dispersed sprawl around major towns.

The historical cities in all countries and regions of the Mediterranean each have their own unique cultural heritages, which are precious treasures.
Historically, it was an important route for merchants and travellers of ancient times that allowed for trade and cultural exchange between emergent peoples of the region, such as the Mesopotamian, Egyptian, Phoenician, Carthaginian, Iberian, Greek, Macedonian, Thracian, Levantine, Gallic, Roman, Arabic, Berber, Jewish, Slavic and Turkish cultures. The history of the Mediterranean region is crucial to understanding the origins and development of many modern societies. Many notable civilisations, beginning from Antique Greek Cities, Roman Empire, Byzantine Empire, Arabic Empire and Ottoman have dominated the region and left behind them highly important heritage.

Mediterranean cultural heritage attracts every year millions of tourists (chapter on tourism) and is an essential economic issue justifying its preservation. But the preservation of cultural heritage is a difficult and complex process. Maintaining the balance between "usage" and "preservation" between "public" and "private" interests is not a simple task. Conserving, preserving and attributing usage functions of cultural assets require a meticulous, multi-disciplinary and coordinated approach.

5.3 Pressures on the environment

Increase of population on coastal area, urbanization, increase of maritime transport, natural resources exploitation and tourism are the main factor resulting in pressures for the MED area.

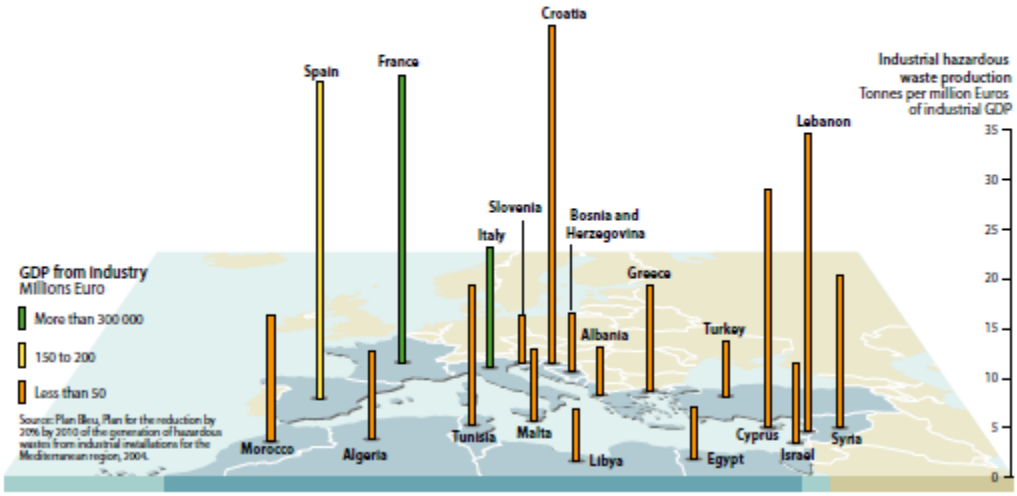
5.3.1 Gas emission and industrial waste

The MED area regions are affected on a large scale by chemical pollution, caused by the spills of toxic substances from different localized sources: wide coastal urban areas, industries along rivers and the coast, maritime transport.
The study of the substances released by the different industrial sectors together with their hazardous nature allowed identifying the following as the most polluting types of industry.

- Energy production
- Metal industry
- Manufacture of cement
- Oil refining
- Treatment of urban wastewater
- Chemical industry
- Manufacture of fertilizers.

Industry is frequently located along the regions coasts in areas with high population density, sometimes within urban centres, and often in close proximity to other economic activities like agriculture and tourism. This means that pressures brought by industry to coastal and marine environments add to and interact with other types of pressures. The environmental pressures on the Mediterranean coastal marine environment generated by this broad range of industrial activities are multiple and varied, including the use of territory and natural resources (both marine and non-marine), the generation of waste and the release of pollutants into the atmosphere and water bodies.

Industrial hazardous waste in the Mediterranean countries



Greenhouse gas emissions

Not all Mediterranean countries have the same commitments under the Kyoto Protocol. These 7 countries were officially committed to reduce or control their emissions by 2012, compared to 1990 emissions: Croatia (-5%), Slovenia (-8%), Portugal (+27%), Italy (-6.5%), France (stabilisation), Spain (+15%) and Greece (+25%). Furthermore, for the "post-

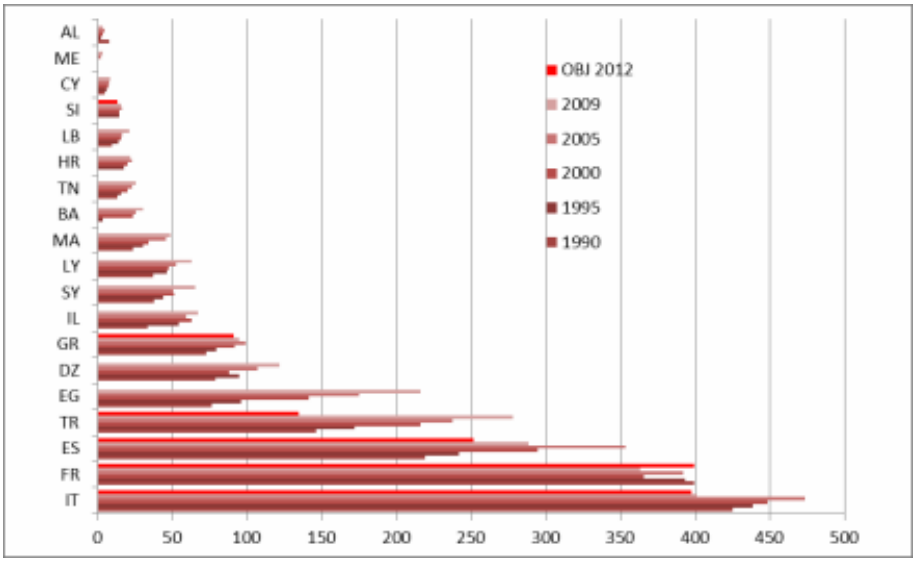
2012" period, the EU-27 committed to reduce by 20% its CO_2 emissions by 2020.

The Mediterranean countries with no quantified commitment under the Kyoto Protocol nevertheless committed themselves to control their GHG emissions with respect to the Climate Convention and Kyoto Protocol. They can use eligible projects under the Clean Development Mechanism or specific funding as those of the Global Environment Facility.

CO_2 emissions from fossil fuel continue to rise in most Mediterranean countries. The rise in CO_2 emissions between 1990 and 2009 was higher than the national objectives in all of the countries except France.

The CO_2 emissions from energy have decreased in 2 countries (France, Albania).

In 2009, one Mediterranean citizen emitted an average of 4.7 tonnes of CO_2 per year, that is equivalent to the world average, but two-thirds of the emission of a EU-27 inhabitant (7.2 tonnes) and almost 3.7 times less than a USA inhabitant (17.3 tonnes of CO_2 per annum). The CO_2 emissions per capita are extremely diverse: from 0.9 tonne per capita in Albania to 8.4 in Greece in 2009.



CO_2 emissions (from fossil fuel), in Mt of CO_2 (Source: WRI)

Tourism[19] and freight contribute also to CO_2 emissions, mostly through increased use of air and road transportation. Regarding tourism in particular, emissions due to transportation toward destination places are averagely much higher than those related to hosting or to on-place activities.

5.3.2 Land use and artificialisation

All of these activities have environmental implications: Fertilising, application of pesticides, manure spreading, and cattle breeding feed nutrients (nitrates and phosphates), pesticides, and pathogens into the system. Surficial run-off, sediment transport, and leaching carry them into rivers, ground water, lakes, wetlands, and, ultimately, into the sea.

Especially in the drier parts of the Mediterranean Basin, agricultural production relies on the use, and sometimes over-use, of areas with good soil and adequate rainfall or irrigation water. The need to produce enough food drives over-extension of crops onto marginal land, easily degraded due to irregular rainfall and fragile soils on erosion-prone slopes. This leads to soil erosion, destruction of the woody and herbaceous cover, and a reduction in optimal grazing areas.

The major direct pressure from coastal tourism on the marine and coastal environment is the demand for space, both in the coastal zone, resulting mainly in urbanisation, and on the coastline itself, through construction of marinas and other infrastructure that leads to concretisation of the shores. The concentration of tourism within specific geographical areas and limited time periods increases pressure on natural resources such as fresh water and leads to higher rates of sewage and solid waste production.

[19] It 2000 (at global level), the historical contribution of tourism into radiative forcing was estimated from 4 to 10%.

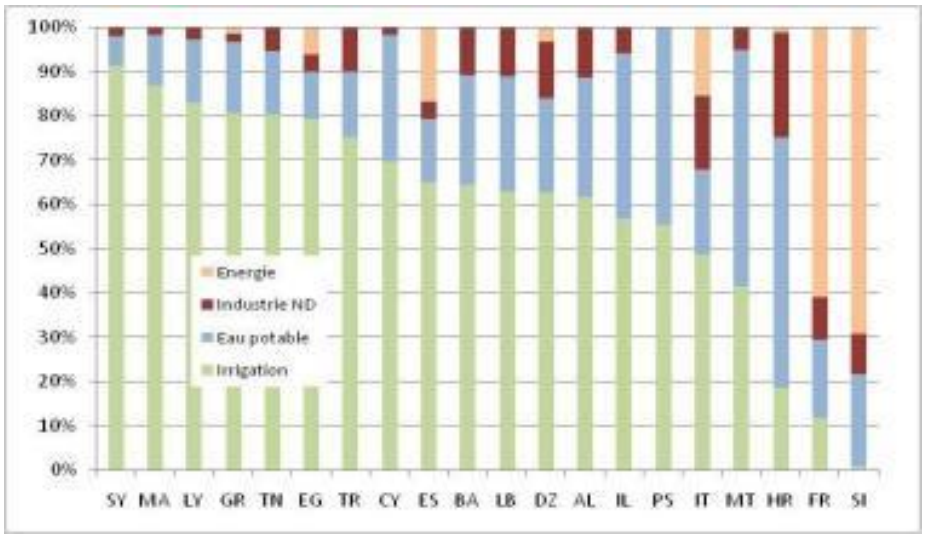
More generally, land urbanisation (buildings and infrastructure) have a negative impact on its ecological coherence, as it can break ecological continuities such as corridors. Soils sealing can disturb the flow and infiltration of rainwater, with increasing runoff; the whole environmental hydraulic system is artificialised, with increasing risks of flooding and erosion.

5.3.3. Pressure on water

Around the Mediterranean Sea in the MED area, alluvial and coastal plains are few and not extensive. The coastal lowlands are particularly vulnerable to climate change, which can affect hydrology, sea levels and ecosystems. Agricultural irrigation and population growth are also reducing the flow of fresh water in the rivers that feed the Mediterranean's alluvial plains. In most Mediterranean countries with an erratic rainfall pattern, many of the available sources of water have already been developed or are currently being developed Already, all major rivers flowing into the Mediterranean have had much of their flows diverted to agriculture and other uses over the past 40 years, resulting in a 20% reduction in freshwater inflow into the Mediterranean.

Better water demand management, especially for agriculture, is one of the priority actions recommended by the Mediterranean Strategy for Sustainable Development. Total water demand is defined as the sum of the volume of water mobilised to meet the various uses, including the quantities lost in production, transport and use of water.

It corresponds to the sum of water withdrawals, of non-conventional production (desalination, reuse of water, etc.) and of imports less exports. Water demand in relation to GDP of each activity sector corresponds to the demand for water used divided by the value added in the same sector (agriculture, industry).



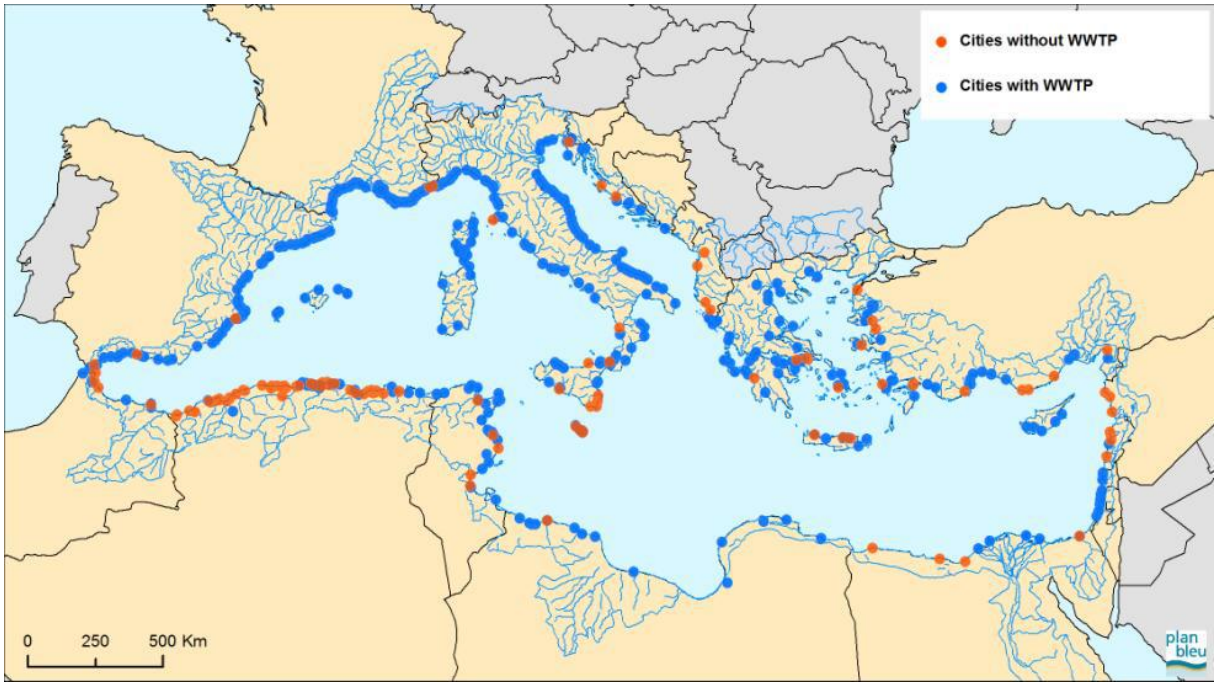
The following graph shows water demands per sector in relation to GDP 2005-2010 (source Blue plan)

Overall, the evolution in water demand is alarming in the Mediterranean countries because this resource is often scarce. The share of water for agriculture remains high, often higher than 50% in most countries.

Beyond water demand, the pressure on this resource can be analysed with access to sanitation system, as it has a likely effect on land-based sources pollution of coastal water. 69% of the Mediterranean coastal cities of more than 10 000 inhabitants are connected to waste water treatment plants, 21% do not have one, while 6% with one currently under construction and 4% have one that is out of service for various reasons. 15% of the Mediterranean waste water treatment plants use tertiary treatment, 55% secondary treatment and 18% primary treatment.

Only five countries have a considerable number of connected cities (Cyprus, France, Spain, Slovenia and Croatia).

Coastal cities (> 10 000 inhabitants) with or without waste water treatment plants (2009)



Shortages and drought

According to the Blue Plan analysis, structural shortage water situations should remain concentrated in a few regions or basins, where current situation could be exacerbated. This evolution would be due to the depletion of the natural resources, more than the increasing of demands.

Indeed, the evolution of the future demand should decrease, with regard to the current situation (previous chapter), without considering local effects of urbanization and the incidence of drought that would be more frequent and emphasised regarding the needs of irrigated agriculture.

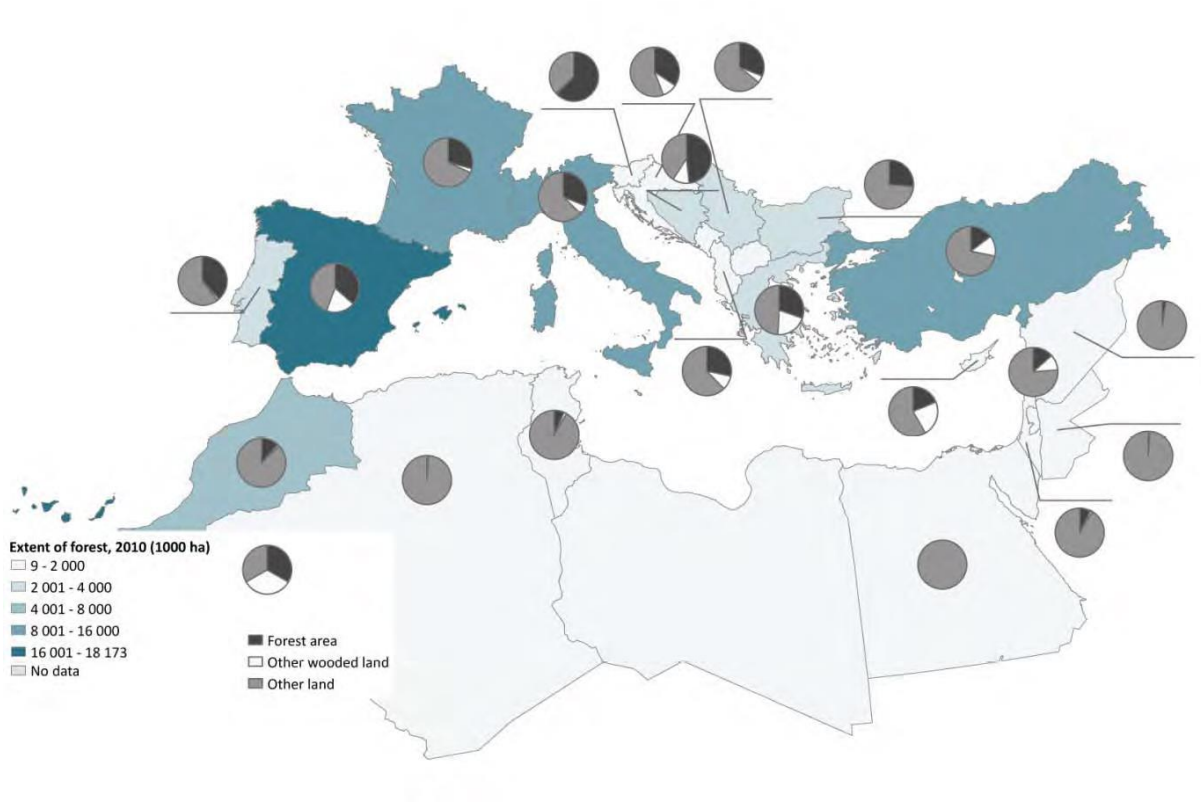
A depletion of resources should be taken into account, generally in the southern countries (South of Spain and Portugal, South of Italy); it would be above all due to an increase of cyclical shortage (drought) and difficulties regarding water management. This depletion is nevertheless quite difficult to quantify.

5.3.4. Pressures on forest

In 2010, the estimated forest area in Mediterranean countries was over 85 million hectares (ha), representing 2% of the world's forest area (4 033 million ha; FAO, 2010b). This forest is distributed unevenly over the Mediterranean basin, with significant differences between countries.

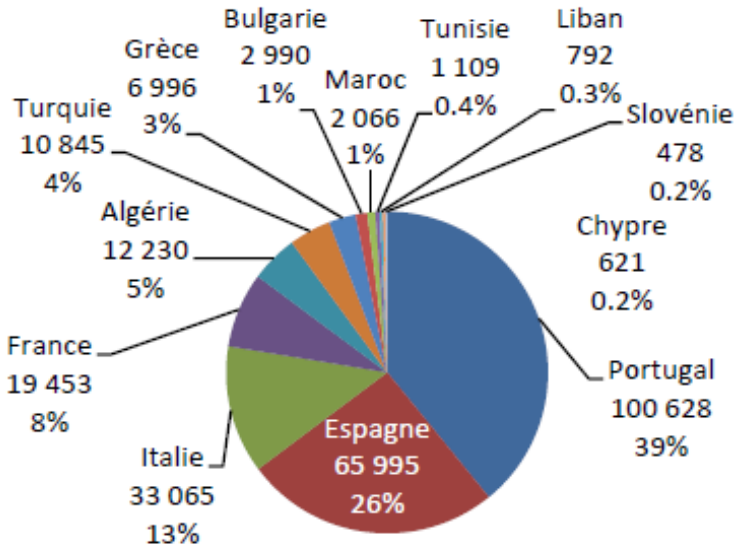
For example, Spain, France and Turkey account for more than 50% of the total forest area. Other wooded lands represent only 4% of the total Mediterranean land area.

Extent of forest area (source FAO)



The Mediterranean forests even if characterised by **low productivity** provide several **important ecosystem services** (carbon sequestration, biodiversity, landscape quality, preservation of water resources and fight against land degradation). Despite their apparent fragility, Mediterranean forest landscapes have been shaped by human activities and have demonstrated for several centuries their strong resilience to changes of anthropogenic origins. However, today they are facing a threat of unprecedented magnitude dominated by **climate change** and **the increase in population** that they will have to adapt to in the coming decades. More than a third of the economic value of Mediterranean forests is linked to the production of wood forest products followed by recreation services, watershed regulation, grazing by cattle and the production of non- wood forest products altogether accounting in similar proportions for half of the remaining economic value.

Fire is a cause of forest degradation in the Mediterranean region. Long time-series of forest fire data are available mainly for France, Greece, Italy, Portugal and Spain, whereas the situation in other Mediterranean countries is often analysed separately because of disparities in the data. The European Forest Fire Information System (EFFIS), established by the Joint Research Centre and the Directorate General for Environment of the European Commission to support fire management in Europe, is the main source of harmonized data on forest fire in Europe.



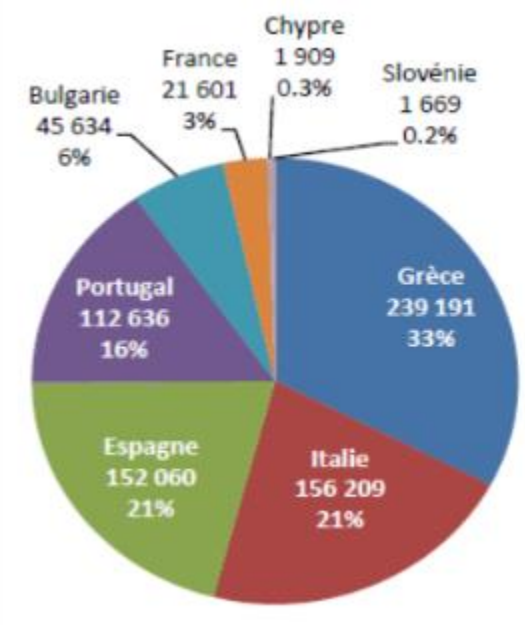
Number of forest fires in Mediterranean countries, for the 206-2010 period (Source: FAO)

For the period 2006-2010, five countries accounted for more than 85% of the total number of fires. More than 269 000 fires were reported in the Mediterranean region in 2006–2010, an average of just under 54 000 per year. Of the total number of fires, 81% occurred in western Mediterranean countries. Portugal reported the highest number of fires, and fire density was highest in Portugal, France, Italy, Cyprus and Spain.

Fire density, Mediterranean region, 2006-2010 (source FAO)

Four countries (Greece, Italy, Portugal, and Spain) accounted for almost 80% of the total burnt area in the period 2006–2010. In total, more than 2 million ha were burnt in the Mediterranean in that period, an average of more than 400 000 ha per year.

Burnt area in Mediterranean countries, 2006-2010 (Source: FAO)



.4 Description of environmental characteristics of the areas likely impacted

The MED programme focuses on the following areas:

- Maritime and coastal areas
- Urban areas.

5.4.1 Air quality

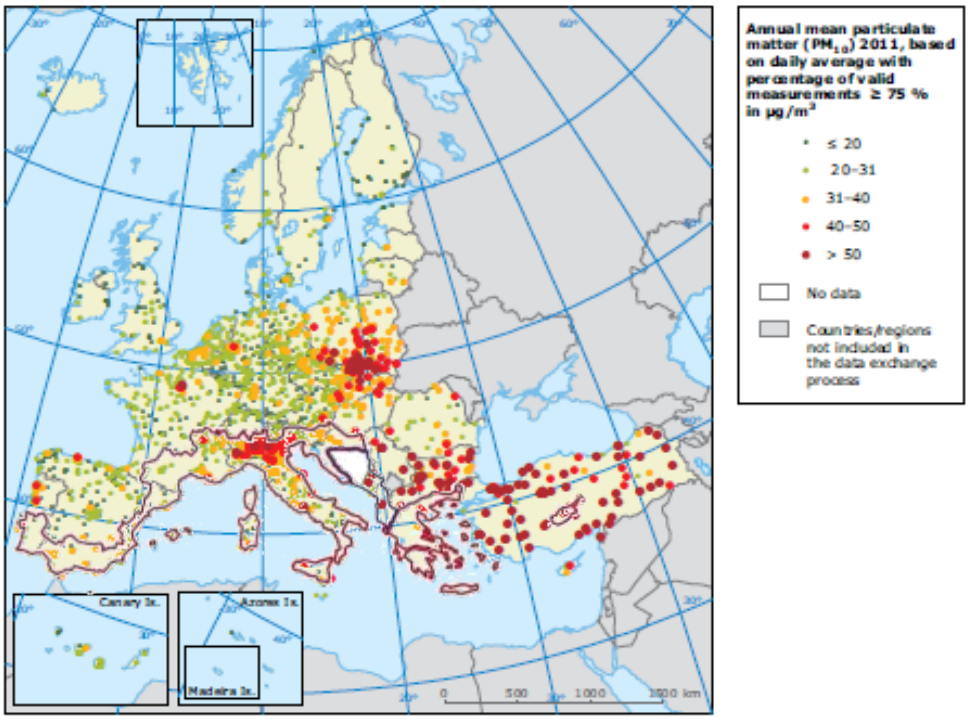
In Europe, despite improvements over several decades, air pollution continues to damage human health and the environment.

Currently, **PM** (particulate matter) and **O_3** are Europe's most problematic pollutants in terms of harm to human health. European anthropogenic emissions are the most important contributors to O3 and PM concentrations levels over Europe, but intercontinental transport of pollution also contributes.

Furthermore, ground-level O_3, particles and black carbon (a constituent of PM) are climate forcers.

The two following maps (source: EEA, 2013 report) illustrate the 2011 situation: the Mediterranean coastline presents exceeding values in many locations.

Map 2.1 Annual mean concentrations of PM_{10} in 2011



Note: The red and dark red dots indicate stations reporting exceedances of the 2005 annual limit value (40 µg/m³), as set out in the Air Quality Directive (EU, 2008c).

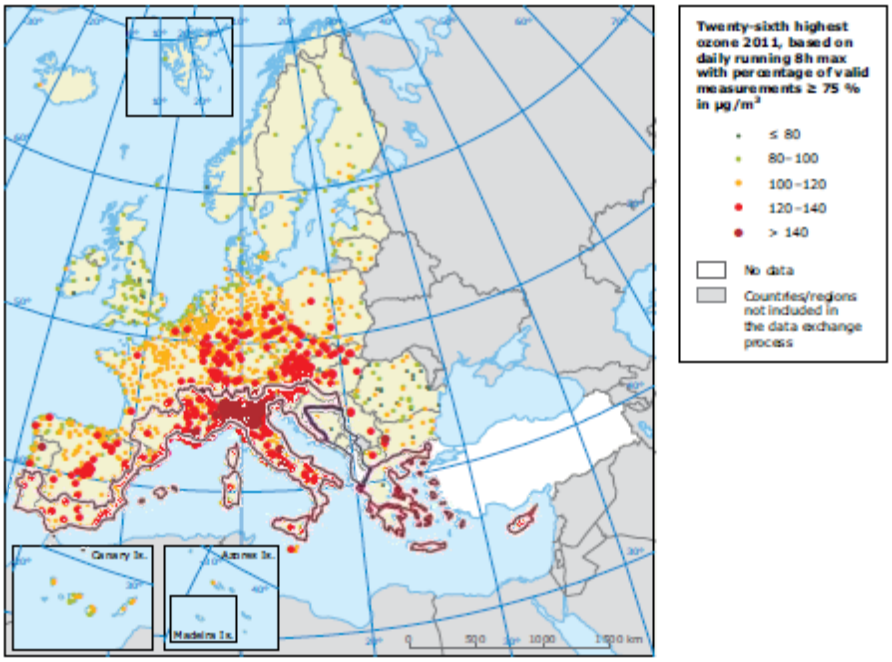
The orange dots indicate stations reporting exceedances of a statistically derived level (31 µg/m³) corresponding to the 24-hour limit value.

The pale green dots indicate stations reporting exceedances of the WHO air quality guideline for PM_{10} of less than 20 µg/m³.

The dark green dots indicate stations reporting concentrations below the WHO air quality guideline of 20 µg/m³ for PM_{10}.

Source: AirBase v. 7.

Map 3.1 **26th-highest daily maximum 8-hour average O_3 concentration recorded at each monitoring station in 2011**



Note: The map shows the proximity of recorded O_3 concentrations to the target value. At sites marked with red and dark red dots, the 26th-highest daily O_3 concentration exceeded the 120 µg/m³ threshold, implying an exceedance of the threshold and the number of allowed exceedances by the target value.

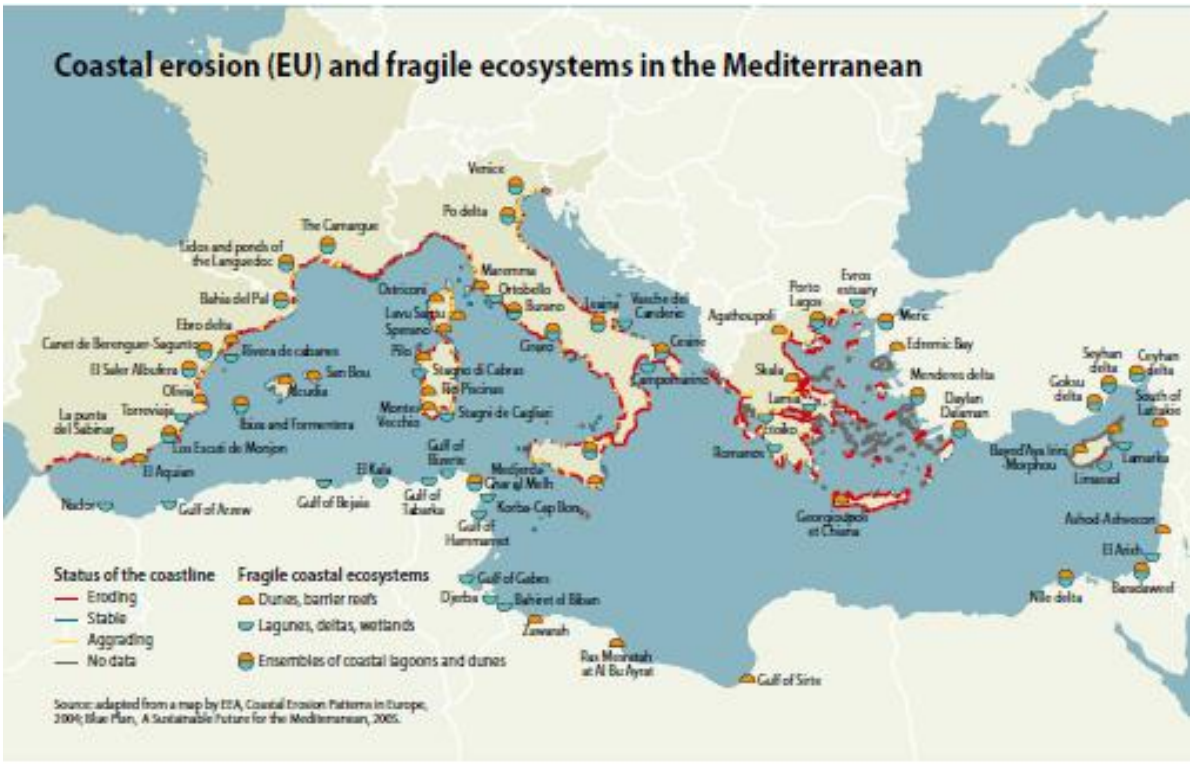
Source: AirBase v. 7.

4.4.2 Coastline quality

54% of the Mediterranean coastline is rocky and 46% is sandy coast that includes important and fragile habitats and ecosystems such as beaches, dunes, reefs, lagoons, swamps, estuaries and deltas. Low-lying sedimentary coasts are more dynamic than rocky coasts. The balance between sea-level rise, sediment supply and wave and coastal current regimes will determine whether the coastline advances (accretes), remains stable, or retreats (erodes). Model predictions for the extent of sea-level increase in the Mediterranean for the 21st century range up to 61 cm (in a worst-case scenario).
Satellite altimetry data on variations in the level of the Mediterranean Sea between January 1993 and June 2006 indicate that sea level will raise more in the Eastern Mediterranean than in the Western Mediterranean. Delta areas, due to their topography and sensitive dynamics, are most vulnerable to impacts from sea-level rise.

Coastline stability is also affected by the increase in artificial structures, both within the drainage basin (especially reservoirs) and along the coastline (the proliferation of marinas and other urban and tourist-industry infrastructure).
Artificial structures associated with beach-dune complexes and waterfronts, the destruction or degradation of sea grass beds and dune vegetation, and the extraction of gas, water and sand may also affect the cycling and redistribution of sediment in neighbouring coastal areas, especially if modifications to the coastline have not been properly planned and designed.

Systematic research and documentation of coastline erosion has been carried out only on the Mediterranean states that are members of the EU, as part of the LaCoast, CORINE (Coordination of Information on the Environment), and Eurosion projects. Approximately one-fourth of the EU Mediterranean coastline suffers from erosion, with variation among countries. Sea defences to control erosion have been constructed along 10% of the European coastline. These defences, however, often cause undesirable impacts, including increased erosion in other areas.



CORINE coastal data showed that, by the last years of the 20th century, 1.500 km of the EU Mediterranean coast had been transformed to “artificial coast” (mostly concentrated in the Balearic Islands, Gulf of Lion, Sardinia, and the Adriatic, Ionian, and Aegean seas). European harbours accounted for 1.237 km of this total (EC 1998).
The lack of information and the difficulty in accessing dispersed data have been obstacles to assessing the status and trends in erosion. This has hampered implementation of policies for the protection and management of the coastal environment at local, national and regional levels.

Among the many impacts erosion has on coastal ecosystems are the destruction of soil surface layers, leading to ground-water pollution and to reduction of water resources; degradation of dunes, leading to desertification; reduction of biological diversity; adverse effects on beach dynamics; reduction of sedimentary resources; and disappearance of the sandy littoral lanes that protect agricultural land from the intrusion of sea- water, resulting in soil and groundwater salinisation.
CORINE data were used to produce an inventory of natural sites of high ecological value that are affected by coastal erosion. The Gulf of Lion, the Ligurian Sea, the Tyrrhenian coast of Italy, and the Po Delta all contain many such sites
One of the major findings of the CORINE project was that coastal erosion management practices often indirectly use protected natural areas established under Natura 2000 as sources of sediment. As Natura 2000 sites were selected because they are considered critical to the survival of Europe’s most threatened habitats and species, these practices have significant implications for long-term coastal biodiversity.

4.4.3 Water quality

Organic pollution and eutrophication

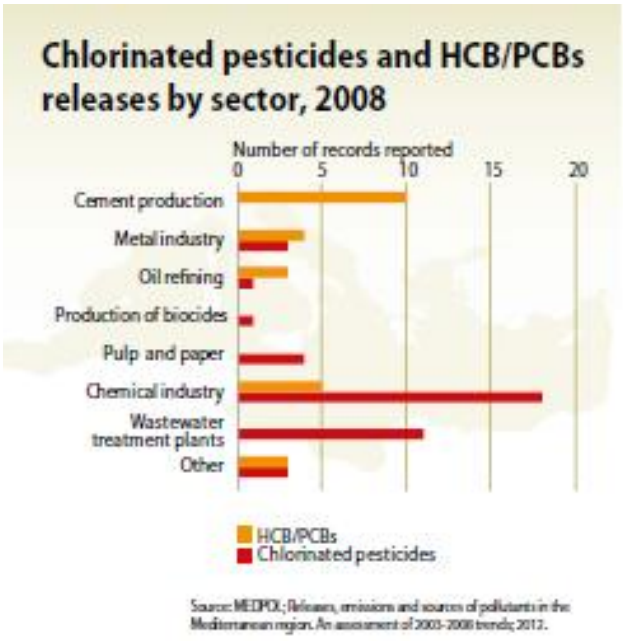
Organic matter in coastal and marine waters originates mostly from urban/domestic and industrial wastewater entering marine waters through direct point-source discharges or through rivers.

The extent of organic matter pollution is measured as the Biochemical Oxygen Demand (BOD), the amount of oxygen needed by microorganisms to oxidise organic matter in the water. Organic-matter pollution in industrial wastewater was documented by MED POL through an inventory of industrial point sources of pollution in 2003.

The areas with the highest BOD are the eastern coast of the Adriatic, the Aegean and the north-eastern sector of the Levantine Basin. These regions, in general, also have insufficient sewage wastewater treatment facilities. This indicates that there is likely a cumulative effect of elevated organic matter in coastal waters from a combination of domestic and industrial sources. In the northern Mediterranean BOD is mainly released by wastewater treatment plants and the food industry, while in south and eastern Mediterranean other sectors like oil refining, farming of animals, textiles, paper or fertilisers are important emitters.

For marine animal and plant communities, oxygen depletion caused by either human-induced eutrophication or by input of organic matter in wastewater may be fatal. Addition of organic matter and eutrophication (resulting from productivity increasing because of the extra supply of nutrients) often stem from the same sources and act together to deplete oxygen.

Persistent Organic Pollutants (POP)



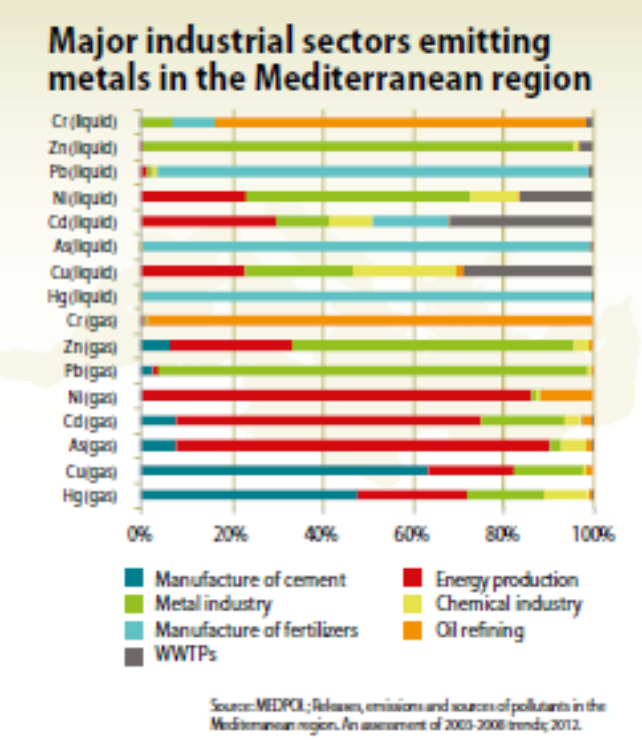
Source: MEDPOL; Releases, emissions and sources of pollutants in the Mediterranean region. An assessment of 2003-2008 trends; 2012.

Persistent organic pollutants (POPs) are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. POPs persist in the environment, are capable of long-range transport, bioaccumulation in human and animal tissue, biomagnify in food chains, and have potentially significant impacts on human health and the environment. POPs include certain chlorinated pesticides and industrial chemicals such as polychlorinated biphenyls (PCBs), most of which have already been prohibited in Mediterranean countries. However, POPs can also be unintentionally released, mainly as a result of combustion processes or as by-products in some industrial processes. Some examples are dioxins and furans, hexachlorobenzene (HCB), PCBs, or polycyclic aromatic hydrocarbons (PAHs). The MED POL NBB inventory report states that in the Mediterranean, very high levels have been historically measured in the marine environment, especially in top predators and cetaceans. However, a general decrease of POPs concentrations has been observed over the last years, although in some cases concentrations still remain relatively elevated.

Heavy metals

The term heavy metal is used here for potentially toxic metals that persist in the environment, bioaccumulation in human and animal tissues, and biomagnify in food chains. Metals and organometallic compounds are commonly included in emission inventories and monitoring networks, specially mercury, cadmium and lead. Urban and industrial wastewaters, atmospheric deposition and run-off from metal contaminated sites constitute the major sources of toxic metals.

In the Mediterranean countries, according to the National Baseline Budget (NBB) inventory, atmospheric emissions of metals are mostly related to the cement industry (Hg, Cu), production of energy (As, Cd, Ni) and the metal industry (Pb, Zn). Water releases appear to be mostly related to the fertiliser industry (Hg, As, Pb), metal industry (Ni, Zn) and wastewater treatment plants (Cd, Cu), with important contributions also from the energy sector and the chemical industry. Oil refining is the main source of chrome releases, both to air and water.
Lead levels are high in sediments in the area of Marseille-Fos and Toulon (France), Cartagena (Spain), along the western Italian coast, around Naples and in the Gulf of Genoa. Lead levels are also elevated in sediments in the Gulf of Trieste, along the southern coast of Croatia, in the Aegean Sea (especially the northern coast near Thessaloniki and Kavala and the region around Athens). These sites with high levels of lead in sediments are correlated with locations of industrial and domestic waste discharges and harbour activities.



Source: MEDPOL; Releases, emissions and sources of pollutants in the Mediterranean region. An assessment of 2003-2008 trends; 2012.

5.4.4 Biodiversity

Mediterranean climate is quite particular, most of the time mild, but also abrupt and changing: it is characterised with winter but not heavy rains, and drought during summers.
Quite sunny, winters are most of the time mild, with temperatures around 10°C. Only local winds such as mistral can cause cold period, but ice and snow periods remain quite rare. Springs are quite short and summers are very sunny, warm and dry.

Marine biodiversity

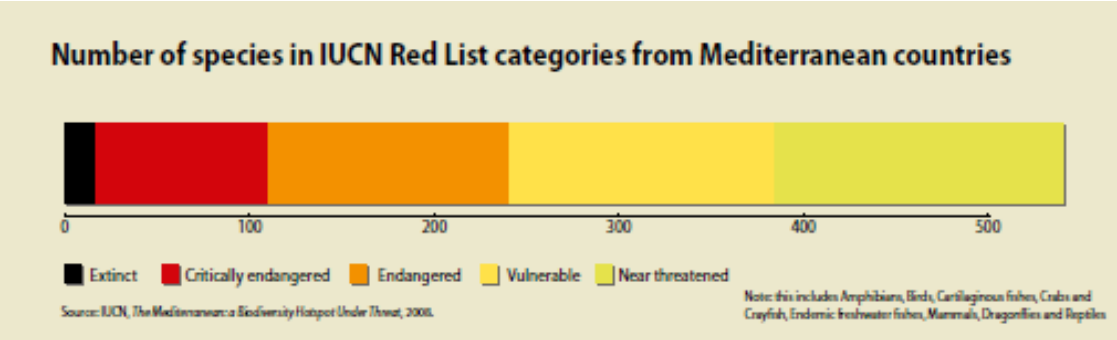
Mediterranean coastal and marine biodiversity is high by all measures. The basin supports some of the richest fauna and flora in the world and the habitat-level diversity is extraordinary.
The Mediterranean Basin has a wide array of habitats that include sea grass beds, intact rocky shorelines, persistent frontal systems, estuaries, underwater canyons, deepwater coral assemblages and sea mounts.

It is recognised as one the world's 25 top biodiversity hotspots, defined as areas with rich biodiversity, a large number of endemic species – species unique to the region – and critical levels of habitat loss There are an estimated 10.000–12.000 marine species in the Mediterranean, comprising approximately 8.500 macroscopic fauna, over 1.300 plant species, and 2.500 species from other taxonomic groups. This represents 4–18% of the world's known marine species, depending on the taxonomic group (from 4.1% of the bony fishes to 18.4% of the marine mammals), in an area covering less than 1% of the world's oceans and less than 0.3% of its volume. Species diversity in the Mediterranean Basin tends to increase from east to west with 43% of known species occurring in the Eastern Mediterranean, 49% in the Adriatic, and 87% in the Western Mediterranean. Species distribution also varies according to depth, with most flora and fauna being concentrated in shallow waters up to 50 m in depth. Although this zone accounts for only 5% of Mediterranean waters, 90% of the known benthic plant species are found here, as are some 75% of the fish species. The high seas of the Mediterranean also support a great variety of marine life in areas of high productivity (gyres, upwellings and fronts).

The Mediterranean is very important for migratory birds. Twice a year, some 150 migratory species cross the narrow natural passages in the regions of the Straits of Gibraltar (between Spain and Morocco), Sicily Strait (between Tunisia and Italy), Messina (Italy).

Although the Mediterranean Basin is high in biodiversity, many of its species are threatened by a range of human activities. Several species of marine mammals have reached dangerously low population levels. Their survival has become questionable unless immediate measures are taken for their conservation. The species for which this is most evident is the Mediterranean monk seal (Mona chus monachus) which breeds on rocky islands and archipelagos free from human disturbance.

The Mediterranean fish fauna is diverse, but fisheries are generally declining. Of the 900 or so known fish species, approximately 100 are commercially exploited.



5.5 Presentation of the « option 0 »

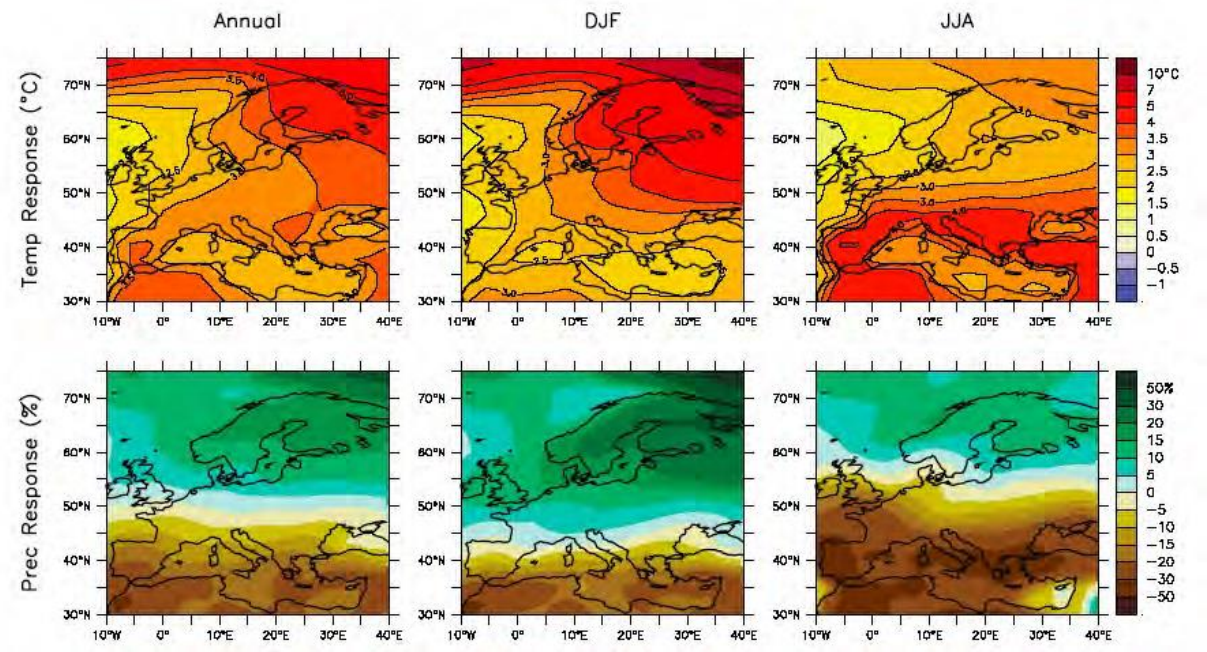
The drivers and pressures defined previously allow to summarize the environmental characteristics of the MED area regarding air, soil, water and biodiversity quality (see above), and to describe the potential evolution of these situation in case the MED programme would not be implemented. This is the «option 0 ».

Climate change is the background of this analysis (source, GIEC): the effects of climate change can be seen in the Mediterranean and have begun to exacerbate already existing pressures and degradation phenomena and the vulnerability of ecosystems and populations that depend on them, leading to considerable and sometimes irreversible changes to the environment.

Global climate change affected the Mediterranean throughout the twentieth century and has clearly accelerated since 1970, with an average warming of nearly 2°C in south-western Europe (specifically, the Iberian Peninsula and southern France). The exception is Greece, where, until the early 2000's, the average annual temperature declined.

The previsions forecast that climate evolution is likely to continue and grow in the Mediterranean region over the next decades; it would mainly affect air and sea temperatures, as well as rainfall volume and sea level. By the end of the century, the annual average of temperatures, calculated between the periods 2080-2099 and 1980-1999, could increase by 2.2°C to 5.1°C (estimation). There is a 50% probability of a warming situated between 3 and 4°C; it would affect mainly the Southern Mediterranean. The temperatures increase should lead to summers with more and more very warm days. This global warming should obscure local temperatures decrease linked to modifications of air masses movements.
Climate change could affect ecosystems in multiple ways, such as by reducing or expanding their extent and distribution, changing the behaviour of species and their interactions, and changing the risk of pressures such as fire, diseases and species' invasions.

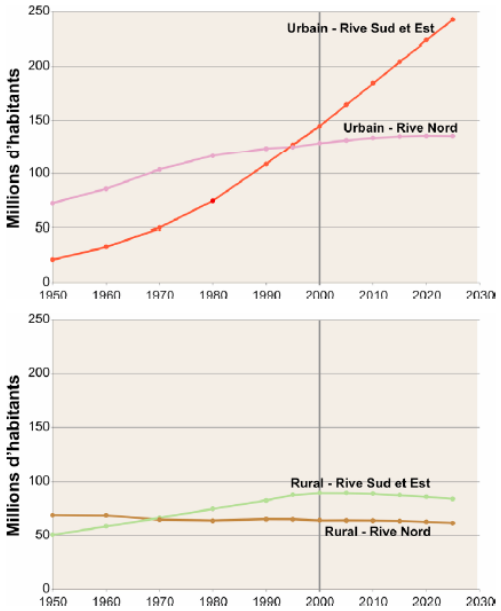
Comparison of current temperatures and rainfall, with projections for 2100 (Source GIEC**)**



This evolution, combined with human activities and demographic pressure, induce numerous stresses on the MED area resources.

The following graph[20] *presents a hypothesis for population evolution, which illustrates the slight but continuous decrease of rural populations, as well an asymptotic increase of urban populations*.

Figure 4 Populations urbaines et rurales



Source : Plan Bleu, I. Attané et Y. Courbage, 2002

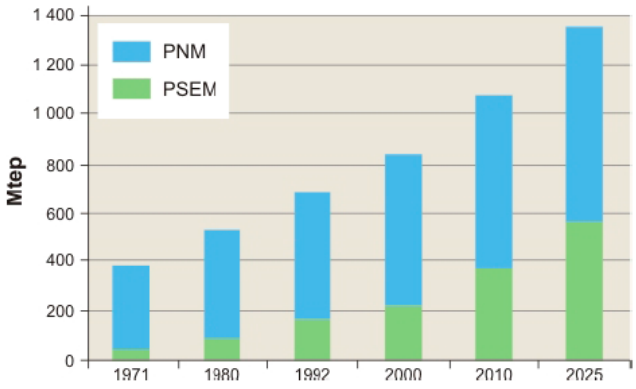
For instance, water resources are quite stressed; water demand remains constant and its quality remains relative, above all along the coastline where human pressure is more important; it leads to land-based source pollution sometimes quite concerning.

In the field of energies, consumption, even if in the European average, remains quite high, and fossil energy (petrol, coal and gas) still dominates the energy supply in the countries of the MED areas ; this situation fosters the depletion of non-renewable resources (of the Southern coast). The shifting to energy mix and renewable energies production are not increasing enough sufficiently regarding the sustainable development strategies.

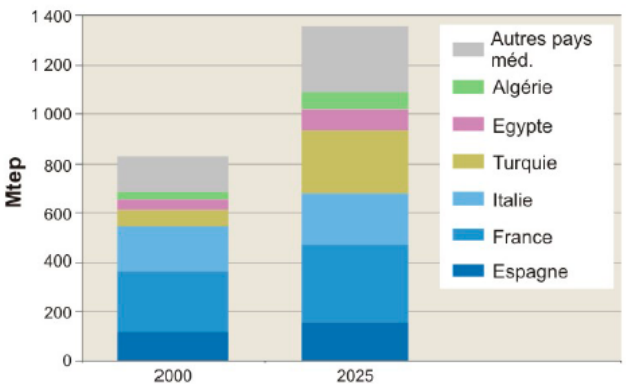
The following graph[21] *presents a hypothesis for the primary energy demand, forecasting a clear increase.*
But this scenario, defined in 2005, is based on "major orientations of energetic strategies of regional countries and large companies » and does not give a « strong priority to energetic sobriety".

Figure 10 Demande d'énergie primaire : scénario de base 2025

Demande d'énergie primaire, évolutions et projections à 2025 (scénario tendanciel)



Les six plus gros consommateurs d'énergie en Méditerranée

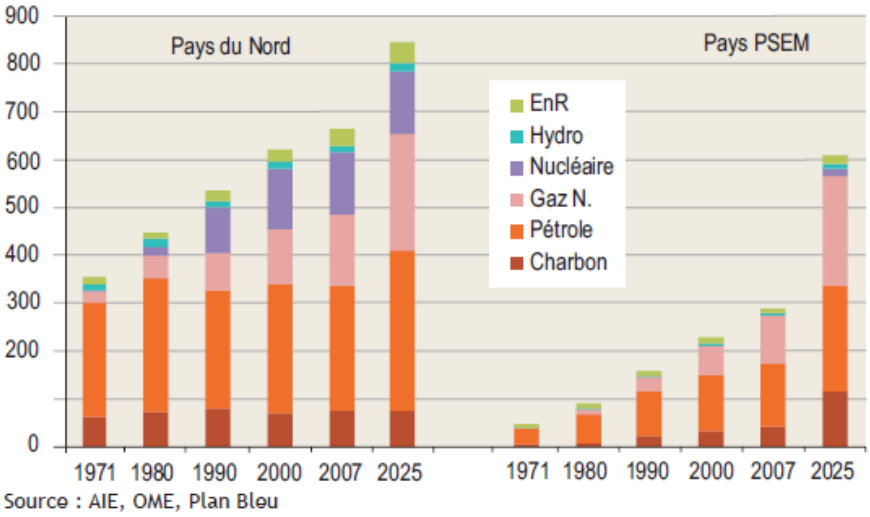


Source : OME (Observatoire méditerranéen de l'énergie)

[20] PNUE, PAM, Plan Bleu, CAR Sophia Antipolis-Valbonne (2006). A s and Development Outlook – EXECUTIVE SUMMARY.
[21] PNUE, PAM, Plan Bleu, CAR Sophia Antipolis-Valbonne (2006). A s and Development Outlook – EXECUTIVE SUMMARY.

The following graphs details this prospective scenario[22] and splits the energy demand by source, showing thus the persisting dependency upon to fossil energy.

Fig 6 : Demande d'énergie par source à 2025 (Mtep)



Source : AIE, OME, Plan Bleu

The atmospheric impact of transports shows also a negative evolution, because the use of individual vehicles but also because maritime transport (tourism and freight).

Regarding the evolution of natural risks, they are potentially exacerbated by climate change. The expansion of the area population is also a factor of risks increase.

Eventually, if the biodiversity remains quite rich in the MED area, numerous species are today quite endangered.

At the heart of development in the Mediterranean region are environmental pressures arising from its growing population, especially in south and east, the increasing exploitation of natural resources, particularly water, and intensified natural risks associated with climate change.

The ecological footprints and more generally the development trajectories of Mediterranean countries show alarming signs of unsustainability[23].

[22] Plan Bleu, AFD (2009). Energy sector in the Mediterranean region, situation and prospective 2025 (Blue Plan Notes n°13)

[23] UNEP/PAM/ Blue Plan (2012). State of the Mediterranean Marine and Coastal Environment

Status of Mediterranean countries (ecological deficit or reserve), in 1961 and 2008 (source Global footprint network)[24]

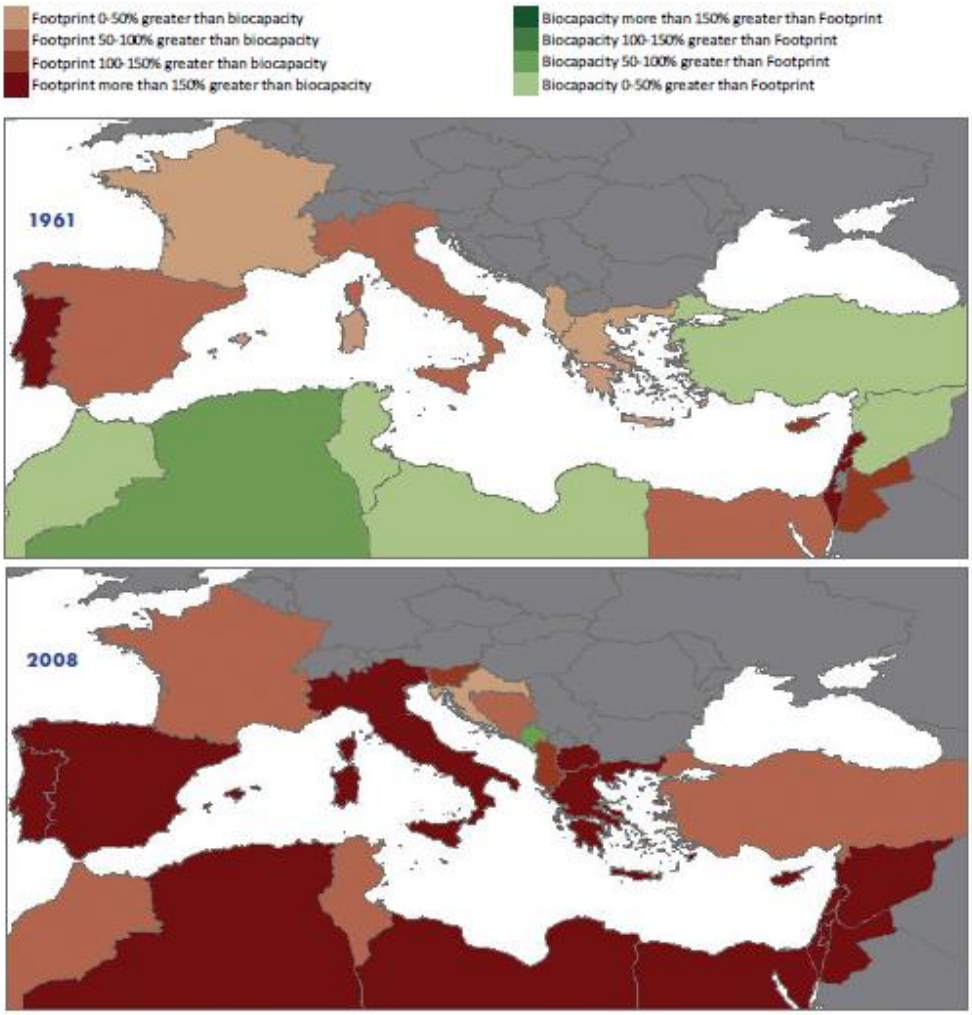


Figure 14: Ecological deficit (red) or reserve (green) status of the Mediterranean countries in 1961 (top) and 2008 (bottom). Ecological reserve is defined as a domestic Ecological Footprint of consumption less than domestic biocapacity; ecological deficit as a domestic Ecological Footprint of consumption greater than domestic biocapacity.

In order to face these different situation of pressures, the regions of the MED programme can rely on the intervention of structural funds thanks to their regional programmes (44 programmes cover the area). Nevertheless, interventions and instruments existing on the area remain most of the time structural and do not promote an integrated management of resources, risks or biodiversity.

MED supports and complements regional interventions on the area of the programme. The objectives selected by the programme for the future period promote crossed approaches and integrated actions.

Economic issues of the area are tackled with the objective of preserving resources (sustainable tourism).

Regarding the issues in the field of energy, the programme will focus on integrated solutions thanks to energetic mix or the promotion of local solutions.

In term of risks management, coordinated approaches will be possible thanks to the intervention of the programme. Today, the lack of coordination between the regional or structural instruments does not allow an efficient management of risks prevention or the implementation of corrective measures.

[24] Global Foot print network/MAVA/WWF/UNESCO Venice/Plan Bleu (October 2012). Mediterranean Ecological Footprint trends

6. Analysis of the significant likely effects on the environment

The following analysis presents the likely significant effects of the programme on the environment. This analysis emphasizes a substantial range of uncertainty, as the draft version of the Operational Programme only defines the **framework** and **type** of actions and/or projects supported by the programme. The realisation of the action plan, the nature and the scope of the projects that will be supported are not described yet. We are thus focusing here on an estimate of potential and non-quantifiable impacts. The effectiveness of these potential risks will depend on the orientations followed by the projects, but also on external forces.

Moreover, the effects evaluated here are most of the time **indirect effects** induced by expected changes (which are then more difficult to assess). Indeed, and it is clearly reminded by the Programme25, the objectives of transnational programmes do not target the support of heavy investments and infrastructures : European cooperation programmes are dedicated to the institutional cooperation, the construction of strategies, the improvement of governance and the sharing of experiences and good practices, in order to improve integration and implementation of strategies and policies.

The objective of this report is therefore to carry out a strategic and qualitative assessment of potential impacts of the programme, and to highlight items requiring vigilance.

The analysis of the impacts on the environment is based on a synoptic grid of questions; the grid will show for each action that effects can turn out to be positive or negative for the environment.

Preamble: presentation of the synoptic grid of question

On October 24, 2013, the European Parliament and the Council adopted a general programme of action, in the field of the environment, covering the period up to December 31 2020, called «Seventh Environment Action Programme ».

Its priority objectives (PO) are the following:

- PO 1: To protect, conserve and enhance the Union's natural capital
- PO 2: To turn into a resource efficient, green and competitive and low-carbon economy
- PO 3: To safeguard the Union's citizens from environment-related pressures and risks to health and well-being
- PO 4: To maximise the benefits of Union environment legislation by improving implementation
- PO 5: To improve the knowledge and evidence base for Union environment policy
- PO 6: To secure investment for environment and climate policy and address environmental externalities
- PO 7: To improve environmental integration and policy coherence
- PO 8: To enhance the sustainability of the Union's cities
- PO 9: To increase the Union's effectiveness in addressing international environmental and climate-related challenges.

The list of questions (please go to the next page) is not exhaustive. Many topics, yet part of environmental issues, are not addressed: for instance there are no question addressing hazardous substances, nor natural predator management. By contrast, the main environmental issues are addressed: biodiversity, water, air, soil, climate as well as issues related to human lifestyle and welfare.

Above all, the list of questions covers the issues identified as being the main challenges of the MED area (regarding sustainable development) in the diagnosis[26]:

- Increasing climate change consequences on MED regions

[25] OP MED, *1.1.1.4. Assessment of challenges and needs for the programme*

[26] PO MED, *1.1.1.4. Assessment of challenges and needs for the programme (paragraph e)*

- Increasing scarcity of water resources
- Potential to improve the production of renewable energy but very diverse situations between MED regions and MED countries
- Increasing urban pressure requiring long term sustainable and integrated urban development (energy, water, planning, waste management)
- Increasing pressure of economic activities on natural and cultural resources and on coastal areas
- Important impact of the agriculture on landscapes and natural resources
- Important pollution of the Mediterranean Sea

To protect, conserve and improve the natural assets of the MED area	
1	How may the objective or implementation measure impact the loss of biodiversity?
2	How may the objective or implementation measure impact the ecological coherence of territories?
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?
5	How may the objective or implementation measure impact erosion processes?
6	How may the objective or implementation measure impact water withdrawals?
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?
8	How may the objective or implementation measure impact marine water quality?
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?

To make of the MED area a more efficient, greener, more competitive and low-carbon economy	
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?
14	How may the objective or implementation measure impact waste production (household and industrial) ?
15	How may the objective or implementation measure impact waste recovery (household and industrial)?
16	How may the objective or implementation measure impact mobility?

To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment	
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?
18	How may the objective or implementation measure impact management and resilience to natural hazards ?
19	How may the objective or implementation measure impact management and resilience to industrial risks ?
20	How may the objective or implementation measure impact noise and odour pollution?
21	How may the objective or implementation measure impact landscapes?
22	How may the objective or implementation measure impact the sustainability of urban planinng?
23	How may the objective or implementation measure impact space use?

Cross-cutting issues	
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?

Answers to these questions allow us to describe the likely impacts of actions, regarding their **nature**.

Moreover, this estimate is completed by assumptions on each potential impact:

- With which probability may this impact occur?
- If it happened, would the impact be frequent and/or occur in numerous areas? (*frequency throughout space and/or time*)
- If it happened, would it last on a long-term or short-term?
- If it happened, would the impact be reversible (or not)?
- If it happened would the impact have transborder effects? (*we are talking here of the borders of the MED programme area*)

The following table presents the qualitative rating scale:

Nature of the impact	+ Possible occurrence of environmental positive effects - Possible occurrence of environmental negative effects +/- Possible occurrence of both environmental positive and negative effects o Likely non-significant environmental effects // No rating, due to lacking or insufficient data **Intermediate ratings are also possible : o/+** or **o/-**
Probability of the impact	VP (Very probable), P (Probable), U (Uncertain)
Frequency	C (constant) F (Frequent) O (Occasional)
Duration	LT (long term) ST (short term)
Reversibility	I (irreversible) R (reversible)
Transborder effect	NTE (No Transborder Effect) PTE (Possible Transborder Effect)

Incidence assessment: detailed analysis

The completed grids can be found in annexes.

The comments on each synoptic grid are following.

Cross cutting issues

For most of the investment priorities, the impact of the programme is positive regarding the consolidation of knowledge and data basis for the support of environmental policies of the MED area. Moreover, the programme advocates quite efficiently for the integration and the coherence of environmental field in the construction of policies.

In this respect, the Specific Objective 4 (« ***To support the process of developing multilateral coordination frameworks and strengthening the existing ones in the Mediterranean for joint responses to common challenges*** ») presents therefore a very positive impact. Nevertheless, the qualification of the impacts is only based on transversal criteria, as the definition of the SO is quite large. A narrower (environmental) targeting of actions would allow a more thorough evaluation.

Axis 1, SO 1: To increase transnational activity of innovative clusters and networks of key sectors of the MED area

The programme aims to strengthen innovation capacities, in the sectors covered by the « green » and « blue » growth.
The present analysis assumes that such reinforcement will eventually lead to a potential development of the concerned sectors.

This objective is about supporting innovation actors, whose solutions are not yet developed and will not be immediately implemented, if they are indeed. Furthermore, certain fields of innovation, because they are recent, have not yet been assessed, as far as their environmental impact is concerned. Finally, potential fields of action are quite wide: green growth, blue growth, creative industries, social innovations… As a result, the probability those incidences do occur can only be estimated « **uncertain** », in this assessment. One exception, nevertheless, for energy-related actions: this probability is estimated higher, because the dedicated list of types of actions proposes to support financing instruments and tools for green energy sectors.
Finally, the likely spreading of ideas above MED limits gives to those incidences a systematic transborder character.

The Blue Growth fields are wide. If one bases one's approach on the « Blue growth » project[27] analysis, blue activities split into the 6 following maritime main functions:

- Maritime transport maritime and shipbuilding
- Food, nutrition, health and eco-system services
- Energy and raw materials
- Leisure, working and living
- Coastal protection
- Maritime monitoring and surveillance.

On the other hand, the activities which are specifically targeted by the MED programme are the following: « maritime, coastal and cruise tourism, creative industries, coastal and marine resources, protection of biodiversity, blue energy (algae, thermic energy, waves), blue biotechnology (food, health, cosmetics), sustainable management of ports, marine and environmental industries, etc. ».
The field of possibilities is thus wide (« *marine and environmental industries, etc.* ») and it leads us to make hypotheses on which« blue » activities to take into account in the present assessment.

[27] ***BLUE GROWTH****, Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts, Third Interim Report, European Commission, DG MARE, march 2012*

According to the previously quoted study, led in the frame of the « Blue Growth » project, 11 economical activities have been retained as most « essential » for further analysis and potentially for policy-support. Among these 11 activities, certain are even identified as important in the Mediterranean area (M) :

MATURE STAGE	1 Short sea shipping	M
	2 Offshore oil and gas	M
	3 Coastline tourism & yachting	M
	4 Coastal protection	
GROWTH STAGE	5 Offshore wind	
	6 Cruise tourism	M
	7 Marine aquatic products: aquaculture and fishery	M
	8 Maritime monitoring and surveillance	M
(PRE)DEVELOPMENT STAGE	9 Blue Biotechnology 10 Ocean renewable energy 11 Marine minerals mining	

Because the Programme is oriented towards innovation <u>and</u> SME, we have assumed that the fields of actions fostered by the programme, but not specifically quoted, would belong to the activities that are listed above as in « growth stage » and « pre-development stage », out of mining *(a priori not in the scope of small and medium enterprises)* ***and out of offshore wind*** *(among blue energies, the programme focuses on algae, thermic energy and waves, only).*
But this assumption could be discussed and we do not exclude that other activities, relative to shipbuilding, to coastal protection or to short-sea shipping (for example) could be treated by the Programme. Therefore this uncertainty constitutes clearly an element to pay attention to, because other industrial sectors could be supported and could produce potential negative impacts on the environment, although they would not have been considered in the present assessment.
Finally, one could outline that the specific objective aims to a stronger transnational cooperation and a better connection between actors of the quadruple helix: the expected results, excepted for the green growth, do not target specifically the eco-responsibility or the eco-design of the chains of value.

The fields of the **green growth** are also wide[28]. But by definition[29] they are devoted to eco-friendly solutions. Therefore, one could expect beneficial effects in numerous sectors. For example, the development of biological agricultural practices could benefit not only to biodiversity, or to soils preservation but also to water withdrawals.

As a result, multiple fields of the environment could be impacted both positively and negatively.
For example, regarding waste production and valorisation, the green innovation would certainly be oriented to new methods or more sustainable technologies; certain projects could focus on waste energetic treatment or on recycling of nautical materials. But, on the other side, the development of technologies intensively using ICT[30] would lead to the production of computer waste which is complex to treat. Similarly, the development of cruises or recreational boating would intensify the already existing difficulty of their grey waters treatment.
Another example concerns greenhouse gas emissions: the development of the computers stock implies, at the same time, the development of air conditioning systems which consumes energy as well. But on the other hand, the increasing share of renewable energies or sustainable aquaculture constitute additional opportunities for decreasing GHG emissions.
Similarly, some actions supported by the programme related to the « green » energy could induce an increase in the use of biomass. The share of agricultural land between the production of edible products and energies is not stabilised yet; the

[28] PO, 2 A 5, « Green growth includes new materials, biotechnologies and biochemical, eco-construction, energy, agriculture, agribusiness, agro-tourism, bio-agriculture and bio food, transformation, valorisation and commercialisation of products, etc.»
[29] Cf definition : http://www.developpement-durable.gouv.fr/+-Croissance-verte-+.html
[30] ICT = information and communication technology

assessment of the consequences regarding the cultivation of non-productive lands (whether they are set-aside or not) is not realised either. Our assessment of the impact on land usage is thus nuanced.
Few strictly negative potential impacts have been stated:
- landscape impact of energy producing facilities at sea or of new harbours
- impacts on mobility from cruise or recreational boating growth.

Cross-analysis:

counting	Probability			Frequency			Duration		Reversibility		Transborder Effect	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	3	2	**5**	3	3	4	0	10	2	8	10	0
-	0	0	2	0	0	2	1	1	1	1	2	0
+/- et -/o et +/o	0	**0**	9	0	5	4	0	9	1	2	9	0
total	3	2	**16**	3	8	10	1	**20**	4	**11**	**21**	0

Globally:

- *As explained above, impacts are widely « uncertain »*
- *Potential positive impacts as well as « contrasted » ones would rather be long term, but would mainly be reversible*
- *Negative potential impacts would rather be occasional but half of them would be irreversible*

Axis 2, OS 2.1: To raise capacity for better management of energy in public buildings at transnational level

The programme aims to reduce energy consumption in public buildings, addressing energy efficiency issues.
Without any surprise, the impacts are positive regarding air pollution (less greenhouse gas) and noise pollution (less air conditioning systems).

Cross-analysis:

counting	Probability			Frequency			Duration		Reversibility		Transborder Effect	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	**2**	**2**	0	**2**	2	0	0	**4**	1	3	3	1
-	0	0	0	0	0	0	0	0	0	0	0	0
+/- or -/o or +/o	0	0	2	1	0	1	0	2	0	2	1	1
total	**2**	**2**	2	**3**	2	1	0	**6**	1	**5**	**4**	2

Globally:

- *Potential positive impacts would be from probable to very probable, their scope would be of long term, but they would stay mainly reversible;*
- *"contrasted" potential impacts would be uncertain (nevertheless, they are not negative)*

Axis 2, OS 2.2: To increase the share of renewable local energy sources in energy mix strategies and plans in MED territories

The programme does not limit the potential sources of renewable energy. But all methods of production do not have the same environmental impacts. Given various possibilities, and the difference of impacts between the potential scenarii, the probability of the following effects is mainly rated "uncertain".
Thus, for example, local strategies could favour the development of wind energy (terrestrial or maritime). The impacts of such facilities on fauna and flora are today identified[31]. Also, their impacts on landscape are often controversial.

[31] http://www.eolien-biodiversite.com

Regardless of the technological choices, the incidence of their implementation shall be subject to environmental studies, adapted to each territory.
Eventually, it should be noted that the use of marine biomass and algae is still at the research stage[32]. The term employed for this kind of energy is third-generation fuels. The implementation of their industrial production will likely occur only after the current programme.
Whatever the sources of energies studied and developed are, the action would lead to implementation of infrastructures. The present analysis does not deal with the impacts of such constructions. Nevertheless, they would surely add pressures regarding soil artificialisation. Construction works would also result in noise pollution and waste production peaks.

Moreover, as described above, one direction could be the increase in the use of **biomass**. The share of agricultural land between the production of edible products and energies is not stabilised yet; the assessment of the consequences regarding the cultivation of non-productive lands (whether there are set-aside or not) is not realised either.
The use of space could thus be affected by the construction of new facilities but also by the production of "raw materials".

The impact on water quality is positive, in continental areas, if the valorisation of agricultural runoff (instead of spreading it into fields) is developed; it is also positive with the potential development of algae cultivation, as their growth medium could use waste water, which would be thus treated.
Freshwater quality has influence, through rivers and coastal bodies, on sea water quality. The improvement of quality thanks to the above solutions could be however countered, negatively and marginally, by the impacts of the construction of offshore energy production systems.

The increase use of renewable energies would have a positive impact on air quality, climate change, and the resilience of ecosystems to this change, by slowing down greenhouse gas production.

The « smart cities » concept described in the programme would complete the SO 2.1, by supporting the emergence of integrated approaches on energy production/consumption patterns in urban areas. The impact on energy efficiency and waste recovery is thus positive.

Cross-analysis:

counting	**Probability**			**Frequency**			**Duration**		**Reversibility**		**Transborder Effect**	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	5	2	2	4	2	3	1	8	2	7	6	3
-	0	**3**	**2**	0	1	**4**	0	5	2	1	2	3
+/- or -/o or +/o	0	2	**3**	0	1	**4**	1	4	2	1	2	3
total	5	7	**7**	4	4	**11**	2	**17**	**6**	9	10	9

Globally:

- *Potential positive impacts would be mainly probable to very probable, their scope would be rather long term, but they would stay mainly reversible;*
- *Potential negative impacts would have a long term scope, they would be irreversible for 2/3 of them, but they would be mainly occasional;*
- *"Contrasted" potential impacts would be rather occasional and long term. But 2/3 of them but be irreversible.*

[32] http://www.cea.fr/energie/biocarburants/les-recherches-du-cea-sur-les-biocarburants

Axis 2, SO 2.3: To increase the capacity to use existing low carbon transport systems and multimodal connections among them

The programme aims to the optimisation and interconnection between existing networks. This allowed estimating, for instance, that the ecological coherence of the territory would not be affected by new roads or rail-roads, which could have introduced new fragmentation sources.

Optimising the traffic induces very positive externalities for natural habitats and air pollution, because it lightens pressures (noise, GHG).
But the emphasis of the program on maritime transport[33] made us mitigate our positive evaluations on the potential impact of this action priority onto: marine water quality, marine habitats and air pollution, especially due to GHG emissions. The described objectives aim to cut the running times, but also to develop the coastal sites accessibility.
This uncertainty about maritime transport development relies on the number (quite high) of "contrasted" rate and on the sometimes impossible assessment of impact reversibility.

Nevertheless, optimised, interconnected and sustainable transport networks would improve the energy efficiency of the domestic ways of life and of productive sectors. In urban areas, this transport optimisation is a major asset for a sustainable development. One has to remain careful and appreciate the period of time required for the people change of habits. The transition period, to adapt to a new traffic plan or to a new division of space should be integrated into diagnoses, especially regarding GHG emissions (traffic jams…).

Cross-analysis:

counting	Probability			Frequency			Duration		Reversibility		Transborder Effect	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	7	0	0	2	5	0	1	6	2	5	5	2
-	0	0	0	0	0	0	0	0	0	0	0	0
+/- or -/o or +/o	1	3	1	2	3	0	0	5	**0**	1	4	1
total	**8**	3	1	**4**	**8**	0	1	**11**	2	6	9	3

Globally:

- *Potential positive impacts would be very probable, their scope would be rather long term, but they would be mainly reversible;*
- *Potential "contrasted" impacts would be rather long term and quite frequent.*

Axis 3, SO 3.1: To enhance sustainable development policies for more efficient valorisation of natural resources and cultural heritage in coastal and adjacent maritime areas

The programme will enhance the development of strategies for territories managing and planning, which would be shared by the MED countries. The most targeted areas are coasts and coastlines. These territories are specifically concerned by the touristic activities growth: therefore, the programme pays a special attention to the sustainability of this tourism.
The rating assumes that the programme' interventions do not aim to develop touristic activities, but rather aims to constraint and condition them, regarding their respect for natural heritage and their taking into account of natural hazards.

[33] OP MED, 2.A.5, « As the development of infrastructures and transport systems is largely financed by other programmes, the MED programme will especially intervene on the question of use and access to low carbon transport systems for the different categories of population **and in the development of actions directed to supporting transnational rail/maritime public transport services for passengers and freight (cuttings running times, developing accessibility on peripheral and touristic cities/sites or clusters, optimizing costs).** »

Many incidences are thus judged positive.

Certain issues would deserve to appear more explicitly in the programme redaction. Thus, because the specific objective is about land planning, the « ecological consistency » of the territory could be mentioned. Then, that point has not been assessed, by lack of data.
For the same reasons, the impacts on waste production or noise/ odour pollution have not been scored.

Cross-analysis:

counting	Probability			Frequency			Duration		Reversibility		Transborder Effect	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	10	3	0	2	10	1	1	12	2	11	4	9
-	0	0	0	0	0	0	0	0	0	0	0	0
+/- or -/o or +/o	0	0	1	0	0	1	0	1	0	1	0	1
total	**10**	3	1	**2**	**10**	2	1	**13**	2	**12**	**4**	10

Globally:

- *Potential positive impacts would be mainly probable to very probable, their scope would be rather long term, but they would stay mainly reversible;*
- *« Contrasted » potential impacts would be uncertain, occasional and reversible.*

Axis 3, OS 3.2: To maintain biodiversity and natural ecosystems through strengthening the management and networking of protected areas

This objective gathers actions aiming to protect the natural heritage of the MED area, based on reinforced management measures and coordinated protected areas. It targets particularly the following issues: fight against invasive species and water management (in particular the conflicts of use in the coastal, marine and wetland areas). If necessary the extension of protected areas could be considered.

Impacts are thus rated rather positive.

Cross-analysis:

counting	Probability			Frequency			Duration		Reversibility		Transborder Effect	
	VP	P	U	C	F	O	ST	LT	I	R	PTE	NTE
+	6	2	4	3	5	4	1	11	4	8	4	8
-	0	0	0	0	0	0	0	0	0	0	0	0
+/- or -/o or +/o	0	0	0	0	0	0	0	0	0	0	0	0
total	6	2	4	3	5	4	1	11	4	8	4	8

Globally:

- *Potential positive impacts would be probable to very probable for 2/3 of them. Their scope would be rather long term, but they would be reversible for 2/3 of them.*

Impacts analysis: synthesis

The following table enumerates the potential impacts ratings regarding the nature of incidence (*detailed grids, per SO, are to be found in Annexes*).

This counting is not mathematically weighted by the other elements of evaluation.

Axes and actions priorities		Positive impact	Negative impact	Neutral impact	Mixed impact	Lack of rating
Axis 1	TO 1 – IP 1b « Innovation »	10	2	5	9	0
Axis 2	TO 4 – IP 4c « Better management of Energy in public buildings »	4	0	20	2	0
	TO 4 – IP 4e 1 « Share of renewable energy in the primary energy production»	9	5	7	5	0
	TO 4 – IP 4e 2 « Low carbon transports»	7	0	14	5	0
Axis 3	TO 6 – IP 6c « Sustainable development policies in coastal and coastline areas»	13	0	9	1	3
	TO 6 – IP 6d « Biodiversity and natural ecosystems»	12	0	14	0	0
Sub-total (without TO 11)		**55**	**7**	**69**	**22**	**3**
Axis 4	TO 11 – « MED Governance»	2	0	0	0	24
Total		**57**	**7**	**69**	**22**	**27**

It appears that:

- Only few measures are judged completely negative, regarding their impacts on the environment.
- Concerning the “mixed” or “contrasted” ratings: they concern mostly the objective related to innovation, then, in a lesser extent, SOs related to energy mix strategies and to low carbon transports.
- Regarding measures from axes 2 and 3, the share of “neutral” impacts is rather high: fields of actions are well targeted.
- Thematic objective 11 drafting is particularly wide. Without more (environmental) targeting, we could not rate many potential impacts.

Analysis of most probable potential impacts

VP : **P :**

Have been excluded from this analysis the incidence related to cross-cutting issues, as well as SO4.

		SO 1.1	SO 2.1	SO 2.2	SO 2.3	SO 3.1	SO 3.2
		TO 1.IP1b-1	*TO4.IP4c-1*	*TO4.IP4e-1*	*TO.IP4e-2*	*TO6.IP6c-1*	*TO6.IP6d-1*
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	+/-	o	-/+	o	o	+
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+/-	o	-	+/-	+	+
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	+/-	o	-	o	+	o
5	How may the objective or implementation measure impact erosion processes?	+	o	o/-	o	+	o
6	How may the objective or implementation measure impact water withdrawals?	+	o	o	o	+	+
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	o	+	o	+	+
8	How may the objective or implementation measure impact marine water quality?	+/-	o	-/+	+/-	+	+
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	o	+	+	+	o	o
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	+	o	+	o	o	o
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	+	o	o	+	+	o
14	How may the objective or implementation measure impact waste production (household and industrial) ?	+/-	o	-/o	o	//	o
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	+/-	o	+	o	o	o
16	How may the objective or implementation measure impact mobility?	-	o	o	+	+/o	o
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?	+/-	+	+	+/-	o	o
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o	o	o	o	+	o
20	How may the objective or implementation measure impact noise and odour pollution?	+/-	+	-	+	//	o
21	How may the objective or implementation measure impact landscapes?	-	o	-/o	o	+	+
22	How may the objective or implementation measure impact the sustainability of urban planinng?	o	+/o	+	+	+	+
23	How may the objective or implementation measure impact space use?	+/-	o	-	+/-	+	+

Observations:

- There is no very probable (VP) negative incidence.
- Only one “mixed” incidence is considered as “very probable”.
- There is no issue that would cumulate only negative impacts. On the contrary, there is one issue for which “contrasted” ratings are not counterbalanced by positively rated measures: it is the **waste production issue.**
- Issues for which several positive incidences (probable and very probable) cumulate are the following :
  - **Water resources withdrawals**
  - **Continental water quality**
  - **Domestic energy efficiency (including buildings)**
  - **Increase of the renewable energies share in the primary energy production**
  - **Energy efficiency for the productive sector**
  - **Urban planning sustainability.**

Among those most probable incidences (VP or P), analysis of the potential incidences considered as « occasional », throughout space and/or time (O):

O :

		OS 1.1	OS 2.1	OS 2.2	OS 2.3	OS 3.1	OS 3.2
		OT1.PI1b-1	*OT4.PI4c-1*	*OT4.PI4e-1*	*OT4.PI4e-2*	*OT6.PI6c-1*	*OT6.PI6d-1*
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	+/-	o	-/+	o	o	+
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+/-	o	-	+/-	+	+
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	+/-	o	-	o	+	o
5	How may the objective or implementation measure impact erosion processes?	+	o	o/-	o	+	o
6	How may the objective or implementation measure impact water withdrawals?	+	o	o	o	+	+
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	o	+	o	+	+
8	How may the objective or implementation measure impact marine water quality?	+/-	o	-/+	+/-	+	+
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	o	+	+	+	o	o
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	+	o	+	o	o	o
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	+	o	o	+	+	o
14	How may the objective or implementation measure impact waste production (household and industrial) ?	+/-	o	-/o	o	//	o
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	+/-	o	+	o	o	o
16	How may the objective or implementation measure impact mobility?	-	o	o	+	+/o	o
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?	+/-	+	+	+/-	o	o
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o	o	o	o	+	o
20	How may the objective or implementation measure impact noise and odour pollution?	+/-	+	-	+	//	o
21	How may the objective or implementation measure impact landscapes?	-	o	-/o	o	+	+
22	How may the objective or implementation measure impact the sustainability of urban planinng?	o	+/o	+	+	+	+
23	How may the objective or implementation measure impact space use?	+/-	o	-	+/-	+	+

Observations:

This evaluation concerns then in particular SO 2.2 (production of renewable energies) and SO 3.1 (sustainable development strategies).

It concerns as well positive as negative incidences.

By inference, other incidences, **in majority**, will then be judged frequent to constant.

7. Description of measures to avoid, reduce and compensate significant impacts of the Programme on the environment

Cross-cutting measures:

The section 8 of the programme (« horizontal principles») underlines the importance of criteria regarding sustainable growth in **the project selection process.**

But in the drafting of the « guiding principles for the selection of operations », for each priority axis, quality criteria should precise the "effects in the mid-term" notion and include **the direct and indirect effects on environment.**

Moreover, the dedicated chapter from the application forms already constitutes an interesting tool for the **prior environmental assessment of projects**.
The Programme indicates that "A special eye (will be) kept to project proposals giving clear measurable output indicators on environmental issues (where applicable according to the objectives of the project)". Project partners could present a **Logical Framework**, in their applications.

Typical structure of a Logframe Matrix (source: EuropeAid[34])

Project Description	Indicators	Source of Verification	Assumptions
Overall Objective – The project's contribution to policy or programme objectives (impact)	How the OO is to be measured including Quantity, Quality, Time?	How will the information be collected, when and by whom?	
Purpose – Direct benefits to the target group(s)	How the Purpose is to be measured including Quantity, Quality, Time	As above	If the Purpose is achieved, what assumptions must hold true to achieve the OO?
Results – Tangible products or services delivered by the project	How the results are to be measured including Quantity, Quality, Time	As above	If Results are achieved, what assumptions must hold true to achieve the Purpose?
Activities – Tasks that have to be undertaken to deliver the desired results			If Activities are completed, what assumptions must hold true to deliver the results?

This logical framework should identify, per project, its **environmental objectives** (**overall objectives and purposes**).
The programme could thus impose that the following issues (underlined in the section 8) appear in the analysis led by the project partner:

- Contribution to efficiency in the use of resources (e.g. energy efficiency, renewable energy use, reduction of greenhouse gas (GHG) emissions, efficient water supply, waste-water treatment and water reuse, sustainable land use, waste management and recycling etc.)
- Contribution to the development of green infrastructures
- Contribution to sustainable integrated urban and regional development
- Contribution to better awareness for the adaptation to climate change and risk prevention
- Promotion of employment opportunities, education, training and support services in the context of environment protection and sustainable development.

The programme could also impose that the applications integrate **environmental impact indicator**(s), defined in respect to the environmental objectives of the Programme. These indicators would then be common to all projects.

[34] European Commission (2004). Aid Delivery Methods. Volume 1: Project Cycle Management Guidelines.

Furthermore, in case of **pilot demonstration activities launchings/deployments**, each project should present a **prior study of environmental impacts**. This impact assessment shall study, in particular, how the project localisation is related to protection areas classified in respect to environmental regulations.

Concerning Natura 2000 sites:

The « Habitats » Directive describes the required impacts assessment measures when a Natura 2000 site may be affected.

Article 6

(…)

Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.

Article 7

Obligations arising under Article 6 (2), (3) and (4) of this Directive shall replace any obligations arising under the first sentence of Article 4 (4) of Directive 79/409/EEC in respect of areas classified pursuant to Article 4 (1) or similarly recognized under Article 4 (2) thereof, as from the date of implementation of this Directive or the date of classification or recognition by a Member State under Directive 79/409/EEC, where the latter date is later.

For the purposes of Article 6 assessments, Natura 2000 sites are those identified as sites of Community importance under the habitats directive or classified as special protection areas (SPAs) under the Birds Directive[35]. The European Commission released an interpretation document[36]. This document makes clear that where a project is likely to have significant effects on a Natura 2000 site, it is also likely that both an Article 6 assessment and an EIA (in accordance with Directive 85/337/CE, 97/1/CEE, Directive 2003/35/EC et Directive 2009/31/EC) will be necessary[37].

Moreover, in case of the use of **public procurements** (especially for **works**), the payers shall refer to the tools offered by respective national procurement regulations in order to select offers which would minimize the environmental effects of (construction) works: mobility plans, noise and odour pollution prevention plans, waste prevention and treatment plans, grey waters treatment, in particular.

Objective « To increase transnational activity of innovative clusters and networks of key sectors of the MED area»:

Reinforce the "eco-targeting" of innovation-related projects. Innovation related to Blue Growth should be explicitly directed towards projects aiming to develop eco-friendly solutions (eco-management, eco-design, decrease of carbon print foot, production and exploitation processes sustainability, etc.). What is at stake is to eco-condition the purpose of the innovation and not only the cooperation project in itself.

The concept of eco-innovation could thus appear explicitly in the detailed drafting of the specific objective and in the expected results drafting, as well.

[35] European Commission, Environment DG (November 2001) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6 (3) and (4)of the Habitats Directive 92/13/CEE

[36] « Managing Natura 2000 sites : The provisions of article 6 of the « Habitats » Directive 92/43/CEE »

[37] European Commission, Environment DG (November 2001) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6 (3) and (4)of the Habitats Directive 92/13/CEE

Objective « To increase the share of renewable local energy sources in energy mix strategies and plans in MED territories »:

The particular points to consider, which have been described in the previous chapter, underline the potential negative impacts of energy production facilities and/or infrastructures, regarding several environment dimensions[38]. Preventive measures described above (*cross-cutting measures*) apply particularly well to that field of actions.

Moreover, in the description of the « *types and examples of actions and expected contribution to the specific objectives* », the **assessment of potential environmental impacts** for energy mixes **should be more explicitly integrated to the strategy (models, plans …)** and **feasibility studies.**

Furthermore, studies concerning forest and/or agricultural biomass should include comparisons between different generation of solutions (e.g.: log vs pellet).

Finally, in addition to studies related to energy production, attention could be paid to energy transportation and distribution modes (e.g.: underground networks or not, integration of undersea networks)

Objective « To increase capacity to use existing low carbon transport systems and multimodal connections among them »:

The particular points to consider, which have been described in the previous chapter, underline the potential negative impacts of the maritime accessibility development, especially regarding marine water quality, marine habitats integrity and air pollution.

Regarding maritime transports: the development of accessibility on peripheral and touristic cities/sites could be more explicitly **conditioned par the concomitant deployment of « green-shipping » solutions** (direct measures, like the use of new technologies, or indirect ones, like the development of new management modes for loading or for energy on-board). The development of maritime transport could also be fostered in the only cases, like **isles**, where this solution is much less avoidable compared to continental areas.

Furthermore, in town, transport optimisation is major for carrying out a sustainable urban planning. One has nevertheless to remain vigilant concerning the estimate for behaviour adaptation time. The transition and adaptation period to new mobility plans has to be integrated into diagnoses, especially regarding possible GHG impacts (traffic jams…).

Other objectives (To enhance sustainable development policies for more efficient valorisation of natural resources and cultural heritage in coastal and adjacent maritime areas, To maintain biodiversity and natural ecosystems through strengthening the management and networking of protected areas, To support the process of developing multilateral coordination frameworks and strengthening the existing ones in the Mediterranean for joint responses to common challenges) *:* no proposal for dedicated corrective measures.

This report does not introduce alternative solutions: mitigation measures have indeed been proposed for the main potential negative effects that have been outlined in the previous detailed assessment.

In the case other alternatives arise from Consultations (Environmental Authorities and Public), they would then be studied and, if appropriate, be assessed in the final report.

[38] Detailed grids are available in the annexes

8. Proposed monitoring measures

According to the *guideline* of the European Commission, the monitoring system presents the following items (non-comprehensive list)[39]:

- Monitoring covers in principle the **environmental effects included in the environmental report**. It may, however, focus on some environmental effects or include additional aspects which were not apparent.
- It is useful to identify and select the environmental information which is necessary for monitoring the relevant environmental effects. Environmental effects may also be indirectly monitored through the monitoring of the causes of the effects. **Indicators** or a **set of questions** may provide a framework which helps to identify the relevant environmental information. They also help to condense environmental data to understandable information.
- Sources of environmental information can be found **at project level**. Environmental information at project level addresses pressure factors and environmental effects.
  General environmental monitoring systems provide environmental data detecting changes in the environment. These data help to verify the achievement of environmental objectives and targets, but they allow only to a limited extent the changes in the environment to be attributed to the implementation of the plan or programme.
- Monitoring can be integrated in the **planning system**. Efficient monitoring demands a determination of the responsible authority/ies, as well as the time and frequency of monitoring measures. Monitoring arrangements should also include the **evaluation of the environmental information**.
- It may be useful to determine **criteria which trigger the consideration of remedial action**. Remedial action can be undertaken on planning level and implementation level.

Regardless of the monitoring measures frequency, a **mid-term review** will be necessary to assess the relevance and the efficiency of the monitoring system.

This monitoring will contribute to thinking on the Programme efficiency, and to anticipating its **ex-post assessment**, by preparing it during the programme development. This will ease an assessment execution, as fast as possible, and, in the same time, the drafting of the potential next Programme, 2021-2028.

[39] IMPLEMENTATION OF DIRECTIVE 2001/42 ON THE ASSESSMENT OF THE EFFECTS OF CERTAIN PLANS AND PROGRAMMES ON THE ENVIRONMENT

9. Bibliography

Regulations

- Council of Europe (1992): European Convention on the Protection of the Archaeological Heritage (Revised)
- Council of Europe (2000): European Landscape Convention
- DIRECTIVE 2000/60/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 October 2000 establishing a framework for Community action in the field of water policy
- DIRECTIVE 2001/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment
- DIRECTIVE 2001/81/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (amended 2006 and 2009)
- DIRECTIVE 2008/56/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)
- DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently Repealing Directives 2001/77/EC and 2003/30/EC
- DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on The energy performance of buildings
- DIRECTIVE 2012/27/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC
- European Commission (2000): Action Plan to Improve Energy Efficiency in the European Community; COM(2000) 247
- European Commission (2004): Implementation of Directive 2001/42 on the assessment of the effects of certain plans and programmes on the environment
- European Commission (2005): Thematic Strategy on air pollution; COM(2005) 446
- European Commission (2006): Thematic Strategy for soil protection; COM(2006) 231
- European Commission (2010): EUROPE 2020 - A strategy for smart, sustainable and inclusive Growth; COM(2010) 2020
- European Commission (2011): Wind energy developments and Natura 2000. Guidance Document.
- Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention, 1995)
- Framework programme for research and innovation «Horizon 2020» (2014-2020) (COM(2011) 809)
- Programme for the Competitiveness of Enterprises and small and medium-sized enterprises (2014 – 2020) (COM (2011) 834)
- Roadmap for moving to a competitive low carbon economy in 2050 (COM(2011) 112)
- Programme for the environment and climate action 2014-2020 (Programme Life) (PE-COS 70/13, 16103/13 ADD1)
- Innovation for a sustainable Future - The Eco-innovation Action Plan (PAEI) (Eco-AP) (COM(2011) 899)
- Blue growth: opportunities for marine and maritime sustainable growth (COM(2012) 494).

Reference texts and publications

- CORINE, 1995. Coastal erosion draft report. In: Natural resources [CD- ROM] version 1.1 (1996). European Environment Agency, Copenhagen.
- European Commission (1998). CORINE: Coastal erosion (environment and quality of life). Office of Official Publications of the European Communities, Luxembourg.
- EEA, (2000). Environmental signals 2000. European Environment Agency, Copenhagen.
- EEA and UNEP (1999). State and pressures of the marine and coastal Mediterranean environment. European Environment Agency, Copenhagen.
- EEA and UNEP (2006). Priority Issues in the Mediterranean Environment. European Environment Agency, Copenhagen.
- EEA (2013). Air quality in Europe – 2013 report.
- EU EUROSION Project (2004). Living with coastal erosion in Europe: Sediment and space for sustainability. Directorate General Environment, European Commission.
- FAO/FD (2011). State of Mediterranean Forests. FAO Forestry Department, Rome.
- FAO/FAD (2012). FAO Fisheries Glossary. (WWW) FAO Fisheries and Aquaculture Department, Rome.
- IUCN (2011). The IUCN Red List of Threatened Species. (WWW) Version 2011.2.
- UNEP/MAP/BP/RAC (2009). The State of the Environment and Development in the Mediterranean 2009. United Nations

Environment Programme, Mediterranean Action Plan, Blue Plan Regional Activity Centre, Valbonne.
- UNEP/MAP/MED POL (1996). State of the Marine and Coastal environment in the Mediterranean Region. MAP Technical Report Series No. 100. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL (1999) Strategic Action Programme to Address Pollution from Land-based Activities. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL (2003). Riverine transport of water, sediments and pollutants to the Mediterranean Sea. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL (2005). Transboundary diagnostic analysis (T.D.A.) for the Mediterranean Sea. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL (2011). Hazardous substances in the Mediterranean: a spatial and temporal assessment. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL (2012). Releases, emissions and sources of pollutants in the Mediterranean region: An assessment of 2003-2008 trends. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL, WHO (2008). Assessment of the state of microbial pollution in the Mediterranean Sea. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/MED POL/WHO/FAO (1989). State of the marine environment in the Mediterranean Region. MAP Technical Report Series No. 28. United Nations Environment Programme, Mediterranean Action Plan, Athens.
- UNEP/MAP/ (2013). Mediterranean Strategy for Sustainable Development follow-up. Indicators. MAP Technical Report
- UNEP/MAP (2012): State of the Mediterranean Marine and Coastal Environment, UNEP/MAP–Barcelona Convention, Athens
- UNEP/MAP-Plan Bleu (2009): State of the Environment and Development in the Mediterranean, UNEP/MAP-Plan Bleu, Athens
- UNEP/MAP/BP/RAC (2003). Threats to soils in Mediterranean Countries, document review. United Nations Environment Programme, Mediterranean Action Plan, Blue Plan Regional Activity Centre, Sophia Antipolis.
- UNEP/MAP/BP/RAC/IDDRI (2008). Suivi de la stratégie méditerranéenne pour le développement durable – Etude régionale « Tourisme et changement climatique en Méditerranée : enjeux et perspectives ». United Nations Environment Programme, Mediterranean Action Plan, Blue Plan Regional Activity Centre, Sophia Antipolis-Valbonne
- MAP/BP/RAC (2012). Towards an observatory and a « quality label » of tourism sustainability in the Mediterranean (Blue Plan Papers 12). Mediterranean Action Plan, Blue Plan Regional Activity Centre, Sophia Antipolis-Valbonne.
- UNEP/MAP/BP/RAC (2006). A sustainable Future for the Mediterranean – The Blue Plan's Environment and Development Outlook – EXECUTIVE SUMMARY. United Nations Environment Programme, Mediterranean Action Plan, Blue Plan Regional Activity Centre, Sophia Antipolis.
- Blue Plan/AFD (2009). Energy sector in the Mediterranean region, situation and prospective 2025 (Blue Plan Notes n°13)
- EEA Report No 11/2013. A closer look at urban transport. TERM 2013: transport indicators tracking progress towards environmental targets in Europe. ISSN 1725-9177
- EEA report. The European environment**.** State and outlook 2010. Marine and coastal environment**. T**hematic assessment.
- Eurostat. Sustainable development in the European Union. 2013 monitoring report of the EU sustainable development strategy. 2013
- European Commission, DG MARE. Blue Growth Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts. Third Interim Report. 2012
- Global Footprint Network/MAVA/WWF/UNESCO Venice/Plan Bleu, October 2012. Mediterranean ecological footprint trends
- European Commission (2004). Aid Delivery Methods. Volume 1: Project Cycle Management Guidelines
- European Commission, Environment DG (November 2001) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6 (3) and (4)of the Habitats Directive 92/13/CEE
- European Commission (2000). Managing Natura 2000 sites : The provisions of article 6 of the « Habitats » Directive 92/43/CEE

Annex: detailed rating grids

Axis 1, SO 1: To increase transnational activity of innovative clusters and networks of key sectors of the MED area

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	+/-	U	O	LT	//	PTE
2	How may the objective or implementation measure impact the ecological coherence of territories?	o					
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+/-	U	O	LT	//	PTE
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	+/-	U	O	LT	//	PTE
5	How may the objective or implementation measure impact erosion processes?	+	U	O	LT	R	PTE
6	How may the objective or implementation measure impact water withdrawals?	+	U	O	LT	R	PTE
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	U	O	LT	R	PTE
8	How may the objective or implementation measure impact marine water quality?	+/-	U	F	LT	//	PTE
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	+	U	F	LT	R	PTE
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	o					
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	+	P	F	LT	R	PTE
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	+	P	F	LT	R	PTE
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	+	U	O	LT	R	PTE
14	How may the objective or implementation measure impact waste production (household and industrial) ?	+/-	U	F	LT	I	PTE
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	+/-	U	F	LT	R	PTE
16	How may the objective or implementation measure impact mobility?	-	U	O	ST	R	PTE
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles...)?	+/-	U	F	LT	//	PTE
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	+/-	U	O	LT	R	PTE
21	How may the objective or implementation measure impact landscapes?	-	U	O	LT	I	PTE
22	How may the objective or implementation measure impact the sustainability of urban planinng?	o					
23	How may the objective or implementation measure impact space use?	+/-	U	F	LT	//	PTE
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	LT	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	+	VP	C	LT	R	PTE
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 2, SO 2.1: To raise capacity for better management of energy in public buildings at transnational level

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	o					
2	How may the objective or implementation measure impact the ecological coherence of territories?	o					
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	o					
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	o					
5	How may the objective or implementation measure impact erosion processes?	o					
6	How may the objective or implementation measure impact water withdrawals?	o					
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	o					
8	How may the objective or implementation measure impact marine water quality?	o					
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	+/o	U	C	LT	R	PTE
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	+	VP	F	LT	R	PTE
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	o					
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	o					
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	o					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	o					
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	o					
16	How may the objective or implementation measure impact mobility?	o					
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles...)?	+	P	C	LT	R	PTE
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	+	P	F	LT	R	NTE
21	How may the objective or implementation measure impact landscapes?	o					
22	How may the objective or implementation measure impact the sustainability of urban planinng?	+/o	U	O	LT	R	NTE
23	How may the objective or implementation measure impact space use?	o					
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	o					
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	o					
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 2, SO 2.2: To increase the share of renewable local energy sources in energy mix strategies and plans in MED territories

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	-/+	U	O	LT	//	PTE
2	How may the objective or implementation measure impact the ecological coherence of territories?	-	U	O	LT	//	NTE
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	-	U	O	LT	//	PTE
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	-	P	O	LT	I	NTE
5	How may the objective or implementation measure impact erosion processes?	o/-	P	O	LT	I	NTE
6	How may the objective or implementation measure impact water withdrawals?	o					
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	U	O	LT	R	NTE
8	How may the objective or implementation measure impact marine water quality?	-/+	U	O	LT	//	PTE
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	+	U	C	LT	R	PTE
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	+	P	O	LT	R	NTE
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	+	VP	F	LT	R	PTE
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	o					
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	o					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	-/o	P	F	ST	I	NTE
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	+	VP	F	LT	R	PTE
16	How may the objective or implementation measure impact mobility?	o					
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles...)?	+	VP	C	LT	R	PTE
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	-	P	O	LT	R	NTE
21	How may the objective or implementation measure impact landscapes?	-/o	U	O	LT	R	NTE
22	How may the objective or implementation measure impact the sustainability of urban planinng?	+	P	O	LT	R	NTE
23	How may the objective or implementation measure impact space use?	-	P	F	LT	I	PTE
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	ST	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	o					
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 2, SO 2.3: To increase capacity to use existing low carbon transport systems and multimodal connections among them

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	o					
2	How may the objective or implementation measure impact the ecological coherence of territories?	o					
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+/-	P	F	LT	//	PTE
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	o					
5	How may the objective or implementation measure impact erosion processes?	o					
6	How may the objective or implementation measure impact water withdrawals?	o					
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	o					
8	How may the objective or implementation measure impact marine water quality?	+/-	P	F	LT	//	PTE
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	+/-	U	C	LT	//	PTE
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	+	VP	F	LT	R	PTE
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	o					
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	+	VP	F	LT	R	PTE
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	o					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	o					
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	o					
16	How may the objective or implementation measure impact mobility?	+	VP	F	LT	R	PTE
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles...)?	+/-	P	C	LT	//	PTE
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	+	VP	F	LT	R	NTE
21	How may the objective or implementation measure impact landscapes?	o					
22	How may the objective or implementation measure impact the sustainability of urban planinng?	+	VP	F	LT	R	NTE
23	How may the objective or implementation measure impact space use?	+/-	VP	F	LT	R	NTE
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	ST	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	o					
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 3, SO 3.1: To enhance sustainable development policies for more efficient valorisation of natural resources and cultural heritage in coastal and adjacent maritime areas

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	o					
2	How may the objective or implementation measure impact the ecological coherence of territories?	//					
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+	P	F	LT	R	NTE
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	+	VP	F	LT	R	NTE
5	How may the objective or implementation measure impact erosion processes?	+	VP	F	LT	R	NTE
6	How may the objective or implementation measure impact water withdrawals?	+	VP	F	LT	R	NTE
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	VP	F	LT	R	NTE
8	How may the objective or implementation measure impact marine water quality?	+	VP	F	LT	R	PTE
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	o					
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	o					
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	o					
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	+	P	F	LT	R	NTE
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	o					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	//					
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	o					
16	How may the objective or implementation measure impact mobility?	+/o	U	O	LT	R	NTE
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?	o					
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	+	VP	F	LT	R	PTE
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	//					
21	How may the objective or implementation measure impact landscapes?	+	P	O	LT	R	NTE
22	How may the objective or implementation measure impact the sustainability of urban planinng?	+	VP	F	LT	R	NTE
23	How may the objective or implementation measure impact space use?	+	VP	F	LT	R	NTE
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	ST	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	o					
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 3, SO 3.2: To maintain biodiversity and natural ecosystems through strengthening the management and networking of protected areas

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	+	VP	F	LT	R	PTE
2	How may the objective or implementation measure impact the ecological coherence of territories?	+	U	O	LT	I	NTE
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	+	VP	F	LT	R	NTE
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	o					
5	How may the objective or implementation measure impact erosion processes?	o					
6	How may the objective or implementation measure impact water withdrawals?	+	VP	F	LT	R	NTE
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	+	P	F	LT	R	NTE
8	How may the objective or implementation measure impact marine water quality?	+	P	F	LT	R	PTE
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	o					
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	o					
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	o					
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	o					
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	o					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	o					
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	o					
16	How may the objective or implementation measure impact mobility?	o					
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?	o					
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	o					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	o					
20	How may the objective or implementation measure impact noise and odour pollution?	o					
21	How may the objective or implementation measure impact landscapes?	+	U	O	LT	R	NTE
22	How may the objective or implementation measure impact the sustainability of urban planinng?	+	U	O	LT	R	NTE
23	How may the objective or implementation measure impact space use?	+	U	O	LT	I	NTE
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	ST	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	+	VP	C	LT	R	NTE
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE

Axis 4, SO 4.1: To support the process of developing multilateral coordination frameworks and strengthening the existing ones in the Mediterranean for joint responses to common challenges

	Questions	Nature of the impact	Probability of the impact	Frequency	Duration	Reversibility	Transborder effect
To protect, conserve and improve the natural assets of the MED area							
1	How may the objective or implementation measure impact the loss of biodiversity?	//					
2	How may the objective or implementation measure impact the ecological coherence of territories?	//					
3	How may the objective or implementation measure impact habitats (terrestrial and aquatic)?	//					
4	How may the objective or implementation measure impact the soil sealing and/or artificialisation?	//					
5	How may the objective or implementation measure impact erosion processes?	//					
6	How may the objective or implementation measure impact water withdrawals?	//					
7	How may the objective or implementation measure impact water quality (fresh waters, transitionnal waters, coastal waters) ?	//					
8	How may the objective or implementation measure impact marine water quality?	//					
9	How may the objective or implementation measure improve the resilience of ecosystems to climate change?	//					
10	How may the objective or implementation measure improve energy efficiency of population lifestyle (including buildings) ?	//					
11	How may the objective or implementation measure increase the share of renewable energies in global primary energy production ?	//					
To make of the MED area a more efficient, greener, more competitive and low-carbon economy							
12	How may the objective or implementation measure impact energy efficiency in the productive sector ?	//					
13	How may the objective or implementation measure impact the durability of goods and above all their production methods?	//					
14	How may the objective or implementation measure impact waste production (household and industrial) ?	//					
15	How may the objective or implementation measure impact waste recovery (household and industrial)?	//					
16	How may the objective or implementation measure impact mobility?	//					
To protect the citizens of the MED area from the health and welfare pressures/risks associated with the environment							
17	How may the objective or implementation measure impact atmospheric pollution (GHG, particles…)?	//					
18	How may the objective or implementation measure impact management and resilience to natural hazards ?	//					
19	How may the objective or implementation measure impact management and resilience to industrial risks ?	//					
20	How may the objective or implementation measure impact noise and odour pollution?	//					
21	How may the objective or implementation measure impact landscapes?	//					
22	How may the objective or implementation measure impact the sustainability of urban planinng?	//					
23	How may the objective or implementation measure impact space use?	//					
Cross-cutting issues							
24	How may the objective or implementation measure impact knowledge- and data-bases, which support environment policy in the MED area?	+	VP	C	ST	I	PTE
25	How may the objective or implementation measure impact the enhancement of ecosystemic services?	//					
26	How may the objective or implementation measure impact integration and consistency of environmental field in policies?	+	VP	C	LT	I	PTE