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ANALYSIS OF THE POTENTIAL IMPACT OF THE EURO-MEDITERRANEAN FREE TRADE AREA ON THE NATURAL RESOURCES IN NORTH AFRICA

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1. Introduction

Since the launch of the Euro-Mediterranean Partnership (EMP) in 1995, significant progress has been made for each of its components, including the Euro-Mediterranean Free Trade Area (EMFTA). The EMP process has also adopted sustainable development as a guiding objective.

This study aims to identify and assess the potential impacts of the EMFTA on the natural resources of the North African partner countries. The study is based in the analysis of existing literature including relevant documentation on the implementation of the EMP and the EMFTA in five selected countries: Morocco, Algeria, Tunisia, Libya and Egypt. The analysis has considered the main sectors having a potential significant impact on the environment, such as agriculture, fisheries, energy, fisheries, transport, industry and tourism.

SWOT Analysis[1] is also included in the study as a basis for the identification of opportunities, including financial support, to prevent and mitigate the negative impacts of EMFTA on the environment and natural resources.

2. Background: the Euro-Mediterranean Partnership and the European Neighbourhood Policy

EU and EC cooperation objectives in the Southern Neighbourhood countries are guided by the Euro-Mediterranean Partnership (also known as the Barcelona Process) and the European Neighbourhood Policy (ENP).

The Euro-Mediterranean Partnership (EMP)[2], nowadays known as 'the Union for the Mediterranean' (UfM)[3], was created in 1995 to enhance the relations between the European Union (EU) and the Mediterranean Partner Countries (MPC). It consists of three main components: a political and security partnership, an economic and financial partnership and a partnership in social, human and cultural affairs. The overall objective of the economic and financial partnership is the creation of an 'area of shared prosperity' through 'the stimulation of the socio-economic development of the MPC, the improvement of the living conditions of Mediterranean people and through regional integration and cooperation'. With this aim, both the EU and the Mediterranean partners agreed to establish a Euro-Mediterranean Free Trade Area (EMFTA) by 2010 to substantially liberalise trade between both the EU and Southern Mediterranean countries (North-South), and Southern Mediterranean countries themselves (South-South).

Euro-Mediterranean **Association Agreements (AAs)** form the main contractual arrangements governing relations between the EU and its partners in the Mediterranean, including the establishment of a free trade area. These agreements aim, *inter alia*: to establish conditions for the progressive liberalisation of trade in goods, services and capital, to contribute to the economic and social development of partner countries, to promote cooperation in other areas which are of mutual interest and to encourage regional cooperation with a view to the consolidation of peaceful co-existence and economic and political stability.

[1] SWOT analysis is a method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project, programme, plan or policy.
[2] Euro-Mediterranean Conference, 1995, Barcelona Declaration. Available at: http://eeas.europa.eu/euromed/index_en.htm
[3] The Euro-Mediterranean Partnership, formerly known as the Barcelona Process, was re-launched in 2008 as the Union for the Mediterranean at the Paris Summit for the Mediterranean.

Under these agreements, the Community and the partner countries shall establish a free trade area over a transitional period not exceeding twelve years from the entry into force of each Agreement. In this regard, the agreements include provisions for industrial products, agricultural, fisheries and processed agricultural products (the latter e.g. for Morocco).

These agreements also aim to foster economic cooperation focusing primarily on sectors suffering from internal difficulties or affected by the overall process of liberalisation of the partner countries' economy, and in particular by the liberalisation of trade. Cooperation shall encourage the implementation of measures designed to develop intra-regional cooperation. Conservation of the environment and ecological balance shall be taken into account in the implementation of the various sectors of economic cooperation to which the agreements are relevant.

AAs are in force with Algeria (2005), Egypt (2004), Morocco (2000) and Tunisia (1998). Libya has the status of observer in the Euro-Mediterranean-Partnership and negotiations for a future Association Agreement started in 2008 and are still going on.

The **European Neighbourhood Policy (ENP)** was launched in 2004 and seeks to contribute to stability and good governance in the EU's immediate neighbourhood and to promote a ring of well-governed countries to the east and south of the EU with whom the EU can enjoy close and cooperative relations. The Partnership now includes all 27 member states of the European Union, along with 16 partners across the Southern Mediterranean and the Middle East.

The ENP has transformed relations between the EU and its neighbours. Since its launch, political contacts have increased in profile and intensity. EU assistance has been tailored to partners' reform needs and its volume in the current Financial Framework has increased by 32%.

Figure 1. ENP partner countries

In the framework of the ENP, **Action Plans** are agreed between the EU and each partner country, which lay out the strategic objectives of their cooperation, and define an agenda of political and economic reforms by means of short and medium-term (3-5 years) priorities. Such Action Plans are being implemented with Morocco, Tunisia and Egypt, among other countries.

In support of the ENP, in 2006 the EU decided to create a single **European Neighbourhood and Partnership Instrument (ENPI)**[4]**.** The overall objective of the ENPI is to provide assistance aimed at promoting enhanced cooperation and progressive economic integration between the EU and its neighbouring countries and, in particular, supporting the implementation of partnership and cooperation agreements, association agreements or other existing and future agreements. As such, the ENPI provides financial support for the objectives of the Barcelona Process, the Association Agreements, the ENP and the ENP

[4] Regulation (EC) No 1638/2006 of the European Parliament and of the Council of 24 October 2006 laying down general provisions establishing a European Neighbourhood and Partnership Instrument. OJEU L310/1. 9.11.2006. http://ec.europa.eu/world/enp/pdf/oj_l310_en.pdf

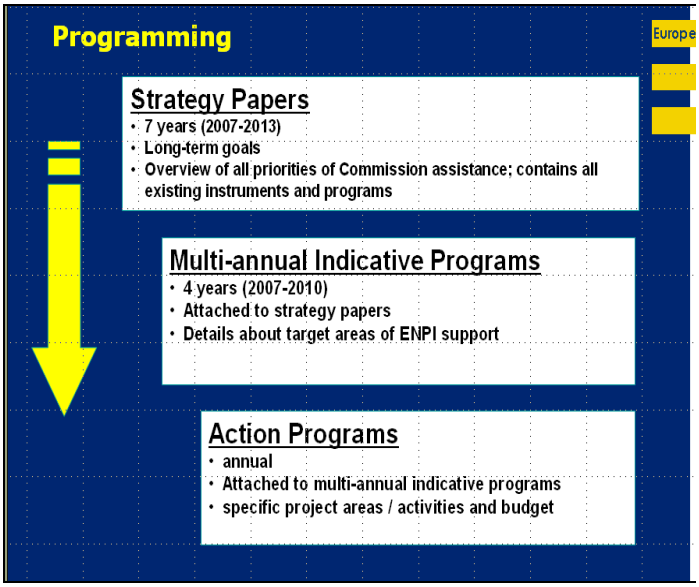
Action Plans. This new instrument, launched in 2007, replaces MEDA[5] (for the Southern Mediterranean neighbours) and other programmes from which these countries benefit. For the Financial Framework 2007-2013, approximately 12 billion € in EU funding are available to support these partners' reforms, an increase of 32% in real terms as compared to the 2000-2006 Financial Framework.

The Barcelona Declaration, the AAs and the ENP Action Plans are jointly agreed policy documents between the EU and its Mediterranean partners, with fully shared ownership. As such, they constitute a joint strategy to address the policy issues in the region, both at bilateral and at regional level.

A Regional Strategy Paper (RSP) 2007-2013 provides a strategic framework for programming the regional Mediterranean allocation of the European Neighbourhood and Partnership Instrument (ENPI). It covers the Southern Mediterranean and Middle East, i.e. the countries that are members of the Euro-Mediterranean Partnership established by the Barcelona Declaration (1995).

For each financial period and for each partner country, a ***Country Strategy Paper (CSP)*** establishes a strategic 7-year framework for EC aid. Currently, CSP for the period 2007-2013 have been developed for all Euro-Mediterranean partner countries.

National Indicative Programmes (NIP) propose operations for financing from the countries' allocation under the ENPI. The purpose of the NIP is to guide the identification and design of programmes, for a 4-year period, by setting out the overall objectives and expected results of operations.



Other financial instruments in support of the ENP include the **Neighbourhood Investment Facility (NIF),** which provides grant support to partner countries by the EIB, the EBRD, and other European financial institutions.

The policy focus of financial co-operation has been further strengthened. Legislative approximation and regulatory convergence are being promoted through wider use of **TAIEX[6] and twinning**. During 2009, the European Commission further promoted, under certain conditions, the extension of the possibility for ENP partners to participate in EU programmes and EU agencies. Such participation can help ENP partner countries to strengthen their administrative and regulatory capacities in a range of policy fields. ENP partners are eligible to participate or to cooperate in a wide range of EU programmes.

[5] Until December 2006, EU assistance to the countries of the ENP was provided under various programmes including MEDA, which had a budget of approximately €5.3 billion for the period 2000-2006.
[6] TAIEX provides short-term technical assistance and advice on convergence with EU legislation, best practices and standards and on related administrative capacity needs, technical training and peer assistance, as well as a data base and information network that facilitates the monitoring of approximation measures, see also : http://taiex.ec.europa.eu

The EC commissioned a **Sustainability Impact Assessment (SIA) of the Euro-Mediterranean Free Trade Area** in 2007[7], which assessed the economic, social and environmental impacts of the evolving EMFTA. The findings of the SIA study indicate that the EMFTA can help to deliver large economic benefits to both the EU and Mediterranean Partner Countries (MPC), especially if carried out as part of a comprehensive development strategy in each of the partner countries, in combination with measures to achieve fuller economic integration across the region as a whole. In the absence of such strategic measures, in individual MPC and regionally under the co-responsibility of the EU and MPC, the economic benefits of the EMFTA are small, and may be accompanied by adverse social and environmental effects. Implementation of the EMFTA needs therefore to be accompanied by appropriate parallel measures if significant adverse social and environmental impacts are to be avoided at the local, regional and global level.

The parallel measures that are necessary to enhance the beneficial effects of the EMFTA and to avoid significant adverse impacts include actions both at the regional level and nationally in each of the partner countries.

A range of parallel policy measures may be undertaken by MPC, in order to mitigate adverse impacts and enhance beneficial ones. Additional action may be taken within the Euro-Mediterranean Partnership, to provide assistance and support to MPC in implementing the necessary policies.

3. Main environmental issues in the Mediterranean Region

Despite many years of international efforts to protect the Mediterranean environment, it remains fragile and continues to deteriorate as pressures increase.

The areas where human pressure is higher, and will probably increase in the following years, are the coastal strips (Atlantic, Mediterranean and Red Sea), the Atlas mountain range, the Nile river basin and wet spots in the desert, such as Adrar, Tassili, etc.

The highest concentration of biodiversity occurs in the coast, in the continental platform. A main spot is represented by the coral reefs in the Red Sea. The Posidonia sea beds in the Mediterranean coast are also very important. Both ecosystems are threatened by water pollution both from sewage from human populations and from discharges from desalination plants. An expected growth of the coastal population and hence in the demand of desalinated water will increase this threat.

The Atlas mountain range is responsible of collecting most of the water used in the coastal strip (in Morocco, Algeria and Tunisia) and is also home of a number of plant and animal species unique in Africa. Strong human pressure from ancient times has leaded to the extinction of some of its more spectacular fauna, as the elephant and the Barbary lion. However these mountains still have a very good potential for biodiversity conservation and play a key role in the economy of all the countries where they are found. The Atlas natural heritage is threatened by deforestation and overgrazing. Ecosystem services provided by this mountain range should be protected through responsible and sustainable management.

Inland biotopes linked to the desert are less threatened due to the lack of human population. However it should be taken in account that the situation of aquifers in the desert is delicate and overexploitation may lead to the degradation of natural habitats dependent on those aquifers.

[7] SIA-EMFTA Consortium 2007. Sustainability Impact Assessment of the Euro-Mediterranean Free Trade Area. Final Report of the SIA-EMFTA Project. Revised November 2007.

In 2007, the IUCN Centre for Mediterranean Cooperation prepared a baseline document[8] for the development of the IUCN Programme 2009-2012 - Shaping a Sustainable Future which describes the key issues affecting the conservation and sustainable use of natural resources in the region. In 2008, the Arab Forum for Environment and Development (AFED) published Arab Environment: Future Challenges, which evaluates the progress made towards the realization of sustainable development goals and a good environmental quality in the Arab region9. In 2009, the UNEP/MAP (United Nations Environment Programme-Mediterranean Action Plan) published the report on the State of the Environment and Development in the Mediterranean10. The UNEP has also recently published the Environment Outlook for the Arab Region: Environment for Development and Human Well-being (2010)11 which provides a comprehensive and integrated assessment of the state of environment in the region. There has been some progress as regards marine pollution in particular, but very significant efforts still have to be made in order to manage as efficiently as possible natural resources that are scarce or, as in the case of water, are unequally distributed (UNEP/MAP 2009).

Recent studies have begun to quantify the cost of degradation of the environment in several countries. As an example, the cost of environmental degradation was estimated in 1999 at between 2.7 and 5.1 billion € per year (or 3.2-6.4% of GDP) in Egypt, 1.5 billion € per year (or 3.6% of GDP) in Algeria and 1.2 billion € per year (or 3.7% of GDP) in Morocco (ENPI, Regional Strategy Paper 2007-2103).

According to the regional environmental analysis presented in the ENPI Regional Strategy Paper 2007-201312, the major environmental issues of the region are: poor air quality, water scarcity, poor water quality, inadequate municipal and industrial solid waste management, soil degradation, desertification, marine pollution, coastal degradation and biodiversity loss. Based on the literature available, a summary description of the key environmental issues affecting the Mediterranean region is presented below.

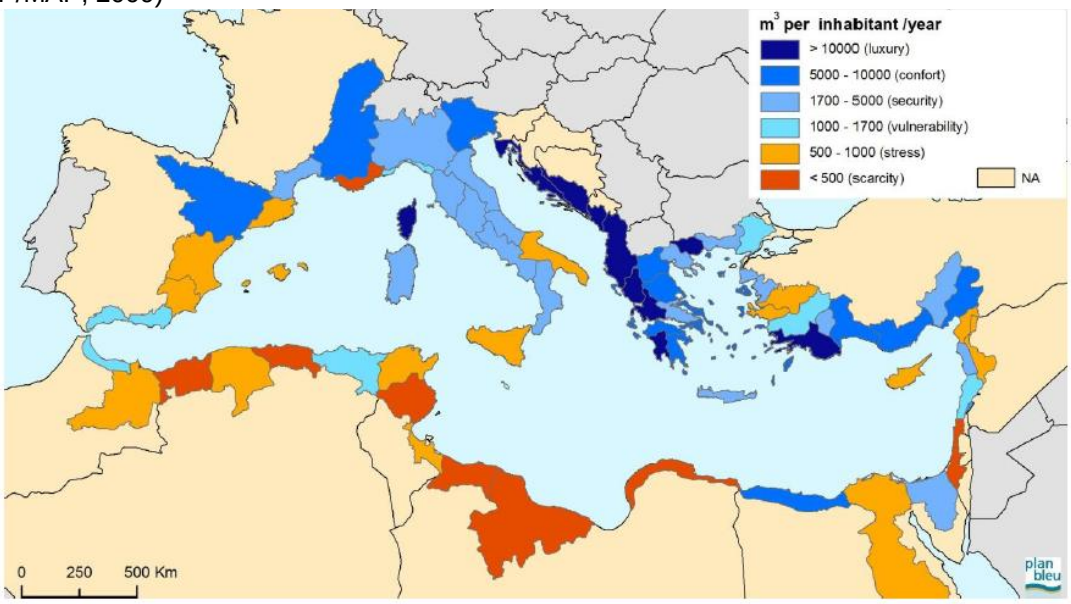
3.1 Water scarcity and poor water quality

In the countries around the Mediterranean, water resources are limited and unequally distributed in space and time. On average, the Mediterranean receives only 3% of global water resources, 1/10 of which come from non-Mediterranean states. The region suffers from conjectural or structural water shortages and certain countries are thus highly dependent on outside resources as, for example, Egypt.

Over the past 50 years water demand in the region has doubled (280km^3/year in 2007), with agriculture being the main consumer: 55% of Algerian water resources (NIP 2011-2013), 86% in Egypt (FAO – Aquastat[13]), 83% in Libya (FAO – Aquastat 2006[14]), 80% in Morocco (NIP 2007-2010) and 85% in Tunisia (NIP 2007-2010). Losses, leaks and waste are also estimated at an average of 40% of total water demand for the entire region (particularly in the farming sector).

[8] IUCN-Med, 2007. Regional Situation Analysis. Draft 6. June 2007.
[9] The Arab region here refers to the following countries: Algeria, Libya, Morocco, Tunisia, Egypt, Jordan, Palestine, Lebanon, Syria, Iraq, Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, and Saudi Arabia.
[10] UNEP/MAP-Plan Bleu: State of the Environment and Development in the Mediterranean, UNEP/MAP-Plan Bleu, Athens, 2009.
[11] Since the report is currently only available in Arabic, it has not been considered for this study.
[12] European Neighbourhood and Partnership Instrument (ENPI). Regional Strategy Paper (2007-2013) and Regional Indicative Programme (2007-2010) for the Euro-Mediterranean Partnership. See: http://ec.europa.eu/world/enp/pdf/country/enpi_euromed_rsp_en.pdf
[13] Egypt: http://www.fao.org/nr/water/aquastat/countries/egypt/index.stm
[14] Libya: http://www.fao.org/nr/water/aquastat/countries/libya/index.stm

Figure 2. Renewable freshwater resources per inhabitant in the Mediterranean region. 1995-2005 (UNEP/MAP, 2009)



Quality and quantity of water have been reported as one of the most serious environmental problems currently facing all the countries in the Euro-Med region. Besides, water scarcity is set to worsen with the projected increase of the population in the region, while poor water quality or water pollution tends to result from high salinity due to over-abstraction and poor irrigation techniques, pollution from agricultural run-off and uncontrolled discharges of waste water and effluent (ENPI Regional Strategy Paper 2007-2013).

3.2 Land degradation and desertification

Land degradation has always existed around the Mediterranean Sea. However, in the last decades, the rate of land degradation has been increasing; with about 66% of the Mediterranean rural area under moderate to high risk of soil degradation. Moreover, around 300.000 km2 of land in the European coastal zone of the Mediterranean is undergoing desertification. Also, Tunisia loses 8.000 ha of land every year to desertification and Algeria loses 40.000 ha (IUCN-Med, 2007).

Land degradation and desertification have been reported as an environmental issue for Algeria (NIP 2011-2013), Egypt (CSP 2007-2013), Libya (NIP 2011-2013), Morocco (CSP 2007-2013) and Tunisia (NIP 2011-2013).

3.3 Degradation of marine and coastal zones

Concerning coastal zones, they constitute the Mediterranean's most appealing asset. These zones are submitted to stringent pressures from land-based pollution, urban development, fishing, aquaculture, tourism, extractions of materials, sea pollution, and marine biological invasions. Constructions currently cover 40 % of the coastal surfaces.

Marine pollution and coastal degradation are important environmental issues affecting Euro-Med countries, especially Algeria (NIP 2011-2013), Egypt (CSP 2007-2013), Morocco (CSP 2007-2013) and Tunisia (NIP 2011-2013).

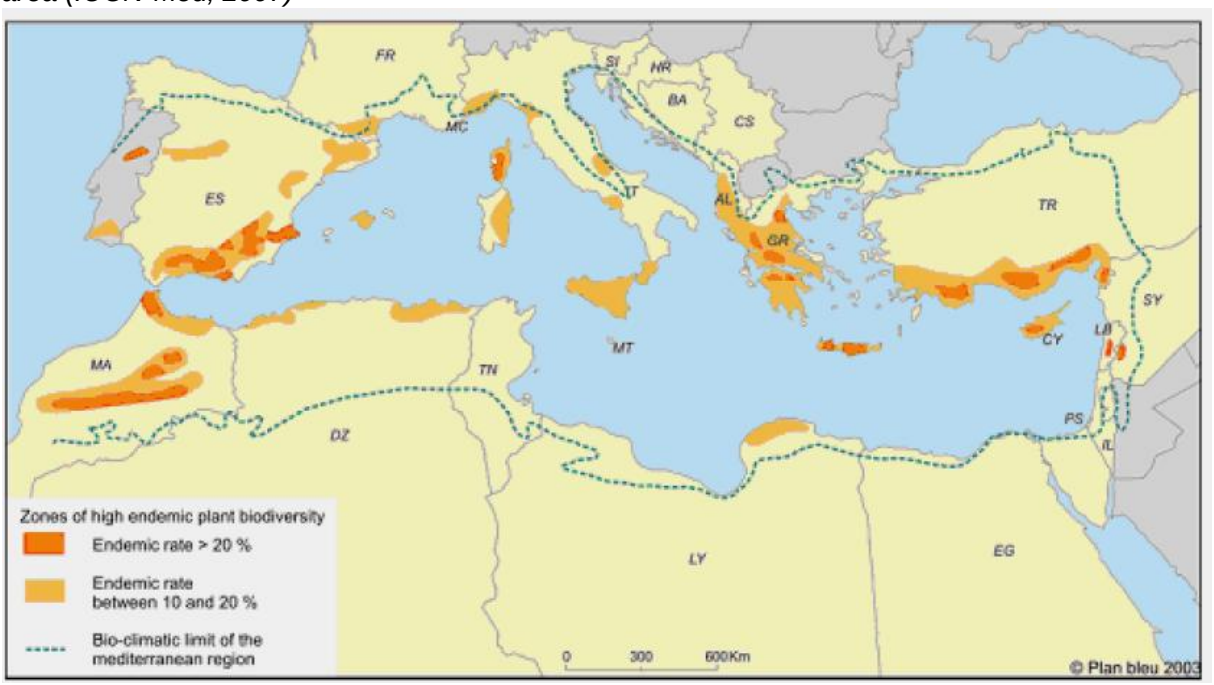
As regards exploitation of marine resources, fisheries are adding to much pressure on natural resources. Indeed, overfishing is a major problem in the Mediterranean region and is causing lack of stocks. With 22 Mediterranean countries plus Asian fishing fleets competing

for the same fish resources, there has been a dramatic decline in fish stocks which have already fallen to 20% of natural levels in some areas. Destructive and often illegal fishing methods have contributed to depleting fish stocks. The main causes of this problem in the region are the lack of information on transboundary stocks, inadequate cooperation in the management of shared stocks, and a lack of surveillance and enforcement of existing fishing regulations (Tolba & Saab, 2008).

3.4 Loss of biodiversity and natural resources

The Mediterranean region has high levels of endemicity that have led to its identification as a global biodiversity hotspot. The diversity of vascular plants in the Mediterranean, with about 25.000 plant species, 50 to 60% of which are unique to the region, is significant compared to other regions of the world (UICN 2007).

Figure 3. Zones with high level of endemic plant biodiversity in the Mediterranean bio-climatic area (IUCN-Med, 2007)



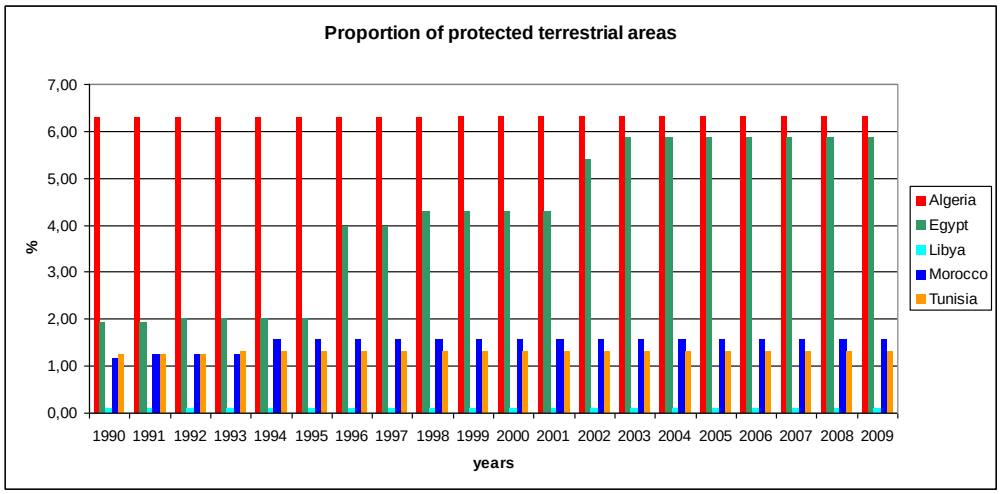
Besides this great richness of plants, a high proportion of Mediterranean animals are unique to the region: 2 out of 3 amphibian species are endemic, as well as half of the crabs and crayfish, 48% of the reptiles, a quarter of mammals, 14% of dragonflies, 6% of sharks and rays and 3% of the birds. The Mediterranean is also hosting numerous species of endemic freshwater fish.

Although the Mediterranean Sea makes up less than 1% of the global ocean surface, it hosts up to 18% of the world's macroscopic marine species, of which 25 to 30% are endemic. The Mediterranean's importance for wildlife is not limited to the richness or uniqueness of its resident fauna and flora: millions of migratory birds from the far reaches of Europe and Africa use Mediterranean wetlands and other habitats as stopover or breeding sites.

In order to protect their natural assets, all Mediterranean countries have created protected areas. These areas contribute, in addition to their conservation function, to human welfare, poverty alleviation and sustainable development. They also help protect species and genetic diversity, maintain ecosystem services, support livelihoods for local people, and provide a wide array of goods and opportunities. The number of protected areas in the Mediterranean has increased significantly over the last decade and environmental conventions and multi-lateral agreements have promoted the development of several systems of protected areas

(Ramsar sites, Biosphere reserves, Natural and Mixed World Heritage sites, SPAMIs…). The figure below illustrates the evolution of the proportion of terrestrial protected areas for each country of this study. It can be appreciated that only Egypt has considerably increased its total surface of protected areas in the last 19 years. The rest of countries show very little or any increase of protected areas.

Figure 4. Proportion of protected terrestrial areas in North African countries



Source: Elaborated with data from the IUCN and UNEP-WCMC (2010). The World Database on Protected Areas (WDPA). January 2010. Cambridge, UK: UNEP-WCMC.

However, while the number and size of protected areas have been increasing, biological diversity continues to be lost in the region. Reasons for this decline in North African countries, as reported in the environmental analysis of the Regional Strategy Paper 2007-2013, are habitat destruction and the expansion of invasive alien species. The *2008 Review of The IUCN Red List of Threatened Species*[15] adds pollution, overexploitation of natural resources, natural disasters, human disturbance and bycatch to the previous two causes of threat mentioned.

The NIP and CSP also mention some particular pressures causing biodiversity loss in the countries concerned by this study. For Algeria, deforestation, pollution and urban sprawl are considered significant threats to biodiversity (NIP 2011-2013). In Egypt modest public awareness and lack of resources are mentioned (CSP 2007-2013). In Morocco, the disappearance of biodiversity is related to deforestation and soil degradation, and pollution, unplanned construction and poorly regulated tourist activities are deteriorating the coastal ecosystems (CSP 2007-2013).

As regards the marine environment, biological diversity is essentially concentrated in the West of the Mediterranean basin and in shallow depths (between 0 and 50m deep). Two remarkable ecosystems, sea grass beds (such as *Posidonia*), a key Mediterranean ecosystem) and coral concretions can be found in coastal zones. 19 % of known Mediterranean species are threatened both locally and worldwide from increasing pressures (disappearance of ecosystems as coastal lagoons and sea grass beds), coastal erosion, over-exploited marine resources and expansion of invasive species. The Mediterranean emblematic monk seal is classified as a species in critical risk of extinction. This is also the case for cartilaginous fish, with 42% of shark species threatened with extinction (UNEP/MAP 2009).

[15] Cuttelod, A., García, N., Abdul Malak, D., Temple, H. and Katariya, V. 2008. The Mediterranean: a biodiversity hotspot under threat. In: J.-C. Vié, C. Hilton-Taylor and S.N. Stuart (eds). *The 2008 Review of The IUCN Red List of Threatened Species*. IUCN Gland, Switzerland.

In this context of erosion of biodiversity, the Contracting Parties to the Barcelona Convention have committed themselves to a joint approach adopting in 1995 a new Protocol concerning Specially Protected Areas and Biological Diversity (SPA/BD Protocol) and the implementation of a Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean. However, these SPAs are still insufficient and are very unequally distributed between the western and eastern basin (82% and 18% of SPAs respectively), but also the European and non-European states (85% and 15% of SPAs respectively).

On a regional level, Mediterranean ENP partners also participate in the *Horizon 2020 Initiative* aimed to tackle the top sources of Mediterranean pollution by the year 2020.

3.5 Air quality and atmospheric pollution

Although air quality is identified as an increasingly serious problem for most of the Mediterranean ENP partner countries, it is not considered to be on the same level as water scarcity, water pollution or waste management. Natural air pollution specific to this region (e.g. sand and dust storms) may add to specific anthropogenic air components.

In general, air pollution affects major cities in the countries considered in this study and stems mostly from transport. Based on historical data, about 90% of total emissions of Carbon Monoxide (CO) and between 70 and 80% of total Hydrocarbons (HC) emissions in Arab countries are due to transportation activities (El Raey, 2006), with widespread use of diesel fuel, continued use of leaded petrol and the lack of regular emission inspections. In addition, air emissions from the energy sector and pollution from certain waste management practices (e.g. uncontrolled incineration of solid waste and agricultural biomass waste) are also a problem in some countries (EC, 2008).

In accordance to this, national environmental profiles of Algeria (NIP 2011-2013), Egypt (CSP 2007-2013), Libya (NIP 2011-2013), Morocco (CSP 2007-2013)and Tunisia (NIP 2011-2013) include atmospheric pollution as a major environmental issue.

3.6 Climate change

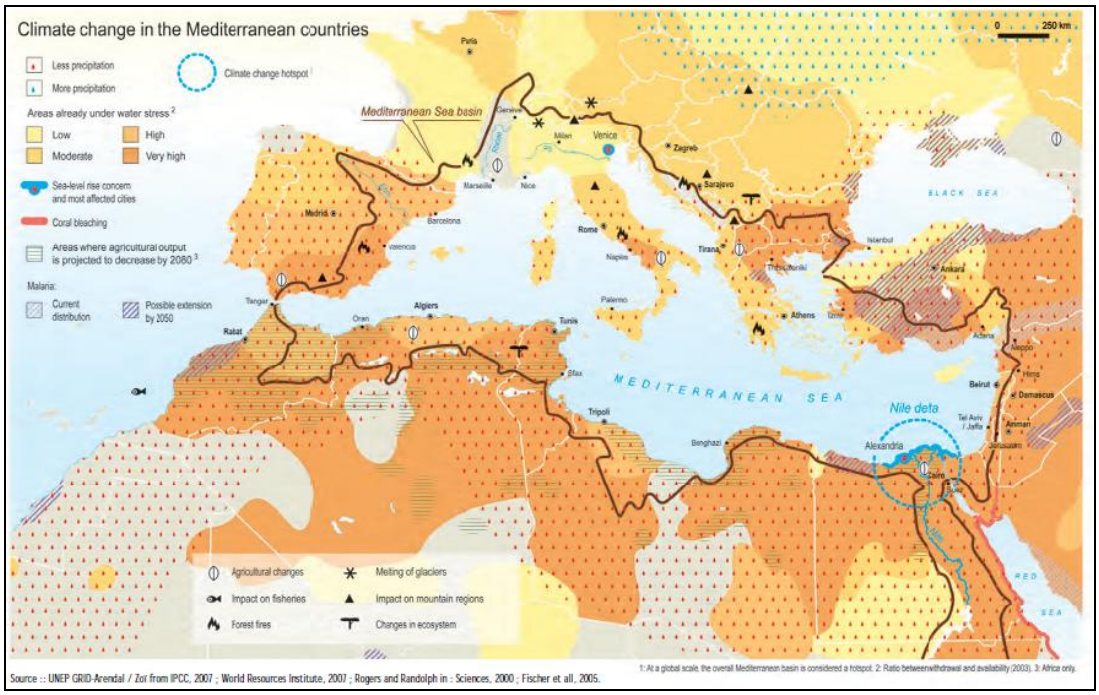
Recently, the Arab Forum for Environment and Development (AFED) published a report on climate change on Arab Countries (Tolba & Saab, 2009), which describes the vulnerabilities to climate change of natural and human systems in the Arab world and the impacts on each sector of human activity. Although the Arab region does only contribute about 5% to the causes of global climate change, its effects on the region will be very severe. In fact, the region is particularly vulnerable given the scarcity of water resources, high levels of aridity and the long coastal stretch threatened by the rising sea levels. Natural and physical systems in the Arab world are already facing heavy pressures, and these will only be intensified as temperatures in the region get higher and/or precipitation gets lower.

The Arab region could face an increase of 2 to 5.5°C in the surface temperature by the end of the 21st century. In addition, this temperature increase would be coupled with a projected decrease in precipitation up to 20%. The results for the region include shorter winters, dryer and hotter summers, a higher rate of heat waves, increased weather variability, and a more frequent occurrence of extreme weather events (e.g. floods and droughts).

Higher temperatures will also increase the incidence and impact of drought in the region, threatening water resources and productive land. Drought frequency has already increased in Algeria, Morocco, Syria, and Tunisia. In addition, increased precipitation variability and water resource availability directly related to climate change affect a number of the countries in the region. Sea level rise (SLR), due to rising temperatures, has the potential to cause a significant loss of agricultural land in the Arab region. As an example, even a 1 m SLR could potentially cause the loss of 12% to 15% of agricultural land in the Nile Delta region. In

addition to the agricultural sector, the industrial and tourism sectors, urban areas and the GDP in a number of Arab countries would also be negatively impacted by sea level rise.

Figure 5. Potential impacts of climate change in the Mediterranean countries (UNEP/MAP, 2009)



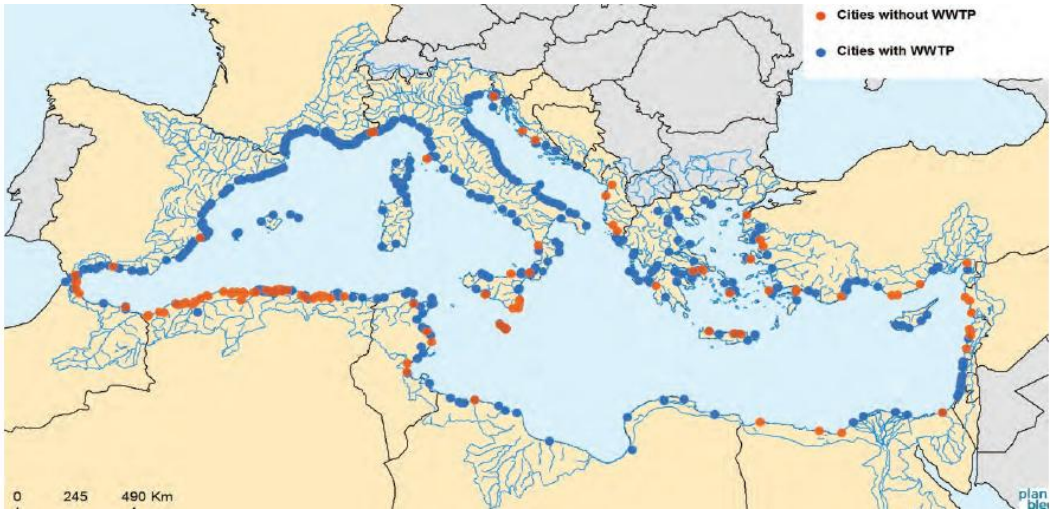
3.7 Inadequate waste management and waste water treatment

Closely correlated with economic growth and in particular with consumption patterns and production trends, the quantity of waste generated has steadily increased both in North and South Mediterranean countries. Although the organic fraction of waste is diminishing, the fraction of high calorific value waste is growing strongly due to increased packaging. In Tunisia, for example, the waste collection rate is estimated at 85% in urban areas, but only 40% of the 2 million tonnes of urban waste produced annually are conveyed to controlled landfills, while 60% are disposed in 400 unauthorized waste dumps. In Morocco, this type of waste disposal concerns 90% of urban waste (UNEP/MAP, 2009).

Collected waste water in most Southern Mediterranean countries is neither treated nor purified. With the exception of Morocco, where 80 % of collected waste water is treated, Southern countries are not well-equipped in treatment plants. Delayed availability of sewerage systems and even more of waste water treatment facilities contributes to the degradation of resources, aggravates water supply difficulties and fuels conflicts between the two «services»: potable water supply and waste water purification (UNEP/MAP, 2009).

On the coast, where built up areas now cover nearly 40% of the coastline, about half of the cities with over 100.000 inhabitants do not have water treatment plants and 60% of urban waste water is discharged into the sea without being treated. Other than posing a threat on Mediterranean species and degrading fish resources, this is affecting bathing water quality which will eventually negatively impact several tourist destinations (UICN-Med, 2007). Waste water treatment is even more problematic in rural areas (e.g. below 70% in Egypt, in Morocco, and Tunisia). Reliance on autonomous wastewater treatment systems (as septic tanks) remains high in Tunisia, with 32% of the population using this type of treatment (UNEP/MAP2009).

Figure 6. Waste water treatment plants along the coast (UNEP/MAP, 2009)



In the framework of the ENP, Inadequate waste management and waste water treatment have been reported as environmental problems for Algeria (NIP 2011-2013), Egypt (CSP 2007-20113), Libya (NIP 2011-2013), Morocco (CSP 2007-2013) and Tunisia (NIP 2011-2013).

3.8 Other environmental issues affecting North African countries

Other issues reported as affecting North African countries' natural resources and environment are: deforestation (*Algeria, Morocco*); overgrazing and poor farming practices (*Algeria, Morocco, Tunisia*); farming intensification (*Libya, Egypt*); salinisation and intrusion of sea water into aquifers (*Algeria, Libya, Tunisia*); land salinisation or soil degradation (*Morocco, Tunisia*); industrial pollution (*Algeria, Egypt, Libya*). Urban sprawl, urbanisation and development of tourism are also putting pressure on natural resources, particularly in coastal areas of Algeria, Egypt, Morocco and Tunisia.

3.9 Environmental policies and opportunities from the ENP in North African countries

Environment authorities in the countries of the southern and eastern Mediterranean generally have insufficient capacity to address these serious problems and to develop and enforce environmental regulation. Ratification and implementation of international environmental agreements also remains a challenge for the region (ENPI Regional Strategy Paper 2007-2013). While numerous international commitments and processes exist, implementation often lags behind. A key objective of the ENP is therefore to work with partners to achieve better strategic planning, prioritisation and stronger administrative capacity.

Many partners are showing a growing interest in EU experience, and are today increasingly willing to converge with EU environment directives. Regulatory convergence should continue to be at the core of the ENP as well as cooperation on environmental governance. Stronger cooperation is needed on biodiversity conservation including to raise awareness of the economic benefits derived from ecosystem services and, conversely, of the costs of losing them (EC, 2010).

Within the existing ENP Action Plans most of the Mediterranean ENP partner countries envisage to develop framework and secondary (implementing) legislation and basic procedures and ensure planning for key environmental sectors including nature protection. Moreover, some countries focus on action towards adoption of plans and programmes

related to biodiversity and the exchange of experience on protection of biological diversity and rural landscape, with special attention to the relevant migratory species.

Partners have also expressed a desire to work with the European Environment Agency (EEA) and the ENP has offered this possibility. Using EU financial assistance, the EEA is assisting partners to strengthen collection and management of environmental data. The ENP has also contributed to greater openness and accountability in environment policy, through the involvement of NGOs.

Another aspect that could be further developed in the future is a more co-ordinated governance of maritime-related activities. Stronger co-operation would be useful not only on sustainable management of fisheries resources, including effective control of fishing activities, but also on broader issues related to integrated maritime surveillance, maritime spatial planning and other maritime policy matters including the professional qualification of seafarers. The EU will also continue to support ENP partners in their efforts to ratify and implement the United Nations Convention on the Law of the Sea (UNCLOS).

There are specific efforts to enhance co-operation for nature protection between Europe and the European neighbouring countries. These include the developed Framework of the Euro-Mediterranean partnership, the Short and Medium-Term Priority Environmental Action Programme (SMAP) and the Mediterranean Action Plan (UNEP/MAP). Several regional activity centres have been set to implement the UNEP/ MAP at the regional, national and local levels.

In relation to the key environmental issues identified, the National Action Plans consider the need to promote (based on information provided by CSP 2007-2013 and NIP 2011-2013):

- protection and sustainable management of water resources (*Algeria, Egypt, Morocco, Tunisia*)
- protection of soil (*Morocco*)
- biodiversity conservation (*Algeria, Egypt, Tunisia*)
- protection of marine environment (*Egypt*)
- air quality (*Egypt, Morocco*)
- the promotion of renewable energy (*Morocco*)
- improvements in the urban and peri-urban environments (*Morocco*)
- improvement of waste management (*Algeria, Egypt, Tunisia*)
- sustainable management of land (*Algeria, Egypt*)
- efficient use of resources (*Algeria*)
- desertification (*Egypt, Tunisia*)

4. Potential impacts of the ENP and the EMFTA on natural resources of North African countries

The EU provides significant financial support through the ENPI to promote the socio-economic development of the MPC. Some of the actions promoted have the potential to have detrimental effect on the natural resources and biodiversity of the countries.

According to the SIA of the EMFTA, the implementation of the free trade are could be accompanied by adverse effects on the environment. Appropriate parallel measures should therefore be carried out to avoid such effects at the regional level and nationally in each of the partner countries. A range of parallel policy measures may be undertaken by MPC, in order to mitigate adverse impacts and enhance beneficial ones. Additional action may be taken within the Euro-Mediterranean Partnership, to provide assistance and support to MPC in implementing the necessary policies.

Under the association agreements signed between the EU and the MPC, economic cooperation shall be implemented in particular by:

- a regular economic dialogue between the Parties, which covers all areas of macro-economic policy
- regular exchange of information and ideas in every sector of cooperation including meetings of officials and experts;
- transfer of advice, expertise and training;
- implementation of joint actions such as seminars and workshops;
- technical, administrative and regulatory assistance.

The key sectors for economic cooperation which are most relevant for this study are: *Transport, Energy, Industrial production, Agriculture and Fisheries, Tourism and Environment*. The main objectives set for these sectors in the association agreements considered in this study are summarised below[16]. The environmental impacts that could accompany the developments promoted in those sectors are also described in the corresponding sections.

4.1 Transport

Cooperation in the field of transport markets is essential in order to contribute to the sustainable economic and social development of an increasingly integrated Euro-Mediterranean region and to the development and stability of the region and the growth of intra-regional trade. In this context, the main objectives set for the transport sector in the AAs considered in this study are:

- restructuring and modernisation of road, rail, port and airport infrastructure of common interest, in correlation with major trans-European communication routes (Algeria, Egypt, Morocco, Tunisia);
- establishment and enforcement of operating standards comparable to those found in the Community (Egypt, Morocco, Tunisia);
- upgrading of technical equipment for road/rail transport, container traffic and transhipment (Egypt, Morocco, Tunisia);
- improvement of management of road transit and the management of airports, air traffic and railways (Egypt, Morocco, Tunisia).
- improvement of maritime and multimodal transit and the management of ports and sea traffic (Morocco);
- improvement of navigation aids (Algeria, Egypt).

The MEDA II regional cooperation strategy for 2002-2006 included a great support for the transport sector, mainly by infrastructure networks with 5.3% of the general budget assigned for transport (280 M€). Also in the framework of the MEDA II Programme the EC decided, in November 2001, to undertake the first **Euro-Mediterranean Regional Transport Project** ('EuroMed Transport Project') with a financial allocation of 20 M€.

During the first Euro-Mediterranean Transport Ministerial Conference (Marrakech, 2005), EuroMed Transport Forum was asked to elaborate a **Regional Transport Action Plan** (RTAP) specifying the short- and medium term priorities for advancing the recommendations of the 2005 "Blue Paper Towards an Integrated Euro-Mediterranean Transport System" and the 2005 report of the High Level Group on the "Extension of the Major Trans-European Transport Axes to the neighbouring countries and the regions". This extension is currently being further developed as the Trans-Mediterranean Transport (TMT) Network (EC, 2010b).

[16] No data for Libya since this country has not assigned the agreement yet.

According to the Euro-Med Regional Strategy Paper 2007-2013, the main objective for the transport sector will be to ensure operational follow-up to the Marrakech Ministerial Conclusions. In this context, the following concrete actions could be envisaged to implement the objectives for transport:

a) Support for the development of the following trans-national multimodal routes:
   - The trans-Maghreb route (from Rabat up to Alexandria)
   - The trans-Mashreq route (Mersin-Damascus-Aqaba-Suez-Cairo)
b) Development of the network of Motorways of the Sea ports and implementation of the regional plan for Motorways of the Sea to be established under the MEDA Motorways of the Sea project.
c) Technical assistance for the further reinforcement of maritime safety and security in the Mediterranean.
d) Technical assistance for the further reinforcement of aviation safety and security in the Mediterranean.
e) Promotion of and support for sub-regional initiatives and forums relating to the transport sector.

The transport sector has been considered a key sector in CSP and NIP of Algeria, Egypt, Morocco and Tunisia. Significant progress has been made under the ENP in this sector in recent years. At regional level the ENP remains very committed to implementing the 34 actions under the Regional Transport Action Plan for the Mediterranean during 2007-2013 and the establishment of the future Trans-Mediterranean Transport Network. The Action Plan activities address the different transport domains and target mainly regulatory (institutional) reform and infrastructure network planning and implementation. EC-funded technical support includes: Euro-Mediterranean Regional Transport II, Safemed, Motorways of the Sea-MEDAMOS, GNSS and the Euro-Mediterranean Aviation Project along with technical assistance and twinning programmes at bilateral level.

At national level, according to the ENP country progress reports, *Egypt's* reform agenda is supported by the EU under a 80 M€ transport sector policy support programme, signed in March 2009. These reforms aim to establish an institutional and regulatory framework best suited for an efficient, competitive, safe and sustainable multimodal land ("rail & road") and inland waterway freight transport system. The reforms also encourage effective investment planning and appropriate budget allocation for the necessary transport infrastructure and through facilitating public private partnerships. Three ongoing twinning projects on road safety, railway safety and maritime safety are complementing this reform. In 2009 the Egyptian Government continued to promote inland waterways as an alternative mode of transport. Dredging and setting of navigation aids for some routes were completed during the reporting period.

In *Tunisia***,** the national transport strategy focuses on the sector's contribution to the external competitiveness of the economy. The deregulation and privatisation of road transport has been completed and a national upgrading programme is currently under way. The Tunisian national rail company has undergone a reform of its institutional framework and is in the process of extensive financial restructuring. The Government may take the opportunity to open up the operation of some rail services to private investment. An aeronautic agreement between the EC and the Tunisian authorities is in preparation since 2009. For the maritime sector, there is a global plan since 2009 for modernizing all the ports in order to increase the goods transport within this sector.

In *Morocco* the EC will continue to provide aid for transport infrastructure, in particular roads, with the aim of developing the trans-Maghreb corridor and interconnections with Moroccan ports and for implementing their comprehensive fleet renewal schemes. A comprehensive reform of the rail sector is ongoing, mainly to introduce high speed passenger trains (the first 200 km of high speed infrastructure are under assessment process since 2009).

In *Algeria*, two areas appear to be the priorities in the infrastructure sector: the port infrastructure network (and the whole supply chain infrastructure linked to it) and the land sector (development of the east-west motorway and of industrial and commercial areas along the route).

Main impacts of the transport sector

The rapid rate of creation of infrastructures linked to transport in the North African countries brings with it many pressures on the environment (high natural value areas, biodiversity, natural resources, etc.). Land use and transport are two sides of the same coin since transport affects land use and land use affects transport. Decisions that affect one also affect the other. As a result, it is important to coordinate transport and land use planning decisions so they are complementary rather than contradictory.

For the marine and coastal environment there is heavy tanker traffic in the Mediterranean, connecting major consumption centres in Europe with the oil production centres of the Middle East. The most important oil traffic lane is the Suez Canal, through which 90% of total oil tanker traffic passes. The Mediterranean Sea can be classified as a high risk pollution area, due in particular to the large number of offshore oil and gas installations, tanker loading terminals, and the high volume and density of the marine transportation of oil. It is estimated that roughly 2 million barrels of oil are spilled annually from routine discharges of ballast, tanker slops, and from 800 oil and gas platforms (Tolba & Saab, 2008)

Taking into account the air quality, the transport sector is responsible for approximately 90% of total emissions of carbon oxides in Arab countries. In spite of many welcome initiatives to ban it, lead remains an additive in petrol in some Arab countries, and still accounts for more than half of total lead atmospheric emissions (Tolba & Saab, 2008).

4.2 Energy

The energy sector can be considered as a linchpin of the EMP. As regards oil and gas, three countries held the main reserves in the Mediterranean: Libya, Algeria and Egypt. These countries have a well developed infrastructure for the production of oil and gas and the exportation of hydrocarbons, mainly to Europe. MPCs are also important for the renewable energy development.

The priority areas of cooperation for this sector set in the AAs considered in this study are[17]:

- promotion and development of renewable energies (Algeria, Egypt, Morocco, Tunisia);
- promotion of energy-saving and energy efficiency (Algeria, Egypt, Morocco, Tunisia);
- support for the modernisation and development of energy (Egypt);
- support for the modernisation and development of energy networks and for their linking to European Community networks (Algeria, Egypt, Morocco, Tunisia);
- development of partnerships between European and companies in the partner country in the activities of exploration, production, processing, distribution and services in the energy and mining sectors (Algeria);
- building partnerships in the areas of: oil and gas exploration, production and processing, electricity production, distribution of petroleum products (Algeria);

The MEDA regional cooperation strategy for 2002-2006 included support for energy sectors. 55 M€ were allocated to projects in the region under the EC MEDA programme to support the gradual integration of the Euro-Med energy markets. Loans for nearly 2 billion € by the

[17] No data for Libya is included since this country has not assigned the agreement yet.

European Investment Bank were provided to support energy infrastructure priority projects, notably to complete the electricity and gas links in the region.

The priorities of energy cooperation under the ENP include: the continued integration of energy markets, promotion of energy projects of common interest and sustainable energy development (ENPI Regional Strategy Paper 2007-2013). The main objectives are to:

- Increase the security and safety of Euro-Mediterranean energy supplies and infrastructure and of oil shipping;
- Develop South-South and North-South energy interconnections, including the interconnection with Sub-Saharan energy markets;
- Promote the potential of renewable energy sources and support the Kyoto process;
- Promote more efficient energy demand management.

As regards **renewable energies**, the Mediterranean holds a significant potential, particularly solar and wind, which is as yet under-exploited, even though their production has been on the rise over the past few years (UNEP, 2009). Since 2000, there has been considerable progress in terms of installation of renewable energies (not including hydroelectric power) with an exceptional average annual growth of over 36%, reaching 26 GW in 2007. This trend is due to a spectacular increase in wind-based electrical capacity, reaching 21 GW in 2007, as against 3 GW in 2000.

Currently there is a *Mediterranean Solar Plan,* which aims at developing 20 GW of new renewable energy production capacities. To this end, the MSP will promote the development of Concentrating Solar Power (CSP) and Photovoltaic (PV) plants, and of other available and mature renewable energy technologies. This Plan also aims at achieving significant energy savings around the Mediterranean by 2020, addressing both supply and demand. The MSP supports developing sectoral programmes, notably in the building and transport sectors, and regional projects and programmes in the field of energy efficiency (such as domestic heating systems, home appliances, efficient lighting,etc).

For **gas and oil pipelines**, the *EUROMED Energy Action Plan 2008-2013* includes financing of energy infrastructure and taking actions to realize interconnections and infrastructure projects of common interest, including for instance Maghreb-Europe pipeline (GME), Trans Saharan Gas Pipeline "TSGP" (Nigeria-Algeria-Spain-Italy) and also electricity interconnection: Algeria – Spain, Algeria – Italy, Tunisia – Italy, Morocco – Spain, etc.

Significant progress has been made under the ENP in the energy sector in recent years. The EU and its ENP partners have strengthened energy cooperation and ENP partners progressed in their sector reform. The MPCs and the EU pursued implementation of the priority action plan 2008-2013, decided by Euro-Mediterranean energy ministers. They continued working towards the longer-term objective of **establishing Euro-Mediterranean gas and electricity rings**. Partners further worked on the **Mediterranean Solar Plan**. Other areas of cooperation cover energy efficiency, renewable energy and statistical matters. The EU and the MPCs continued their cooperation through the Cairo-based Regional Centre for **Renewable Energy** and **Energy Efficiency** for Middle East and North Africa countries, which is supported by the EC, Denmark and Germany.

MPCs continued to implement their energy strategies or progressed in preparing a new energy policy (*Egypt).* Partners took further steps to increase the use of domestic resources such as hydrocarbons *(Tunisia)*, renewable energy sources, uranium *(Egypt)* and oil shale (*Egypt* and *Morocco)*.

MPCs continued with the **construction, upgrading and development of infrastructure including domestic and international energy networks**. Work on an *Egypt-Libya* gas pipe continued. Preparatory work for an *Egypt-oPt (Gaza)* gas interconnection was pursued. The construction of additional pipeline capacity between Italy and *Tunisia* progressed. *Algeria* pursued the construction of a new gas interconnection with Spain (Medgaz) and the preparation of a link with Italy (GALSI). *Algeria,* Nigeria and Niger signed an agreement on

the development of the Trans-Saharan gas pipeline project, connecting Nigerian sources to the Mediterranean region and the EU.

In the electricity field, in the Mediterranean area, the *Algeria-Morocco* link was reinforced. *Egypt* and *Jordan* developed plans to upgrade the undersea cable between the countries. Preparations progressed for additional electricity interconnections between *the occupied Palestinian territory* (Gaza and West Bank) and *Egypt* and *Jordan* respectively. *Morocco* and Spain worked towards constructing a third link between their countries. *Tunisia* pursued efforts to increase interconnection capacity with *Algeria* and to construct an electricity interconnection with Italy.

MPCs made some progress in improving energy efficiency and strengthened plans to **increase considerably the use of renewable energy sources such as solar and wind** (*Egypt, Morocco* and *Tunisia).* In October 2009, southern ENP partners participated in the EU-Mediterranean-Gulf renewable energy conference, which promoted the use of renewable energy. The Cairo-based Regional Centre for Renewable Energy and Energy Efficiency for Middle East and North Africa had, in 2009, its first full year of operation.

Libya's CSP for 2007-2013 and its NIP include the adoption of a national strategy for the development of renewable energies, energy efficiency and energy savings, together with a clear regulatory framework that promotes their development. This is due to the high potential for the development of renewable energy sources within the country, in particular solar but also wind energy. It is estimated that this potential amounts to 157 000 TWh per year.

The reporting period was marked by international discussions and negotiations on post-2012 **climate change** action as well as increased awareness-raising on climate issues. Partner countries made some progress in implementing international climate change commitments. Many partners either took steps to prepare a national adaptation strategy *(Egypt)* or drafted or adopted strategy documents and studies on adaptation, such as *Morocco.*

Main impacts of the energy sector

Potential impacts of the actions promoted under the ENP are mainly related to the construction of infrastructures for the production and transportation of energy (e.g. plants and pipelines). The impacts will be localised and may affect both terrestrial and marine ecosystems. The significance and magnitude of the impacts depend on the sensitivity and natural value of the areas where works (including exploration and the construction stages) are carried out.

Within the marine and coastal environment, the gas, oil and electricity connections between Europe and the MPCs are relatively safe and benign since there are usually buried, but their access or maintenance roads often impose major impacts. As submarine pipelines do not need access roads, they are that much less damaging. Buried submarine pipelines are safer than submarine pipelines laid on the sea bed. However, trenching for buried submarine pipelines can have significant impacts on the benthos.

The potential impacts should be prevented and mitigated in a first stage through appropriate strategic planning of the plans and programmes in the energy sector. The strategic environmental assessment should allow identifying potential impacts on biodiversity, natural areas and natural resources, and preventing the most significant impacts. Environmental assessments of the projects to be carried out should allow designing and implementing adequate corrective and mitigation measures. It is however essential to have enough information about natural resources and biodiversity, including important natural areas, from the areas that will be affected by the plan and projects.

4.3 Industrial cooperation

Even though the industry is not directly one of the main objectives of the neighbourhood policy, indirectly this sector is benefited by the goal of creating an area of shared prosperity through sustainable and balanced socioeconomic development and the progressive establishment of free trade between the EU and its partners and among the partners. In this context, the main objectives set for this sector in the AAs considered in this study are[18]:

- modernisation and restructuring of industry (including the agri-food industry) (Egypt, Algeria, Morocco, Tunisia);
- growth and the diversification of industrial production (Egypt, Algeria, Morocco, Tunisia);
- technology transfer, innovation and R&D (Egypt).

The MEDA regional cooperation strategy for 2002-2006 included support for industrial cooperation, for small and medium-sized enterprises (SMEs) and job creation. These actions were enclosed within the economy sector of the MEDA, which had been allocated with 40% of the funds (2120 M€)[19]. In some countries like Morocco, one of the priority actions during the 2002-2006 period was the industrial restructuring and enhancement for improving competitiveness, which meant the implementation of several investment programmes to support enterprise development, vocational training in the tourism, textile, and information and communication technology sectors.

Currently there are no priorities of industry cooperation under the ENP even though it will benefit from the sustainable economic development priority (Regional Strategy Paper 2007-2013). Nevertheless, some NIP and CSP for the same period consider industry as a key sector. In *Algeria*, where the hydrocarbon and cement industries are very significant, new investments have been made particularly in telecommunications, agri-food, pharmaceutical, and information technology sectors, which reflect an increase in investor confidence. In fact one of the objectives of the strategy for this country aims at facilitating the access to industrial land for the private sector development just as training programmes, mainly for agri-food, petro-chemical and textiles/clothing industries (budget 25 M€). In *Tunisia* the EU's strategic priority objectives include technical assistance to the Ministry of Industry in the form of the industrial modernisation programme. The pilot sectors that Tunisian authorities are considering for this programme are the electrical, mechanical and electronic ones. The chemical and construction industries may also be included. In *Morocco* the CSP stresses the need of an economic modernisation and supports the modernisation of industry.

Regarding the progress made under the ENP in the industry sector, the Industrial Modernisation Programme (IMP) in *Tunisia* and *Egypt* offered appropriate responses, although it was felt to have had little impact on issues such as promoting increased foreign direct investment and capital flows from the EU. Also in *Egypt*, there has been a dismantling of industrial tariffs in line with the AAs. However, for a limited number of industrial and agricultural products the Ministry of Trade and Industry adopted trade-distortive measures aiming either at protecting some sectors from international competition or at supplying the domestic market with low priced products. *Tunisia* was the first partner in the region to have entered into a free trade area for industrial products, in January 2008.

Main impacts of the industrial sector

Regarding industrial pollution, high levels of suspended particulates have become a common parameter for many regions. Emissions of sulfur dioxide have been rising steadily as industrialization occurs. Nitrogen oxides have been increasing steadily in many localities.

[18] No data for Libya is included since this country has not assigned the agreement yet.
[19] Evaluation of the Council Regulation N° 2698/2000 (MEDA II) and its implementation. 2009

Projections indicate that potentially large increases in emissions may occur during the next twenty to fifty years if current development patterns persist (El Raey, 2006).

For industrial products significant beneficial impacts are expected in the short term in most of the MPCs, for those aspects of air quality, water quality and land degradation that are associated with industrial pollution. The greatest effects are expected in *Egypt*, and to a lesser extent *Morocco* and *Tunisia*. If domestic production falls rapidly the impacts could be large, and smaller but still significant if the economic impacts are effectively mitigated. Long term beneficial impacts are also expected, as expanding industries adopt more environmentally efficient production techniques. The benefits will be partially dependent on factors such as the willingness of producers to modernize, their access to management and technical expertise on more efficient, cleaner production systems, and regulators' responses to the opportunities presented (SIA-EMFTA Consortium, 2007).

Regarding the marine and coastal environment, the fragile environment of the semi-enclosed Mediterranean Sea is threatened by large-scale industrial activity on its coasts: more than 200 petrochemical, chemical and chlorine plants are located along it. Eutrophication is a chronic problem in certain areas of the Mediterranean where residues from non-treated industrial and urban wastewater discharges enter the marine environment (Tolba & Saab, 2008).

4.4 Agriculture and Fisheries

Agriculture

A distinctive feature of the Mediterranean Region is the important role of agriculture in the countries that make it up. Indeed, agriculture is fundamental to the maintenance of economic, social and territorial equilibrium in the Mediterranean Region. For instance, the agricultural sector generates a large proportion of GDP and employment in Morocco and Tunisia (14% and 12%, and 45% and 29%, respectively) (Rudloff & Simons, 2004). It is also a strategic sector because important political and trade issues and the resolve to build a more cohesive Mediterranean Region depend upon the ways in which it develop and is dealt with (CIHEAM, 2006).

In this context, the main objectives set for these sectors in the AAs considered in this study are:

- modernisation and restructuring of agriculture and fisheries, including: the modernisation of infrastructures and of equipment (Egypt, Morocco);
- diversification of production and of external outlets, inter alia through the encouragement of joint ventures in the agri-business sector (Egypt, Morocco);
- promotion of cooperation in veterinary and phytosanitary matters and in growing techniques, with the objective of facilitating trade between the Parties. In this regard, the Parties shall exchange information (Egypt, Morocco)

From 2000 to 2006, the total resources committed for the agricultural sector under the MEDA programme were of 41 M€ which constitutes a small share of the allocated funds (0,8%) (EC, 2009). Among the priorities for regional cooperation on sustainable economic development under the ENP, liberalisation of trade in agriculture is a priority area to be developed to support the completion of the Euro-Med Free Trade Area by 2010. For this, the ENPI Regional Strategy Paper 2007-2013 states that political and technical assistance support will be provided to achieve free trade agreements between the Mediterranean partners.

Up to date, agreements on the liberalization of agricultural products have already been closed with Egypt (also with Jordan and Israel) and negotiations are ongoing with Morocco and Tunisia (De Ville & Reynaert, 2010).

In recent years, several North African countries have launched different initiatives (reforms, programmes or projects) to develop and boost the agricultural sector. In 2008, *Morocco* launched the Plan Maroc Vert (Green Morocco Plan) aimed to boost the agricultural sector through the development of a high-added-value agriculture and high productivity, solidarity and support of smallholder agriculture through an approach directed towards the fight against poverty. In order to support Morocco on this reform, the EC will allocate 40 M€ to an agriculture support programme which will be launched in 2010.

During 2009, Egypt has finalized *A new Strategy for the Sustainable Agricultural Development (SADS) towards 2030*, supported by the FAO, the International Fund for Agricultural Development (IFAD) and the World Bank. The aim is to modernise Egyptian agriculture based on achieving food security and improving the livelihood of rural inhabitants through the efficient use of development resources, the utilisation of geopolitical and environmental advantages, and the comparative advantages of the different agro-ecological regions.

In *Algeria*, current EC financial cooperation supports the development and modernization of the agricultural and agro-industrial sectors, to better meet internal needs but also to increase the export potential. *Libya* is also trying to develop its non-oil exports, including traditional Mediterranean agricultural products (olive oil and dates) and fisheries products.

The *Tunisian* XI Development Plan for the 2007-2011 period also contains a strategy for agricultural development. Besides, Tunisia counts a climate change adaptation strategy for the agricultural sector, among others, as well as a National Plan for Irrigation Efficiency and a National Plan to Combat Desertification focusing on integrated agricultural development projects.

Main impacts of the agricultural sector

According to the SIA-EMFTA (2007), for agricultural liberalisation, the short terms effects on biodiversity will be significantly adverse in MPCs, unless mitigated. Effects will be most significant in areas where water scarcity or land conversion are already causing pressure on biodiversity. In this context, effects on water pollution are expected in the short term. In the longer term, competitive pressures are expected to lead to greater intensity of production, with greater agro-chemical pollution.

Eutrophication has already become a chronic problem in shallow waters near deltas of North African countries such as the Nile, in Egypt, and major urban areas because of the diffuse agricultural discharges, among others. Agricultural projections in the Mediterranean indicate that the use of fertilizers could increase between 2000 and 2025 by as much as 70% in the east and 50% in the south (Tolba & Saab, 2008).

Other recent study states that, in the future, expansion of agricultural land in North Africa will be limited because of the poor quality of the remaining soil and of pressure on land due to urban expansion. To these constraints should be added the process of desertification of steppe zones under the effect of human degradation and climate change. The expansion of arable land also leads to deforestation and overgrazing, which cause water and wind erosion. Each day, on average, the equivalent of 250 ha of arable land is destroyed by erosion in Morocco, Algeria and Tunisia (Tabet-Aoul 2010). Water erosion menaces some 60% of farmlands in Tunisia (Tolba & Saab, 2008).

In relation to water availability, Southern and Eastern Mediterranean countries can expect to face future structural water deficits (UNEP/MAP, 2009). Moreover, in North African countries water scarcity is linked to other environmental problems including deforestation,

desertification, difficulties in preserving and protecting coastal area, and the relative scarcity of arable land (Tolba & Saab, 2008).

Fisheries

In the Mediterranean, fishing activities are highly diversified and based on historic traditions, with non-industrial fishing featuring strongly and essentially carried out from small boats (less than 15m long) (UNEP/MAP 2009). However, Mediterranean fishing no longer satisfies demand in the riparian states (1/3 of demand) (UNEP/MAP, 2009).

In the framework of the EMFTA, the AAs between the EC and *Morocco* provides the latter with complete duty-free access to the EC market for all fish and fishery products[20]. As regards *Algeria* and *Tunisia*, AAs between the EC and these countries include a list of fisheries products originating in them which shall be imported into the Community free of customs duties. For *Egypt*, an agreement on further liberalisation of bilateral trade in fish and fishery products was signed in October 2009. This agreement provides for the dismantling of tariffs applied to the trade of agricultural, processed agricultural and fish and fishery products, leaving only a very limited number of sensitive products subject to certain protections on both sides. Also during 2009, the Egyptian General Authority for Fish Resources Development was working on amendments to the existing fishing law in order to make it compatible with the recommendations and resolutions of the main international fishing organisations, such as the General Fisheries Commission for the Mediterranean.

Indeed, North African countries have recently made some progress in the fisheries sector under the EMFTA. For example, in October 2007, a Master Plan for the Development of the Fisheries and Aquaculture Activities by 2025 was adopted by the Government Council of *Algeria*. To support this initiative, the EC has scheduled to allocate some 30 M€ during the 2011-2013 period under the DIVECO II programme. In 2009, *Morocco* has launched a reform of the fisheries sector. The *Halieutis* plan aims to increase the sustainability of fish resource through: the elimination of prohibited fishing methods; upgrading of the fleet and port infrastructures, and creation of three national clusters on competitiveness for the fisheries sector. The Fisheries Partnership Agreement EU-Morocco will provide a contribution of 54 M€ for structural support that will be used to accompany some of these priorities.

Concerning *Libya*, it has submitted an application to the Commission for the export of fisheries products. An inspection of the Libyan official control system was scheduled for the second half of 2009 in order to allow imports of fisheries products to the EU.

Main impacts of the fisheries sector

The major impacts of fishing on the Mediterranean ecosystems vary from local effects on the sea bottom caused by trawler gears to large-scale impacts on cetacean populations driven by driftnet bycatch. This variety is due to the following interrelated factors:

- the huge diversity of fishing gears and practices
- the very high intensity of fishing
- a high diversity of habitats distributed from the shallow-waters to the deep-sea and the oceanic domain
- an important biological diversity.

Overfishing is a major problem in the Mediterranean region and is causing lack of stocks. Longline fishing is also the main cause of seabird and Loggerhead turtle populations mortality in Mediterranean fisheries (Tudela, 2004).

[20] http://trade.ec.europa.eu/doclib/docs/2006/may/tradoc_120350.pdf

As for marine mammals, driftnet fisheries and, to a much lesser extent, small-scale fisheries using fixed nets and purse seine fisheries appear to account for the highest impact. The reduced population of monk seal in the Mediterranean is also victim of both direct mortality by artisanal fishing gears and an increasing scarcity of food resources driven by overfishing (Tudela, 2004).

The impact of fishing on the seabed concerns mostly the use of bottom-trawling gears, namely otter trawls, beam trawls and dredges, together with some aggressive practices affecting rocky bottoms such as dynamite fishing and fishing for coral and date mussels. Trawling impacts on seagrass beds by both suspending sediments and directly damaging the vegetal mass, have the most dramatic consequences on *Posidonia* beds. As for particular fishing gears, bottom trawling, longlining and driftnets arise as those with most impact on marine ecosystems in the whole Mediterranean region (Tudela, 2004).

4.5 Tourism

Tourism is a vital economic activity for all Mediterranean riparian countries. Drawing upon their geographical location at the crossroads of three continents, these countries attract 30% of global international tourism arrivals (UNEP/MAP, 2009). Between 2000 and 2006, the annual number of nights spent by tourists increased faster in the MPCs (8,4%) than in the EU-27 (1%) (Eurostat, 2008).

In the framework of the EMFTA, tourism is also a key economical sector and as such it has been included in the AAs between the EC and Algeria, Egypt, Morocco and Tunisia. Indeed, in these AAs tourism is considered an important area of activity for economical cooperation between the EC and the MPCs. As regards to the environmental issue of tourism, only the AA between the EC and Egypt clearly says that the cooperation in tourism matters shall be may in a way that the “interaction between tourism and the environment is suitably maintained” (Article 54). In this context, the main objectives set for this sector in the AAs considered in this study are:

- promoting investments in tourism (Egypt);
- highlighting the importance of the cultural heritage for tourism (Egypt);
- ensuring that the interaction between tourism and the environment is suitably maintained (Egypt); promoting exchanges of experiences with a view to the smooth and sustainable development of tourism (Algeria);
- making tourism more competitive through support for increased professionalism (Egypt);
- helping to develop the country’s potential in the area of tourism, spas and crafts and to improve the image of its tourism products (Algeria).

The evaluation of the MEDA II programme (EC, 2009) points out that, for trade in services between the EU and the MPCs, tourism (along with business services) is increasing gradually and faster than trade in goods, with the MPCs having a growing positive balance on it. Moreover, tourism constitutes nowadays the major source of external revenues in MPCs.

Significant progress has been made under the ENP in the tourism sector in recent years. It can be outlined here that *Tunisia* is preparing a climate change adaptation strategy for the tourism sector. In *Egypt*, twinning operations were carried out in the area of tourism, among others, covered by the 2007 and 2008 Annual Action Programmes. For *Libya*, the 2011-2013 NIP recognises tourism as an important area of activity that should be enhanced for diversification of its economy.

Main impacts of tourism sector

Negative impacts of tourism concern environmental degradation through extensive development, added pressure to the coastal areas, and stress on the marine environment.

Tourism activities generate two series of environmental impacts: those related to transit and those related to out-of-home stays. These impacts are strongly aggravated by their seasonal concentration (summer and school holidays) and spatial concentration (coastline, mountain, certain cities, a few major sites) and quite often tend, paradoxically enough, to make tourism less attractive (UNEP/MAP, 2009).

One of the most important concerns related to tourism development in North African countries is water availability. According to a recent study, although the total **water** consumption of tourists remains low (2% of the water demand in Tunisia, for example), it represents a marked competitive character in dry period due to tourism needs (balneotherapy, golf course watering, swimming-pools) and the habits of tourists from non-arid countries (higher daily consumption) (UNEP/MAP, 2009).

Coastal areas in North African countries suffer from uncontrolled tourism which contributes to the environmental degradation of marine environment. As an indirect effect, new urbanizations in coastal areas often lead to the destruction of sensitive ecosystems and can also alter the hydrology of coasts and their natural features such as mangrove swamps, reefs and beaches that serve as barriers to erosion and form important habitats for species (Tolba & Saab, 2008)

Another environmental issue regards air quality and here it can be stressed that tourism-related transport is a major source of environmental impacts. Over the last 20 years the air transportation has significantly increasing in the Mediterranean region. However, the arrival of international tourists still takes place, for the major part, by road (52% in 2006). Nevertheless, international tourism in the Mediterranean presents a marked subregional character resting on proximity: in 2006, Libyans and Algerians accounted for 37% of tourists in Tunisia. This proximity tourism gives precedence to the use of land transport modes which participates in the increase of air pollution and green house gases emissions in the Mediterranean region (UNEP/MAP, 2009).

4.6 Environment

Protecting the environment is a shared responsibility for the EU and the MPCs, and joint efforts are needed to successfully address concerns. A key objective of the ENP is therefore to work with partners to achieve better strategic planning, prioritisation and stronger administrative capacity.

Within the existing ENP Action Plans most of the MPCs envisage to develop framework and secondary (implementing) legislation and basic procedures and ensure planning for key environmental sectors including nature protection. Moreover, some countries focus on action towards adoption of plans and programmes related to biodiversity and the exchange of experience on protection of biological diversity and rural landscape, with special attention to the relevant migratory species. During 2000-2006 the MEDA II programme allocated 113 M€ to support environmental initiatives (i.e. 2.2% of the total budget) (EC, 2009).

The objective of environmental cooperation under the ENP is to improve the quality of the environment in the MPCs, with particular emphasis on the challenges identified in Commission Communication COM(2006)475 *Establishing an Environment Strategy for the Mediterranean*. Indeed, cooperation shall aim at preventing deterioration of the environment, controlling pollution and ensuring the rational use of natural resources, with a view to

ensuring sustainable development. The main areas identified for cooperation in the countries under analysis include:

- quality of Mediterranean water and the control and prevention of marine pollution (Egypt, Morocco, Algeria, Tunisia)
- soil and water quality (Morocco, Tunisia)
- water resource management (Algeria, Egypt;
- energy management (Egypt)
- waste management (Algeria, Egypt)
- desertification (Algeria, Egypt)
- salinisation (Algeria, Egypt;
- environmental management of sensitive coastal areas (Egypt)
- integrated management of sensitive areas (Algeria)
- control and prevention of urban and industrial pollution (Algeria)
- impact of industrial development, especially safety of installations and waste (Algeria, Egypt, Morocco, Tunisia)
- impact of agriculture on soil and water quality (Algeria, Egypt)
- appropriate use of energy and transport (Algeria)
- environmental education and awareness (Egypt)
- use of advanced environmental management and monitoring tools, particularly environmental information and statistical systems (Algeria)
- technical assistance, in particular for the preservation of bio-diversity (Algeria)

On the international level, MPCs have ratified relevant international and regional environment conventions.

On the regional level, ENP partners also participate in the Council of Arab Ministers for the Environment, the African Ministers Conference on the Environment, the Mediterranean Action Plan initiative and the *Horizon 2020 Initiative* aimed to tackle the top sources of Mediterranean pollution by the year 2020. In February 2006, a Network for Environmental Compliance and Enforcement in the Maghreb (NECEMA) was set up between Algeria, Libya, Mauritania, Morocco and Tunisia.

Also, the European Environment Agency (EEA), supported by the EU, is assisting MPCs to strengthen collection and management of environmental data.

A national level, significant progress has been made by the MPCs. We should mention here only a few examples for illustration. During 2009, *Morocco* and *Egypt* stated the elaboration of national strategies on sustainable development. Morocco presented its National Charter for Environment and Sustainable Development April 2010. MPCs continued to implement their National Environmental Action Plan (*Egypt, Algeria*) and strengthen their environmental legislation (*Egypt, Morocco, Tunisia*).

ENP partners regularly publish environmental information, such as reports on the state of the environment (*Algeria, Egypt, Tunisia*), and carried out some activities to inform and involve the public (*Egypt, Morocco, Tunisia*).

The United Nations Development Programme has established a strong partnership with *Libya*'s Environment General Authority and programmes have been launched in several environmental sectors.

Concerning the coastal zone, integrated coastal zone management is still a challenge for several partner countries. Only *Egypt* is preparing an integrated coastal zone management strategy.

Environmental Impact Assessment in Mediterranean Partner Countries

Some Southern Mediterranean neighbouring countries have well established Environmental Impact Assessment (EIA) systems, though EIA quality and quantity varies from country to country. Other countries lack EIA laws. Some main aspects of national EIA regulation and implementation in MPCs is summarized below.

***Algeria**: The regulation on EIA stipulates that the results of studies must be communicated to the public, but the low level of environmental awareness restricts the effectiveness of this provision.*
***Egypt**: Since the adoption of the 1994 Environment Protection Law, an EIA must to be conducted for all new projects and whenever existing projects are reviewed or changed. The EIA procedure is part of the permit system run by the competent authority. However, the administrative capacity of the authorities is insufficient to conduct EIA properly, in particular for the fast-growing tourism sector. Nor do EIA include regional or sectorial environmental assessments (there is no legislation on strategic environmental assessment). Consultation and public participation in the process of preparation and review of EIA are not mandatory, although the improved EIA procedures introduced in November 2005 make greater provision for public consultation. However, this still does not apply to all EIA.*
***Libya**: The capacity to manage integrated systems and technologies for environmental management is still rather low. Urgent priorities are the preparation of regulations to implement the law on environmental protection, the definition of environmental standards and the setting up of EIA.*
***Morocco**: An act on EIA was adopted in 2003. Implementing legislation is being drafted. The number of projects submitted for EIA is on the increase; however assessments are carried out on a voluntary basis in the absence of a clear legislative framework.*
***Tunisia**: Legislation on EIA was introduced as part of 1988 law on environmental protection. Implementing decrees have been adopted. The system is well established but a number of areas requiring attention have been identified, including public participation, access to EIA reports, environmental management plans and trans-boundary impacts. With regard to public participation, legislation provides for a public inquiry procedure, which runs in parallel to the EIA. However, it is not comparable to provisions on public participation in international guidelines and EU legislation.*

Source: ENP Country Strategy Papers 2007-2013 for Algeria, Egypt, Libya, Morocco and Tunisia.

Main impacts of the environmental sector

Potential impacts of the environmental actions promoted under the ENP shall be beneficial for the conservation of natural resources of North African countries. Indeed, adoption and implementation of environmental legislation such as EIA should prevent negative environmental impacts of projects, as well as allowing the identification and design of adequate mitigation measures. In the same way, strengthening nature protection laws shall help stopping biodiversity loss and enhancing nature conservation. Other environment-related regulation on water quality, waste management, air quality, protection of coastal areas, etc., should contribute to improve the environmental quality.

In this context, improved environment protection through continued convergence with key elements of EU legislation, improved environmental governance, higher resource efficiency and appropriate use of ecosystem services will help achieving a long-term sustainable development.

5. SWOT Analysis

The following section presents a SWOT analysis of the scenario posed by the Euro-Mediterranean Partnership (EMP) and its proposed Free Trade Area on the environment of North African countries. This type of analytical tool is used to evaluate the ***S**trengths, **W**eaknesses, **O**pportunities* and ***T**hreats* (SWOT) involved in a project, programme, plan or policy. In this study the analysis has been conducted through an evaluation of the main sectors of economic cooperation that may have an impact on natural resources. Based on this sectoral evaluation, a general SWOT for the EMP has been prepared, which is presented below.

5.1. General SWOT analysis of the Euro-Mediterranean Partnership with particular focus on the potential impacts on natural resources

***S**trengths*	***W**eaknesses*
▪ Framework environmental legislation is in place ▪ Presence of remarkable natural values ▪ High marine biodiversity ▪ The region is an important area for migratory species, particularly birds ▪ Landscape fragmentation is still limited (poor density of the transport network) ▪ Conservation of well integrated agricultural systems (traditional Argan exploitation, nomadic farming, etc.) ▪ High potential for renewable energy exploitation ▪ Availability of significant energy resources may facilitate financing of policies related to conservation, habitats restoration and water depuration and sea water desalinisation. ▪ Some countries have prepared sustainability plans for certain sectors (e.g. agriculture)	▪ Environment authorities have insufficient capacity to develop and enforce environmental regulations ▪ Insufficient knowledge about biodiversity distribution, important natural areas, sensitive areas, etc. ▪ Insufficient protected areas and lack of efficient management of existing protected areas ▪ Lack of land use planning and sectoral planning ▪ Lack of marine spatial planning ▪ Some gaps in EIA legislation ▪ Lack of SEA for key sectors ▪ High concentration of population and economic activities in coastal areas ▪ Scarce water resources ▪ Insufficient waste water treatment and waste management ▪ High vulnerability to climate change ▪ Degradation of terrestrial ecosystems in areas where population concentrates
***O**pportunities*	***T**hreats*
▪ Regional Plans and National Action Plans for several key sectors (transport, energy, fisheries, etc.) are in place ▪ EU support for development of sectoral policies and sustainable development (incl. technical assistance) ▪ Industrial modernisation and diversification programmes are under development in some countries ▪ National strategies for climate change adaptation have been or are being prepared in some countries ▪ Efforts are made to enhance EC-ENP partner countries cooperation on maritime issues ▪ High potential for development of sustainable and eco-tourism, development of eco-labels in tourism ▪ ENP provides opportunites for strategic planning, prioritisation and stronger administrative capacity ▪ Many partners are showing a growing interest in EU experience, and are willing to converge with EU environment directives	▪ Agricultural intensification, improper management of agriculture and overgrazing can lead to loss of biodiversity and soil capacity, salinization (due to irrigation), erosion and eutrophication. ▪ Transport (road, rail, maritime) development increases pressures on terrestrial and marine ecosystems and poses threats on sensitive natural areas and biodiversity ▪ Construction, upgrading and development of energy infrastructure, including domestic and international pipelines and electricity interconnections can affect sensitive natural areas. ▪ Bird collision with wind turbines are important potential threats from wind farms in coastal areas and on bird's migratory routes. ▪ Water pollution and eutrophication is a chronic problem in some areas ▪ Marine ecosystems may be threatened by uncontrolled disposal of warm brine and chemicals used for water desalination

5.2 SWOT analysis of key sectors covered by the EMP

Transport

***S**trengths*	***W**eaknesses*
▪ Landscape fragmentation is low due to current poor density of the transport network.	▪ Lack of land use planning. ▪ Some gaps in EIA legislation. ▪ Lack of SEA for key sectors ▪ Lead remains an additive in petrol in some countries, and still accounts for more than half of total lead atmospheric emissions. ▪ Rail transport has generally decreased opposite to road transport.
***O**pportunities*	***T**hreats*
▪ Development of a sustainable transport network in accordance with environmental legislation. ▪ Regional Transport Action Plan for the Mediterranean. ▪ Transport sector policy supported by EC (*Egypt*). ▪ Technical assistance from EC for safety and security in transports.	▪ Future restructuration and modernisation of road, rail, port and airport infrastructures. ▪ Global plan for the maritime sector: modernization of all the ports for increasing the goods transport (*Tunisia, Algeria*). ▪ Motorways of the Sea project. ▪ Heavy tanker traffic in the Mediterranean due to oil production centres (2 million barrels of oil are spilled annually from discharges). ▪ Development of high speed train infrastructure (*Morocco*).

Energy

***S**trengths*	***W**eaknesses*
▪ Three countries held the main reserves of oil and gas in the Mediterranean (*Libya, Algeria, Egypt*). ▪ Well developed infrastructure for the exportation of hydrocarbons. ▪ High territorial availability for renewable energy development (solar and wind).	▪ Lack of land use planning. ▪ Lack of SEA for the sector ▪ Some gaps in EIA legislation.
***O**pportunities*	***T**hreats*
▪ High potential of renewable energy sources ▪ Mediterranean Solar Plan. ▪ EUROMED Action Plan 2008-2013. ▪ Creation of the Cairo-based Regional Centre for Renewable Energy and Energy Efficiency for North Africa countries. ▪ National strategy for climate change adaptation (*Egypt*, *Morocco*).	▪ Construction, upgrading and development of infrastructure including domestic and international pipelines and electricity interconnections. ▪ Bird collisions with wind turbines due to large-scale wind farms in coast and high migration areas.

Industrial production

***S**trengths*	***W**eaknesses*
▪ Expanding industries are adopting more environmentally efficient production techniques.	▪ Lack of land use planning. ▪ Lack of SEA for the sector. ▪ Some gaps in EIA legislation. ▪ Industrial pollution, particularly in the steel, cement, fertilizer and chemicals sector. ▪ No proper collection and treatment for industrial waste. ▪ Lack of environmental regulation for the sector

	(*Libya*). ▪ Non-treated industrial wastewater discharges (eutrophication is a chronic problem in some areas).
Opportunities	***Threats***
▪ Industrial modernisation and diversification programme (*Tunisia, Morocco, Algeria, Egypt*).	▪ Construction, upgrading and development of infrastructure including domestic and international pipelines and electricity interconnections. ▪ The Mediterranean Sea fragile environment is threatened by large-scale industrial activity on its coasts.

Agriculture and Fisheries

Agriculture

Strengths	***Weaknesses***
▪ Conservation of well integrated agricultural systems (traditional Argan exploitation, nomadic farming, etc.).	▪ Limited water resources. ▪ Lack of land-use planning. ▪ Lack of sound EIA and/or SEA systems.
Opportunities	***Threats***
▪ Morocco's new plan for the agricultural sector includes support to smallholder agriculture. ▪ Egypt has elaborated a strategy for sustainable agriculture development. ▪ Tunisia counts a national plan for irrigation efficiency.	▪ Salinization (due to irrigation). ▪ Pollution by diffuse agricultural discharges (eutrophication). ▪ Land conversion ▪ Agricultural intensification (irrigation, pesticides, fertilizers). ▪ Deforestation ▪ Overgrazing ▪ Erosion ▪ Expansion of the desert

Fisheries

Strengths	***Weaknesses***
▪ High marine biodiversity, including remarkable ecosystems such as sea grass beds (*Posidonia*) and coral formations. ▪ The Red Sea also hosts a rich biodiversity, including a high number of endemic species.	▪ Not enough designated marine protected areas and inefficient management of existent marine protected areas. ▪ Lack of marine spatial planning. ▪ Poor environmental regulation for the fisheries sector and Lack of enforcement of existing fishing regulations. r ▪ Lack of sound EIA and/or SEA systems. ▪ Destructive and often illegal fishing methods are employed. ▪ Lack of information about trans-boundary stocks. ▪ Inadequate cooperation in the management of shared stocks. ▪ Lack of integrated maritime surveillance. ▪ Poor professional qualification of seafarers. ▪ Many Mediterranean species are currently threatened. ▪ Some MPC have not signed the New Protocol concerning Specially Protected Areas and Biological Diversity (*Morocco, Algeria*).

Opportunities	***Threats***
▪ Some MPC have signed the New Protocol concerning Specially Protected Areas and Biological Diversity (*Egypt*). ▪ Egypt is working to adapt its fishing law to international resolutions of the main fishing organisations such as the General Fisheries Commission for the Mediterranean. ▪ Algeria and Morocco have elaborated plans for the development of fisheries and aquaculture and to increase the sustainability of fish resource, respectively. ▪ Currently efforts are made to enhance EC-ENP partner countries cooperation on maritime issues.	▪ Overfishing. ▪ Unsustainable exploitation of marine resources. ▪ Expansion of invasive species. ▪ Poor environmental regulation for the fisheries sector. ▪ *Posidonia* beds are threatening by intensive fishing methods.

Tourism

Strengths	***Weaknesses***
▪ The region's assets attract a large proportion of international tourism.	▪ Water scarcity. ▪ Lack of sound EIA and/or SEA systems. ▪ Lack of tourism planning programmes.
Opportunities	***Threats***
▪ Further development of sustainable and eco-tourism (i.e. desert tourism). ▪ Tunisia is preparing a climate change adaptation strategy for the tourism sector. ▪ Development of ecological labels in the tourist sector.	▪ Increasing pressure of the tourism sector on sensitive areas (coastline, coral reefs, etc.). ▪ Seasonal and spatial concentration of tourism-related environmental impacts. ▪ Water consumption by tourism activities, infrastructures, etc. ▪ Increasing waste production. ▪ Urbanization construction along the coastline.

Environment

Strengths	***Weaknesses***
▪ Overall, framework environmental legislation is in place. ▪ High levels of endemicity (biodiversity hotspot) ▪ The region is an important area for migratory species, particularly birds. ▪ Limited population living close to some well conserved natural sites.	▪ Lack of environmental regulation (for implementation of existing legislation). ▪ Lack of sound EIA and/or SEA systems. ▪ Insufficient capacity and resources (human and financial) to implement environmental legislation. ▪ Insufficient number of protected areas, particularly marine protected areas. ▪ Gaps in scientific data for the appropriate identification and designation of protected areas, and for appropriate assessment of impacts. ▪ ICZM is a challenge for several MPC. ▪ Lack of land-use planning. ▪ Limited water resources. ▪ Unequal distribution of water resources in space and time. ▪ Increasing water demand. ▪ Modest environmental public awareness. ▪ Soil prone to salinization. ▪ Population is concentrated along the coastline.
Opportunities	***Threats***
▪ MPC have ratified relevant international and regional environment conventions. ▪ Egypt is preparing an ICZM strategy. ▪ MPC are carrying out actions towards adoption	▪ High vulnerability to climate change (expected temperature increase and precipitation decrease). ▪ Pollution of water resources.

of plans and programmes related to biodiversity. ▪ EEA is assisting MPC in collection and management of environmental data. ▪ Some MPC have elaborated strategies on sustainable development (*Egypt, Morocco*). Some MPC are implementing their national environmental action plan (*Egypt, Morocco, Tunisia*).	▪ Pollution of marine environment. ▪ High rate of demographic growth. ▪ Desertification ▪ Deforestation ▪ Overgrazing ▪ Urban sprawl, particularly along the coastline. ▪ Expansion of invasive species.

6. Conclusions

6.1 Main potential impacts

The stimulation of socio-economic development in the MPCs, which is the aim of the Euro-Mediterranean Partnership, has potential impacts on the natural resources of North African countries. The development of the Free Trade Area, although not yet fully achieved, has resulted in more trade between the EU. Cooperation between the EU and its neighbouring countries in areas of mutual interest has also increased with the support of the European Neighbourhood and Partnership Instrument (ENPI), which has the potential of generating impacts on the natural resources while at the same time it offers opportunities to mitigate those impacts and to promote sustainable development.

Some general consequences of this process can be the growth of the population, further increase of activities and urbanisation in coastal areas, the intensification of agriculture and fisheries, increase of transport and energy infrastructure, including new installations for the production of energy from renewable sources. As a result, pressures on natural resources will increase and potential impacts on biodiversity can be expected.

The Mediterranean economy is highly dependent on natural resources (water, ecosystems and energy) and is based on activities that depend on these resources (agriculture, tourism, industry...). The continuous exploitation of those - including over consumption and inadequate management of water resources - will eventually have a detrimental effect on the economic growth, wealth and social wellbeing of the Mediterranean and its people.

Impacts on water quantity and quality can be expected from population growth, tourism and agriculture intensification. Agriculture is the main water consumer in these countries (55% of Algerian water resources, 86% in Egypt, 83% in Libya, 80% in Morocco and 85% in Tunisia). Potential over exploitation of aquifers in dry areas for agriculture and cattle grazing may lead to desiccation of wetlands important for wildlife. Aquifers in the dry areas may be very sensitive and their replenishment is very slow. The water demand in this sector could be reduced improving agriculture techniques and irrigation systems. Strategic planning of agriculture taking into account water resources and biodiversity is of particular importance in a region that suffers from water shortages. The increasing pressures on water resources lead to a dramatic loss of the freshwater ecosystems and of the goods and services they provide.

Impacts on coastal and marine areas are expected to increase from human activities in these areas. Coastal zones are submitted to stringent pressures from land-based pollution, urban development, fishing, aquaculture, tourism, extraction of materials, sea pollution, and marine biological invasions. Constructions currently cover 40% of the coastal surfaces in the Mediterranean countries. On the other hand, coastal and marine areas in the Mediterranean region harbour a rich biodiversity and are very sensitive to human activities. Spatial planning in this area has a particular importance to prevent further degradation of ecosystems.

There is a need to increase the number of marine protected areas and the quality of protection in under-represented Mediterranean Sea areas. Although more than twenty sites have been identified by countries of the Southern and eastern Mediterranean as unique and important habitats in need of protection, little progress in protection has occurred in the last 15 years. Complimentary studies of marine biodiversity must also be initiated in these areas to ensure sound design of marine reserves.

The development of infrastructure for transport and energy can have local impacts on different areas of the territory. In particular, renewable energies from wind and solar sources can occupy significant surfaces and their location should be carefully evaluated to prevent adverse impacts on important natural areas or areas that have an important function for ecological connectivity, or as migration routes.

Integration of biodiversity considerations in land use planning and sectoral planning and appropriate environmental assessment of plans, programmes and projects is crucial to avoid and minimise potential impacts on biodiversity. This also requires a proper knowledge of the distribution, status and trends of biodiversity and natural assets in the countries, which is far from being adequate at the moment.

6.2 Key issues for future action and cooperation

Based on the main impacts identified and the results of the SWOT analysis presented above, a number of relevant issues are identified which could be tackled in the cooperation between the EU and Mediterranean Partner Countries, as well as at regional level and among the countries considered in this study. These key issues include the following:

- Strengthen administrative implementation capacity on environmental matters, in particular on biodioversity conservation and sustainable use, at all levels, including coordination between authorities.

- Improve information about important biodiversity areas, sensitive areas and ecological connectivity between natural areas. Strengthen cooperation among countries and promote sharing knowledge and technologies on the identification and conservation of important biodiversity areas.

- Protection of the marine and coastal environment. Strengthen efforts at the national level to improve the protection of the environment and promote cooperation among countries on this issue.

- Integrated Coastal Zone Management. Development of ICZM strategy in all countries and strengthen cooperation among countries on this particular issue.

- Integration of environmental considerations, including biodiversity, into relevant sectors, such as energy, transport, tourism, etc. Promote and/or improve strategic sectoral planning considering environmental and biodiversity issues, particularly for the most relevant sectors, as energy and transport.

- Strategic environmental assessment. Implement relevant legislation and strengthen the capacity of the administration to undertake SEA.

- Environmental impact assessment. Strengthening requirements and improving implementation and public participation.

6.3 Opportunities provided by the European Neighbouhood Policy

The association agreements signed between the EU and the MPC state that economic cooperation shall be implemented, *inter alia*, by:

- regular exchange of information and ideas in every sector of cooperation including meetings of officials and experts;
- transfer of advice, expertise and training;
- implementation of joint actions such as seminars and workshops;
- technical, administrative and regulatory assistance.

The ENP and its main instruments, in particular the European Neighbourhood and Partnership Instrument (ENPI) provide opportunities to address the main issues identified in the previous section. As stated in strategy papers, a key objective of the ENP is to work with partners to achieve better strategic planning, prioritisation and stronger administrative capacity.

The objective of environmental cooperation under the ENP is to improve the quality of the environment in the MPCs, with particular emphasis on the challenges identified in Commission Communication COM(2006)475 *Establishing an Environment Strategy for the Mediterranean*. Indeed, cooperation shall aim at preventing deterioration of the environment, controlling pollution and ensuring the rational use of natural resources, with a view to ensuring sustainable development.

Within the existing ENP Action Plans most of the MPCs envisage to develop framework and secondary (implementing) legislation and basic procedures and ensure planning for key environmental sectors including nature protection. Moreover, some countries focus on action towards adoption of plans and programmes related to biodiversity and the exchange of experience on protection of biological diversity and rural landscape, with special attention to the relevant migratory species.

The European Environment Agency (EEA), supported by the EU, is also assisting MPCs to strengthen collection and management of environmental data.

The EU can also share approaches that have been successful in different parts of Europe with all of the countries in the Mediterranean, adapted to their socio-economic contexts. The TAIEX[21] instrument is now open to ENP countries. Therefore, this facility will also allow the targeted transfer of EU environment experience and know-how according to the needs of the partner countries through activities such as workshops, study visits and expert visits to the countries. This instrument will be particularly useful in transferring and adapting EU Member State experience to the region to support the implementation of the commitments contained in the ENP Action Plans.

[21] Technical Assistance and Information Exchange Instrument (http://ec.europa.eu/enlargement/taiex/index_en.htm)

Acronyms and Abbreviations

AA	Association Agreement
AFED	Arab Forum for Environment and Development
CIHEAM	Centre International de Hautes Etudes Agronomiques Méditerranéennes
CSP	Country Strategy Paper
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMFTA	Euro-Mediterranean Free Trade Area
EMP	Euro-Mediterranean Partnership
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GW	Gigawatt
ICZM	Integrated Coastal Zone Management
IUCN	International Union for Conservation of Nature
M€	Million Euros
MEDA	EU assistance for Southern Mediterranean neighbours until 2006
MPCs	Mediterranean Partners Countries
MSP	Mediterranean Solar Plan
MW	Megawatts
NIP	National Indicative Programme
PV	Photovoltaic
R&D	Research and Development
RSP	Regional Strategy Paper
SEA	Strategic Environmental Assessment
SIA	Sustainability Impact Assessment
SMEs	Small and medium-sized enterprises
SWOT	Strengths, Weaknesses, Opportunities and Threats
TACIS	EU assistance for Eastern neighbours and Russia until end of 2006
TWh	Terawatt hour
UNEP	United Nations Environment Programme

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Annexes

Annex 1: Association Agreements signed between the EC and MPCs

Annex 2: Recent progress under the European Neighbourhood Policy

Annex 3: Examples of projects supported by the EC